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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
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PATENT OFFICE NOTICES

Board of Appeals Decisions Rendered in the Month of November 1972

Examiner affirmed	138
Examiner affirmed in part	13
Examiner reversed	29
Total	180

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,724,720. Berger and Ludwig, DICARBAMATES OF SUBSTITUTED PROPANE DIOLS, **filed** Jan 13, 1970, D.C.N.J. (Newark), Doc. C–44–70, *Carter-Wallace, Inc v. Rondex Laboratories, Inc.* Stipulation and order of dismissal of action, May 4, 1972.

2,737,503. Sprague and Scantlebury, Jr., METHOD OF MAKING AN EXPANDED OR CELLULAR POLYVINYL CHLORIDE COMPOSITION, **filed** May 24, 1972, D.C. Conn. (New Haven), Doc. 15056, *The B. F Goodrich Company v. No-Ark, Inc.*

2,750,660. J. F. Newcomb, MECHANISM FOR AND METHOD OF CLINCHING NUTS; **2,799,188.** same, MEANS FOR CLINCHING NUTS ON METAL PANELS, **filed** Dec. 24, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c3232, *Multifastener Corporation v. MacLean-Fogg Lock Nut Company* By stipulation ordered cause dismissed as to the first and second causes of action and the defendants' counterclaim, May 25, 1972.

2,764,766. Boyle and Taylor, INFLATABLE LIFE RAFT; **2,804,633.** Taylor and Fraebel, INFLATABLE LIFE RAFT COMPRISING IMPROVED CANOPY AND SUPPORT MEANS THEREFOR, **filed** Apr 13, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–806–R, *American Safety Flight Systems, Inc. v. The Garrett Corporation.*

2,765,131. Schacht and Panetta, ESCAPE SLIDE; **3,102,623.** J. F. Boyle, INFLATABLE ESCAPE CHUTE ASSEMBLY, **filed** June 16, 1972, D.C., S.D. Fla. (Miami), Doc. 72–948–C–JE, *The Garrett Corporation v. American Safety Flight Systems, Inc.*

2,771,824. Patch and Grundy, COMPOSITE FLOOR AND DECK COVERING CONSTRUCTION, **filed** May 23, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–1146–WPG, *Crossfield Products Corp. v. Mer-Kote Products, Inc. et al.*

2,772,496. Meyrick and Ellsworth, ILLUMINATED SIGN STRUCTURE, **filed** May 16, 1972, D.C., S.D.N.Y., Doc. 72–C–2065, *SCM Corporation v. Burroughs Corporation*

2,799,188. (See 2,750,660.)

2,800,744. A. C. Boultinghouse, TOY AIRCRAFT ENGINE STARTER; **2,855,070.** J. W. McRoskey, STARTING DEVICE FOR TOY ENGINES; **2,875,554.** A. C. Boultinghouse, TOY ENGINE STARTER; **3,250,265.** J. M. Barr, MODEL ENGINE STARTER, **filed** Feb. 7, 1972, D.C., N.D. Ill (Chicago), Doc. 72c324, *The Testor Corporation v. L. M. Cox Manufacturing Company, Inc.*

2,804,401. B. A. Cousino, MAGNETIC SOUND TAPE, **filed** May 25, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1316, *Faraday, Inc., etc. v. TDK Electronics Corporation.*

2,804,633. (See 2,764,766.)

2,855,070. (See 2,800,744.)

2,875,554. (See 2,800,744.)

2,895,950. V. K. Krieble, COMPOSITION CONTAINING HYDROPEROXIDE POLYMERIZATION CATALYST AND ACRYLATE ACID DIESTER; **3,046,262,** same, ACCELERATED ANAEROBIC CURING COMPOSITIONS, **filed** Apr. 7, 1972, D.C., S.D.N.Y., Doc. 72–C–1464, *Loctite Corporation v. B. Jadow and Sons, Inc.*

2,954,325. E. Von Baumann, COSMETIC CONTAINING MINK OIL, **filed** July 12, 1972, D.C., S.D.N.Y., Doc. 72–2958, *Minkolein Company v. Koscot Interplanetary Inc.*

2,956,073. Whetstone and Harman, INSECTICIDALLY ACTIVE ESTERS OF PHOSPHOROUS ACIDS AND PREPARATION OF THE SAME; **3,116,201,** same, ORGANO PHOSPHOROUS INSECTICIDE, **filed** July 31, 1968, D.C., S.D.N.Y., Doc 68–C–3115, *Shell Oil Company v. Norda Essential Oil & Chemical Co., Inc.* Final consent judgment, defendant and each of its officers enjoined, July 15, 1969.

2,964,083. Pfau, Swart and Weinstock, PNEUMATIC TIRES AND TREAD STOCK COMPOSITION; **filed** Apr. 4, 1961, D.C., N.D. Ohio (Cleveland), Doc. 36799, *The General Tire & Rubber Company v. Firestone Tire & Rubber Company.* Memorandum opinion and order, patent is valid, enforceable, infringed and not licensed; further holding is specifically directed to infringement of representative claims 1, 3–5, 7, 13, 14, 17–19 and 22 of representative Stock A, Blend 2 and Blend 5, June 26, 1972.

3,046,262. (See 2,895,950.)

3,052,319. R. K. Swanson, CANTILEVER SHOPPING CART AND COUNTER ASSEMBLY; **3,517,773,** same, CHECK-OUT SYSTEM AND COUNTER FOR USE WITH CANTILEVER SHOPPING CART, **filed** Oct. 27, 1970, D.C., W.D. Okla. (Oklahoma City), Doc. 70–530–C, *Russell K. Swanson and United Steel & Wire Co. v. Folding Carrier Corporation* Judgment entered, no infringement by defendant, complaint dismissed, May 22, 1972.

3,102,623. (See 2,765,131.)

3,116,201. (See 2,956,073.)

3,128,737. E. M. Usab, FLOATING WHARF STRUCTURE; **Re. 24,837,** same, FLOATING WHARF STRUCTURE MADE OF CONCRETE FLOAT UNITS, **filed** May 5, 1972, D.C., W.D. Wash. (Seattle), Doc. 291–72C2, *Waterpavers International, Inc. v. Martronics Corporation*

3,174,114. M. Arditi, ATOMIC CLOCK; **D. 193,989,** Clement and Inhelder, CABINET FOR ELECTRONIC APPARATUS, **filed** Mar. 15, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–596 AAH, *Hewlett Packard Company v. Tracor, Inc.*

3,218,668. Engkjer, Furlong and Zebarth, FEATHER PICKING METHOD; **3,277,515,** same, FEATHER PICKING APPARATUS, **filed** Apr 11, 1972, D.C., W.D.N.C. (Charlotte), Doc. C–C–72–67, *Gordon Johnson Company v. Stork Boxmeer N.V. and Stork Inter-America Corp*

3,250,265. (See 2,800,744.)

3,277,515. (See 3,218,668.)

3,279,796. R. G. Holman, HOLLOW BALL WITH REINFORCING WINDINGS, **filed** July 13, 1972, D.C., C.D. Calif (Los Angeles), Doc. 72–1594–LTL, *AMF Voit, Inc v. Dart Industries, Inc.*

3,321,081. A. H. Willinger, AQUARIUM FILTER APPARATUS, **filed** Aug. 19, 1969, D.C.N.J. (Newark), Doc 993–69, *Aquariums, Inc. v. National Aquarium Supplies and Accessories, Inc. and Robert Newsteder* Consent order of dismissal of action, May 24, 1972.

3,327,500. J. A. Currier, KNITTED PRODUCTS; **3,340,706,** same, METHODS AND MACHINES FOR STOCKING PRODUCTION, **filed** Apr 4, 1969, D.C., S.D.N.Y., Doc. 69–C–1388, *Faigenbaum Machinery, Inc. v. Scott & Williams Incorporated.* Opinion #38600, the motions to transfer are granted; the motion to sever is denied, June 26, 1972.

3,332,659. Urmetz and Carpenter, BOTTOM RING WIPER, STRIP ASSEMBLY AND METHOD OF MAKING IT; **3,477,493,** Charman and Middaugh, METHOD OF MAKING A REFRACTORY HOT TOP PANEL INSERT; **3,478,999,** same, REFRACTORY PANEL UNIT WITH HINGE MEANS AND FRANGIBLE PORTIONS, **filed** June 26, 1972, D.C., E.D. Wis. (Milwaukee), Doc. 72–C–376, *Oglebay Norton Company v. Universal Refractories Corporation*

3,340,706. (See 3,327,500.)

3,381,302. Reimus and Saporito, FREEZE CONCENTRATION OF COFFEE EXTRACT, **filed** June 18, 1968, D.C. Del. (Wilmington), Doc. 3566, *General Foods Corporation v. Struthers Scientific and International Corporation.* Order of dismissal on consent of the parties, Feb 23, 1972.

3,404,007. J. G. Muller, FREEZE DRIED COFFEE PROCESS AND PRODUCT, **filed** Feb 3, 1968, D.C. Del. (Wilmington), Doc. 3666, *Struthers Scientific & International Corp. v. General Foods Corporation* Order of dismissal on consent of the parties signed by Judge James L. Latchum, Feb 23, 1972

3,406,618. B. Bowman, METHOD OF MANUFACTURING BRICKS, TILES, COBBLESTONES AND THE LIKE DIRECTLY ON THE GROUND TO BE COVERED, **filed** June 6, 1972, D.C., N.D. Calif (San Francisco), Doc C 72 1038 AJZ, *Bomanite Corporation v. Fred Sahadi, Pittsburgh Des Moines, The Prune Yard*

3,411,501. S. Greenberg, THERMOPLASTIC MOUTHPIECE AND METHOD OF MAKING SAME, **filed** Apr 27, 1972, D.C., E.D. Pa. (Philadelphia), Doc CA-72 832, *Samuel Greenberg and Right-Gard Corporation v. Croydon Plastics Co., Inc et al.*

3,473,091. Morris and McDonald, GROUND LEAKAGE DIFFERENTIAL PROTECTIVE APPARATUS; **3,506,906,** D. W. Nestor, GROUND FAULT CIRCUIT INTERRUPTER WITH INADVERTENT GROUND SENSOR, **filed** Nov 15, 1971, D.C., N.D. Ill (Chicago), Doc 71c2744, *Harvey Hubbell, Inc. v. Rucker Co et al.*

3,477,493. (See 3,332,659.)

3,478,999. (See 3,332,659.)

3,506,906. (See 3,473,091.)

3,508,091. R. J. Kavanaugh, DOUBLE CLAW TOOTH STATOR SYNCHRONOUS AND STEPPING MOTOR WITH INDICATOR, **filed** May 22, 1972, D.C., N.D. Ill. (Chicago), Doc 72c1274, *North American Philips Corp. v. Molon Motor & Coil Corp.*

3,517,773. (See 3,052,319.)

3,529,328. P. T. Davison, MAGNETIC CLOTHESPIN, **filed** May 30, 1972, D.C., N.D. Tex. (Dallas), Doc CA–3–5912–C, *Hoz-Pin Corporation v. Numo Mfg Company Inc. et al.*

3,552,252. Maxey, Montague, Leyde and Bryan, VENEER DEFECT DETECTOR AND CLIPPER CONTROL **filed** Apr. 19, 1971, D.C. Oreg. (Portland), Doc. C–71–263, *The Black Clawson Company v. Morvue, Inc*

3,563,859. A. J. Fink, DISPOSABLE CULTURE DEVICE, **filed** May 5, 1972, D.C., N.D. Calif (San Francisco), Doc C–72 806 SW *Aaron J. Fink v. Smith Kline & French Laboratories and John Wentz Does I throu III inclusive* **Same,** **filed** June 15, 1972, D.C., N.D. Calif (San Francisco), Doc C–72–1110 OJC, *Aaron J. Fink v. Smith Kline and French Laboratories*

3,566,982. Share, Share and Share, WELL POINT SYSTEM, **filed** May 5, 1972, D.C., M.D. Fla. (Jacksonville), Doc. 72–326–C, *Stanley Jackson Corporation v. Griffin Wellpoint Corp. and Griffin Wellpoint Corp. (Fla.)*

3,582,084. Ryan and Chang, DEVICE FOR REPRODUCING RECORDED SOUNDS IN TOYS, **filed** Oct 18, 1971, D.C., S.D.N.Y., Doc 71–C–4536, *Mattel, Inc v. Ideal Toy Corporation*

3,587,619. J. L. Krechel, COMPRESSOR UNLOADER AND CHECK VALVE UNIT, **filed** Aug. 19, 1971, D.C., W.D. Pa. (Erie), Doc C.A. 68–71, *Joseph L. Krechel v. Air Con, Inc., Wolfe Metal Products Corp* Order entered dismissing case without prejudice subject to the provisions of a settlement agreement, Apr 26, 1972

3,588,391. Banathy, Rosenski and Sechrist, PLUG-IN TWENTY-FOUR HOUR TIME SWITCH, **filed** Apr 17, 1972, D.C., N.D. Ill. (Chicago), Doc 72c964, *International Register Co. v. McGraw-Edison Co.* Ordered, action be dismissed without prejudice, June 9, 1972.

3,589,660. B. P. Dunckel, LIGHTING FIXTURE HANGER, **filed** May 19, 1972, D.C., N.D. Ill (Chicago), Doc. 72c1261, *National Service Industries, Inc. v. Horvstone Mfg. Corp.*

3,594,021. R. M. Williams, EXPANSION JOINT, **filed** Apr. 19, 1972, D.C., W.D.N.C. (Charlotte), Doc. C–C–72–76, *Charlotte Pipe and Foundry Company v. Genova Products, Inc.*

3,595,438. Daley and Miller, AUTOMATIC DETERGENT DISPENSER SYSTEM, **filed** Jan. 11, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c81, *Economics Laboratory Inc. v. Calgon Corporation.*

Re. 24,387. (See 3,128,737.)

D. 193,989. (See 3,174,114.)

Erratum

In the OFFICIAL GAZETTE of June 20, 1972, vol 899, No. 3, page TM 132, paragraph 2, beginning with 2,715,309 under Patent Suits should be deleted and the following substituted under Trademark Suits.

Reg. No. 673,554 (BAN-LON), Joseph Bancroft & Sons Co., **filed** Feb 4, 1972, D.C., W.D.N.C. (Charlotte), Doc. C–72–30, *Joseph Bancroft & Sons Co v. Jesco Kitwear Corporation and Jessee Halperin.*

Certificates of Correction for the Week of Dec. 5, 1972

P.P. 3,139
Re. 27,278
3,535,402
3,554,755
3,572,892
3,574,741
3,576,552
3,583,577
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3,673,671
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3,674,589
3,674,742
3,674,780
3,674,781
3,674,848
3,679,419

Errata

All references to Patent Number 3,682,449 to Alpha Severn, Carburetor and Dash Pot Control Therefor, appearing in the OFFICIAL GAZETTE of Aug. 8, 1972 should be deleted as the application inadvertently issued.

All references to Patent Number 3,682,985 to Imre Bacso, et al., 17α-Propadienyl-Substituted Steroids, appearing in the OFFICIAL GAZETTE of Aug. 8, 1972 should be deleted as the application inadvertently issued

All references to Patent Number 3,687,834 to James T. Candor, Method and Apparatus for Removing Particles from Fluid Containing the Same, appearing in the OFFICIAL GAZETTE of Aug. 29, 1972 should be deleted as the application inadvertently issued.

All references to Reissue Patent Number 27,496 to Peter Andrews, Dual Square, appearing in the OFFICIAL GAZETTE of Oct. 3, 1972 should be deleted as the application inadvertently issued.

Dedications

3,409,535.—*Edward Ross*, Headington, Oxford, and *Edward Clive Allen*, Cowley, Oxford, England. ELECTROCHEMICAL MACHINING APPARATUS HAVING EXTENSIBLE AND CONTRACTIBLE ELECTROLYTE CHAMBER. Patent dated Nov. 5, 1968. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company.*

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,437,877.—*Charles B Heffron*, Metuchen, N.J. SCANNING CIRCUIT. Patent dated Apr 8, 1969. Dedication filed Mar. 16, 1972, by the assignee, *Westinghouse Electric Corporation.*

Hereby dedicates to the People of the United States the entire term of said patent

3,458,424.—*Joseph L. Bender*, Wheeling, Ill. ELECTROCHEMICAL MACHINING APPARATUS UTILIZING A MECHANICALLY DEFORMABLE CATHODE. Patent dated July 29, 1969. Dedication filed Dec 23, 1971, by the assignee, *Anocut Engineering Company.*

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971

3,536,599.—*Lynn A. Williams*, Winnetka, Ill. ELECTROLYTIC CAVITY SINKING APPARATUS AND METHOD WITH PRESSURE MEANS FOR FORCING A MACHINED SLUG FROM THE ELECTRODE. Patent dated Oct. 27, 1970. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971

Disclaimers

Design No. 213,385.—*Lester V Molenaar*, Willmar, Minn. BUILDING TOY. Patent dated Feb. 25, 1969 Disclaimer filed Aug. 18, 1972, by the inventor.

Hereby enters this disclaimer to the entire claim of said design patent.

Design No. 222,734.—*Karl Wiedemann*, Cherry Hill, N.J DISH. Patent dated Dec. 14, 1971. Disclaimer filed Apr 19, 1972, by the assignee, *Melitta, Inc*

Hereby disclaims the portion of the term of the patent subsequent to July 27, 1985.

2,974,238.—*Robert D. Lohman*, Princeton, N.J MULTIVIBRATOR CIRCUIT. Patent dated Mar. 7, 1961. Disclaimer filed July 21, 1972, by the assignee, *Radio Corporation of America.*

Hereby enters this disclaimed to claims 1 through 9, inclusive, of said patent

3,368,972.—*Ferdinand P. Otto*, Woodbury, N.J. HIGH MOLECULAR WEIGHT MANNICH BASES AS ENGINE OIL ADDITIVES. Patent dated Feb. 13, 1968. Disclaimer filed Mar. 1, 1972, by the inventor, the assignee, *Mobil Oil Corporation*, consenting.

Hereby enters this disclaimer to claim 6 of said patent

3,444,395.—*Philip B. Foster*, Phoenix, *Richard A. Gissel*, Tempe, and *Walter C. Seelbach*, Scottsdale, Ariz. J-K FLIP-FLOP. Patent dated May 13, 1969. Disclaimer filed May 19, 1972, by the assignee, *Motorola, Inc.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6, 7 and 8 of said patent.

3,572,860.—*Robert F. Hart*, Downers Grove, Ill. MODIFIED CYLINDRICAL ROLLER BEARING. Patent dated Mar. 30, 1971. Disclaimer filed Feb. 14, 1972, by the inventor, and the assignee, *General Motors Corporation.*

Hereby enters this disclaimer to claim 1 of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF NOVEMBER 14, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries, Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-19-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-06-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-09-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-31-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	6-01-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	3-22-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	10-18-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-13-71
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-21-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-18-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts: Household, Personal and Fine Arts.	4-07-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	11-30-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-01-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGO, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-27-71
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	12-13-71
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	9-15-71

Expiration of patents: The patents within the range of numbers indicated below expire during December 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,725,558 to 2,728,912, inclusive
Plant Patents	Numbers 1,436 to 1,441, inclusive

PLANT PATENTS

GRANTED DECEMBER 5, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,262
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Oct. 14, 1970, Ser. No. 80,825
Int. Cl. A01b *5/00*
U.S. Cl. Plt.—82 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly to uniqueness when compared to the parent cultivar Stingray by its 4″–8″ more vigor, its 3–4 days later response, a longitudinal petal roll giving a more pointed petal appearance, and a more intense red color.

3,263
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Oct. 30, 1970, Ser. No. 85,831
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—82 **1 Claim**

1. A new and distinct variety of chrysanthemum characterized particularly as to uniqueness in comparison with the parent cultivar Torch by its more intense red flower color and its superior color retention under high light and high temperature conditions, fading under such conditions to a lighter red bronze as contrasted with the parent cultivar Torch which fades under such conditions to a light orange bronze.

3,264
PEONY PLANT

Carl G. Klebm, 2 E. Algonquin Road, Arlington Heights, Ill. 60005
Filed Feb. 1, 1971, Ser. No. 111,771
Int. Cl. A01b *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora,* substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a rather fine textured, balanced and vigorous root system which produces thick, strong and relatively weather-resistant stem, attractive and healthy, succulent, clean, and spotless foliage of dark green color, dependability of flower bud formation and opening thereof, with a dependable relatively early blooming season, a relatively large flower size having a fully double rose-type flower form, a distinctive and attractive vivid rose pink flower color overlaid on a soft red background and with a silver edging on the extremities of the flower petals, and a suitability for use with other perennial plantings such as for borders and backdrops for other plant settings, as well as suitability for attractive cut flowers.

3,265
PEONY PLANT

Carl G. Klebm, 2 E. Algonquin Road, Arliogton Heights, Ill. 60005
Filed Feb. 1, 1971, Ser. No. 111,772
Int. Cl. A01b *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora,* substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a healthy, strong and vigorous habit of growth, clean, blotch-free and succulent green foliage of attractive appearance, a ruffled flower form having a shape falling about midway between bomb-shaped and double-rose shaped types, a distinctive and attractive soft and extremely delicate pink flower color, and a suitability for use for garden and landscape plantings, for borders and backgrounds for other plant settings, and for cut-flower uses and exotic arrangements.

3,266
PEONY PLANT

Carl G. Klebm, 2 E. Algonquin Road, Arlington Heights, Ill. 60005
Filed Feb. 1, 1971, Ser. No. 111,775
Int. Cl. A01b *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora,* substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a relatively dwarf habit of growth ranging from about 20 inches to 24 inches tall, with short, stiff and weather-resistant stems, clean and lush soft green foliage of attractive appearance, an extremely compact and bomb-shaped color, with red candy striping on the dorsal extremities of the topmost petals, and with a double row of guard petals which blend and mellow to a lighter and softer pink color at the petal extremities, while the extreme central petals in the bomb-shaped body of the flower blend to a creamy peach color, and a suitability for mass use in landscape hedges and background plantings, as well as for decorative cut arrangements.

PATENTS

GRANTED DECEMBER 5, 1972

GENERAL AND MECHANICAL

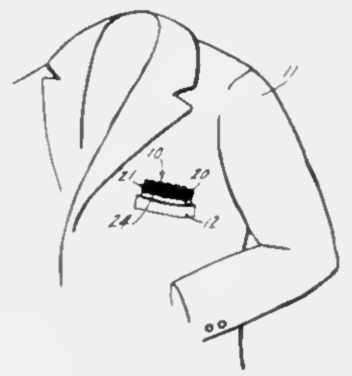
3,704,469
WRAP-AROUND GARMENT

Bernard Levy, 91 Chatham Road, Kensington, Conn.
Filed Nov. 20, 1970, Ser. No. 91,433
Int. Cl. A41d *7/00, 15/00*
U.S. Cl. 2—67 8 Claims

A wrap-around garment includes an elongated strip of pliable material which has an aperture therein intermediate the ends thereof, with one end portion extending through the aperture and being secured outwardly thereof. The intermediate portion of the strip is adapted to encircle the body of a wearer, and adjustable means is provided adjacent the aperture to vary its effective size.

3,704,470
NOVELTY POCKET ITEM

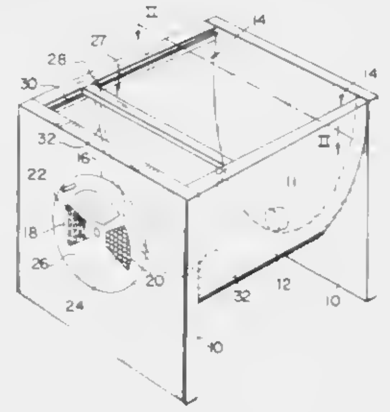
Emil V. Beno, 1265 Woodside Lane, Elm Grove, Wis., and Michael A. Novak, 4560 N. 67th Street, Milwaukee, Wis.
Filed May 12, 1971, Ser. No. 142,443
Int. Cl. A41b *15/00*
U.S. Cl. 2—279 8 Claims



A novelty device which simulates a pair of panties is designed to fit invertedly in the breast pocket so as to simulate a handkerchief. The bottoms of the leg portions are bordered preferably in lace with the two leg portions slightly separated to simulate two panel portions of a hanky. The item is used for its amusing shock value when it is removed from the pocket and the viewer can then see it is a small pair of pants.

3,704,471
BEEHIVES

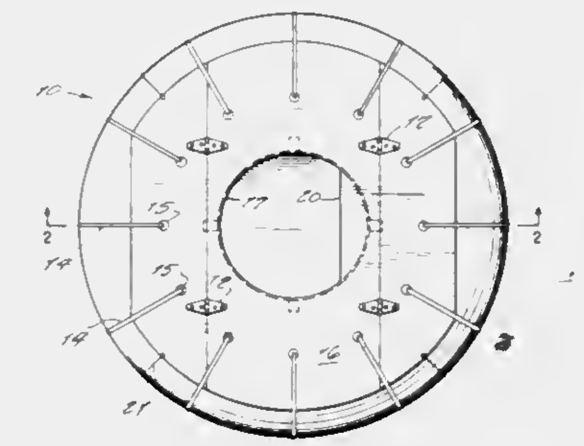
William B. Bielby, Flat 3, 74 Cornwall Road, Harrogate, Yorkshire, England
Filed Jan. 23, 1970, Ser. No. 5,201
Int. Cl. A01k *47/00, 47/06*
U.S. Cl. 6—2 **2 Claims**



A beehive having a brood frame which has a contour corresponding to the shape of a catenary. Rotatable means in the wall of the frame permit only certain bees, no bees or all bees access into the frame.

3,704,472
FLOAT FOR A ONE MAN HUNTING BLIND

Stanton E. Huey, Jr., 2128 Maywood Drive, Monroe, La.
Filed Jan. 18, 1971, Ser. No. 107.261
Int. Cl. B63b *7/08*
U.S. Cl. 9—5 **2 Claims**

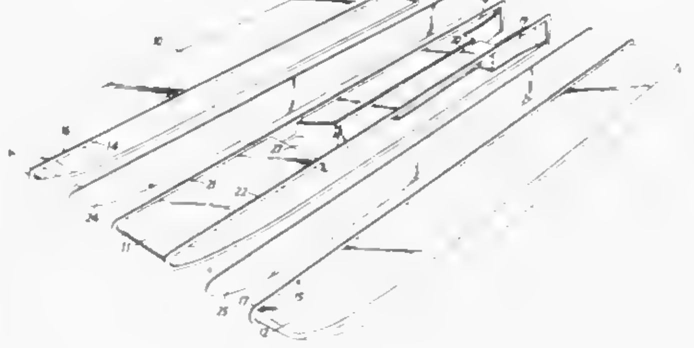


A blind for shooting duck or other game, the device comprising a circular plywood panel which is secured upon a tractor tire inner tube and secured thereto by leather belts, and the base having a central dry well made of a 55 gallon oil drum, the device being provided with eight anchor lines of nylon belts which lead to eight anchors.

3,704,473
HULLS IN WATER CRAFT

Donald W. Sessions, White Horses, Kingston Gorse, Sea Lane, Angmering-on-Sea, England
Filed Jan. 11, 1971, Ser. No. 105,211
Int. Cl. B63b *7/04*
U.S. Cl. 9—2 S **6 Claims**

A unique hull of essentially three parallel compartments held together into a single pontoon member is disclosed. The central compartment or section is shaped to accomodate a propeller shaft as well as a well or depression suitable in shape for sailing gear, seating or rowing while the outer two compartments act as floatation chambers and respectively the starboard and port portions of the hull.



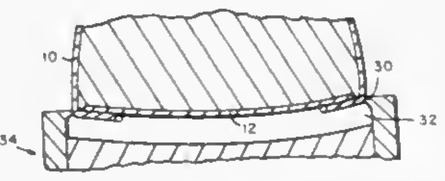
3,704,474
METHOD OF STRING-LASTING

Julius G. Winkler, Lexington, Mass., assignor to Compo Industries, Inc., Waltham, Mass.

Filed Oct. 21, 1971, Ser. No. 191,317

Int. Cl. A43d *21/00*

U.S. Cl. 12—145 **14 Claims**



The method of shoe making which comprises placing an insole on the bottom of a last, string-lasting an upper onto the last over the exposed face of the insole while holding the inner side of the lasting margin spaced from the edge face of the insole and thereafter forming an outsole against the insole and lasting margin of the upper by injection molding.

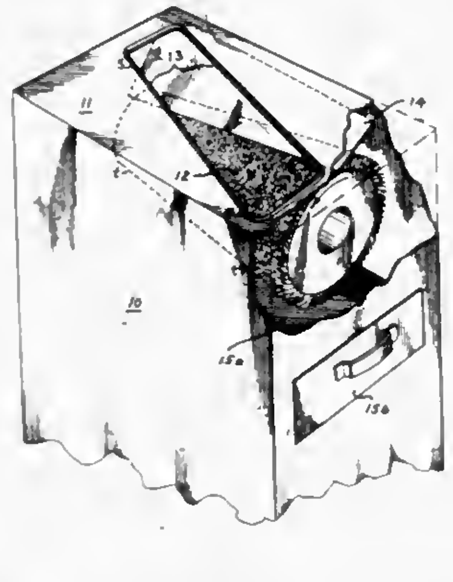
3,704,475
GOLF CLUB CLEANER

Wilbur G. Brooks, 3304 Salem Turnpike, N.W., Roanoke, Va.

Filed Feb. 2, 1971, Ser. No. 111,980

Int. Cl. A63b *57/00*

U.S. Cl. 15—21 E **1 Claim**



A housing provided with a power driven, rotating, tapered brush arranged within the housing, access to the brush from without the housing for the insertion of a golf club head to be cleaned being by an angularly disposed slot having on longitudinal edge parallel with the lateral surface of the brush and a blade adjacent the brush coacting with the rotation of the brush to prevent ejection of material through the slot.

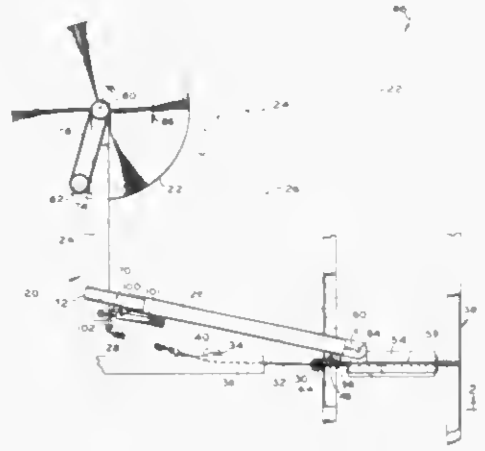
3,704,476
WRAPAROUND BRUSHING DEVICES

Daniel C. Hanna, 1133 Riverton Drive, Portland, Oreg.

Continuation of Ser. No. 81,133, Oct. 15, 1970, abandoned. This application Nov. 26, 1971, Ser. No. 202,279

Int. Cl. B60s *3/06*

U.S. Cl. 15—21 D **11 Claims**



A wraparound brushing device **20** (FIGS. **1-4**) has a linkage carrying a brush and urged toward a normal position by a spring and a counterweight. A top brushing device **120** (FIGS. **5** and **6**) includes a pair of linkages at each side which fold as the brush rolls over the top of a car and then unfold to cause the brush to follow the rear surfaces of the car. Wraparound brushing devices **220** (FIG. **7**), **320** (FIG. **8**), **420** (FIG. **9**) and **520** (FIG. **10**) are moved around moving cars solely by the action of rotating brushes and constantly operative biasing means.

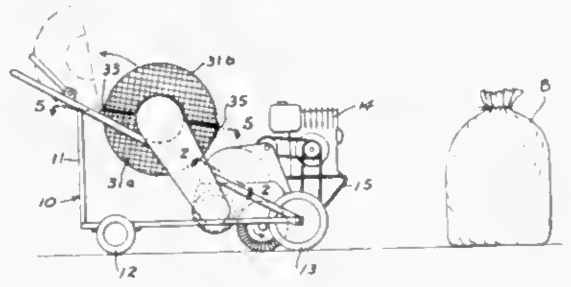
3,704,477
LEAF SWEEPER AND LOADER

Peter Bonnis, 584 W. Golden Gate, Detroit, Mich.

Filed April 1, 1971, Ser. No. 130,220

Int. Cl. E01h *1/04*

U.S. Cl. 15—79 **17 Claims**



A leaf sweeper and loader comprising a wheeled hand-guided vehicle having a rotary sweeper element rotatably mounted thereon about a transverse axis and a screw mounted for rotation about another transverse axis adjacent the sweeper element. A casing surrounds the screw and having a longitudinal opening through which the leaves and cuttings are directed by a shroud extending from the sweeper element to the casing. A passage extends from one end of the casing to a foraminous housing in which a collapsible bag is positioned to receive the compacted leaves and cuttings.

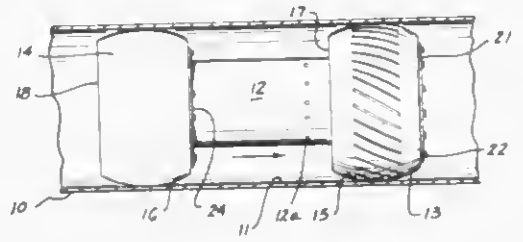
3,704,478
PIPELINE PIG

Burton Vernooy, Tulsa, Okla., assignor to T. D. Williamson, Inc., Tulsa, Okla.

Filed Feb. 25, 1971, Ser. No. 118,638

Int. Cl. B08b *9/04*

U.S. Cl. 15—104.06 R **2 Claims**



The pipeline pig disclosed includes a cup-shaped cleaning element having a spherically shaped outer surface with a diameter equal to or greater than the inside diameter of the pipeline for engaging a pipeline inner wall even as the pig passes through curved sections of the pipeline. The cleaning element has a plurality of grooves in its outer surface that provide a plurality of scraping edges to scrape rust, scale, and other substances from the inner wall of the pipeline.

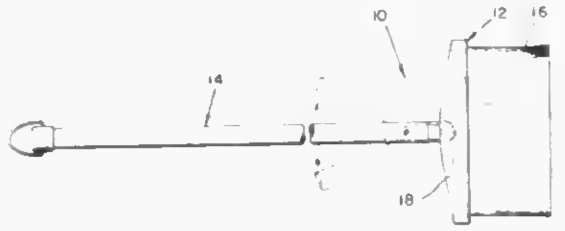
3,704,479
BROOM HAVING A REMOVABLE PIVOTABLE HANDLE

Wiley M. Whitaker, 227 Lexington Road, Asheboro, N.C.

Filed Jan. 6, 1971, Ser. No. 104,225

Int. Cl. B25g *3/38*

U.S. Cl. 15—172 **5 Claims**



A broom having a handle is pivotably connected with respect to the broom block having bristles secured therein. A handle connector is releasably fastened to the handle and releasably pivotably connected to the broom block by means of a snap coupling.

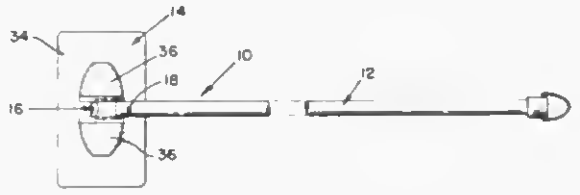
3,704,480
MOP HAVING A REMOVABLE PIVOTABLE HANDLE

Wiley M. Whitaker, 227 Lexington Road, Asheboro, N.C.

Filed Jan. 6, 1971, Ser. No. 104,226

Int. Cl. A47l *17/08;* **B25g** *3/38*

U.S. Cl. 15—144 R **5 Claims**



A mop comprising a mop head portion pivotably connected to a handle and handle fastener through a releasable coupling. The mop may be utilized in a conventional manner or the mop head portion may be used by hand upon removal of the handle and handle fastener.

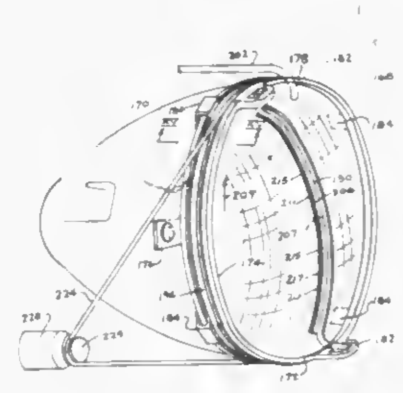
3,704,481
AUTOMOTIVE HEADLAMP CLEANING SYSTEM

Lewis Harvey Fennell, 141 Seminary Avenue, Greensburg, Pa.

Continuation-in-part of Ser. No. 834,989, June 20, 1969, abandoned, which is a division of Ser. No. 562,012, April 20, 1966, Pat. No. 3,493,804, which is a continuation-in-part of Ser. No. 414,711, Nov. 30, 1964, abandoned. This application May 21, 1971, Ser. No. 145,717

Int. Cl. B60s *1/04*

U.S. Cl. 15—250.01 **33 Claims**



I disclose a headlamp cleaning system comprising wiper means having flexible wiper edge means in contact with headlamp means, means for rotatably supporting one of said wiper and said headlamp means, and means for driving that one of said wiper and said headlamp means so supported such that said wiper and said headlamp means are relatively rotated one against the other, said wiper being elongated and supported at its ends by annular support means which are substantially aligned with said headlamp means so that said wiper is longitudinally engaged therewith during said relative rotation of the wiper and headlamp means.

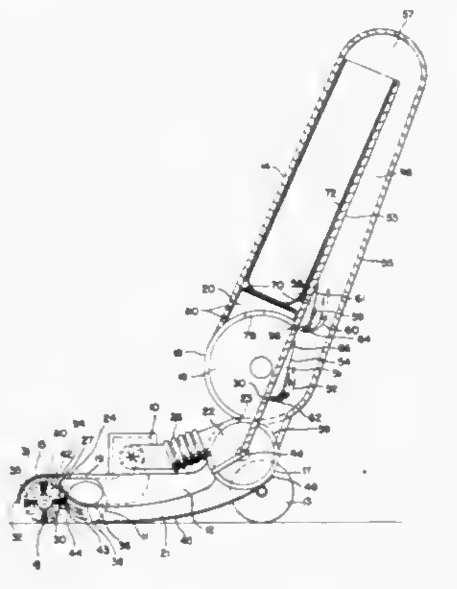
3,704,482
CLEANING DEVICE

Joseph W. Brannon, 302 Miner Road, Highland Heights, Ohio

Filed Oct. 8, 1970, Ser. No. 79,192

Int. Cl. A47l *9/00*

U.S. Cl. 15—348 **8 Claims**



A cleaning device utilizing the properties of a fluid at atmosphere plus pressure or above atmospheric pressure to effect a cleaning operation.

An electric motor on the cleaning device generates a small stream of atmosphere plus fluid such as, but not necessarily limited to, air, which stream of fluid is made to "bend" within the cleaning device, and reverse the direction of flow of the fluid stream. This design feature accomplishes three objectives: (1) it eliminates the need for the conventional and relatively inefficient vacuum type cleaner; (2) it forces a relatively small volume of fluid to attach itself to the underside of a horizontal surface; and (3) it encourages the relatively small volume fluid stream to entrain within its path substantially large volumes of dust-saturated fluid. Thus, instead of "sucking up" dirt as conventional cleaning devices of this nature do by means of vacuum or negative pressure, the cleaning device in this invention uses a stream of positive pressure fluid to push the dirt-and-dust-saturated fluid into a suitable receptacle.

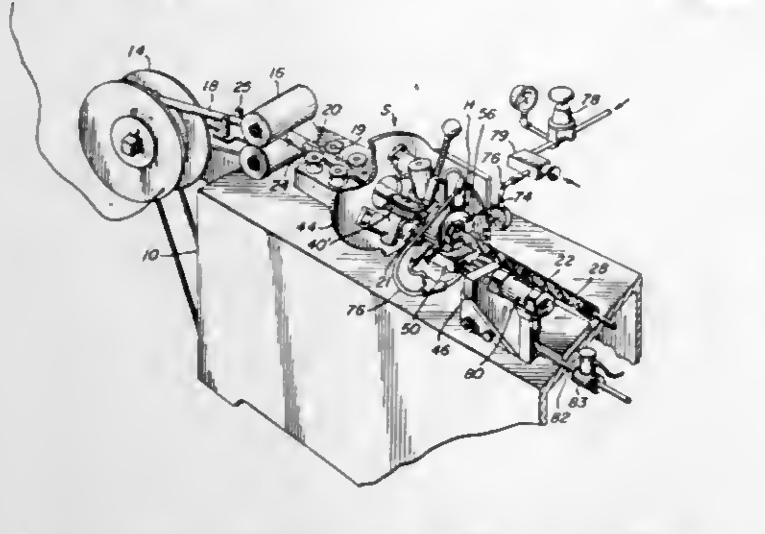
3,704,483
METHOD OF MAKING SHIRRED TUBING

Algimantas P. Urbutis, Chicago; Bernard H. Schenk, Hinsdale; Joseph J. Risany, La Grange Park, and Walter V. Marbach, Palos Heights, all of Ill., assignors to Union Carbide Corporation

Division of Ser. No. 765,711, May 31, 1968, abandoned, which is a division of Ser. No. 418,506, Dec. 15, 1964, Pat. No. 3,397,069. This application March 5, 1970, Ser. No. 16,651

Int. Cl. A22c *13/00*

U.S. Cl. 17—49 **14 Claims**



A method and apparatus are provided for uniformly compressing and compacting a length of flexible, tubular sausage casing into a coherent, shirred casing stick which, from end to end, exhibits circumferential uniformity, is substantially straight and has an uninterrupted, uniform bore.

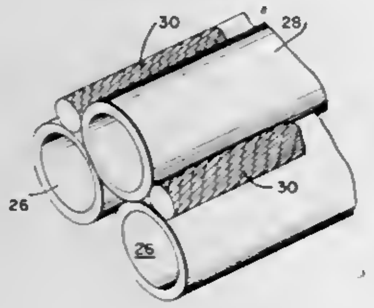
3,704,484
INSERT ROLLS FOR SHRIMP PEELING MACHINES

James M. Lapeyre, and Robert F. Couret, both of New Orleans, La., assignors to The Laitram Corporation, New Orleans, La.

Filed Jan. 19, 1971, Ser. No. 107,745

Int. Cl. A22c *29/00*

U.S. Cl. 17—73 **2 Claims**



The insert rolls of a Shrimp Peeling Machine are spirally or otherwise grooved to provide a series of spirally disposed knife-like edges upstanding from the surfaces of the rolls to improve the peeling action on shrimp as by offering rougher and sharper points and surfaces to better grasp the appendages of shrimp, such as the swimerettes and the edges of undersized shells whereby to pull and strip the shells from the meats.

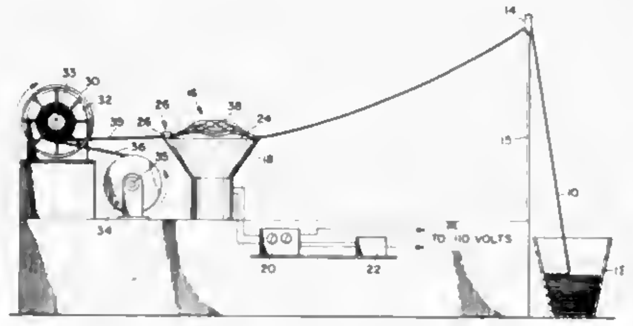
3,704,485
APPARATUS FOR SPREADING A GRAPHITE FIBER TOW INTO A RIBBON OF GRAPHITE FILAMENTS

John N. Hall, Brookside Park, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 14, 1970, Ser. No. 97,988

Int. Cl. D01b *3/04*

U.S. Cl. 19—65 T **3 Claims**



An apparatus for spreading a graphite fiber tow into a mass of substantially individual graphite filaments is provided. Spreading of the filaments is achieved by vibrating the graphite tow in air pulsating at a frequency and intensity sufficient to couple the energy of the pulsating medium to the graphite tow. Vibration of the tow in air causes separation and spreading of the filaments in the tow.

ERRATUM

For Class 24—230 see:
Patent No. 3,704,633

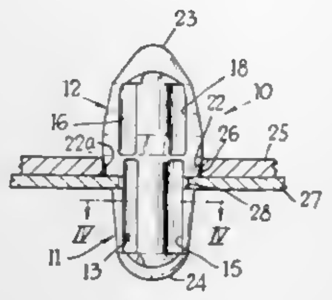
3,704,486
FASTENER

Colin Francis Blacklock, Buckinghamshire, England, assignor to TRW Inc., Cleveland, Ohio

Filed April 6, 1971, Ser. No. 131,715

Int. Cl. A44b *21/00*

U.S. Cl. 24—73 P **7 Claims**



A fastener comprising a stud portion which is formed with a longitudinally extending slot making it radially compressible so that it can be engaged in an aperture in a first panel and a shank portion extending coaxially and oppositely from the stud portion and also formed with a longitudinally extending slot making it radially compressible so that it can be engaged in an aperture in a second panel wherein the stud portion and the shank portion are formed with facing shoulders adapted to locate behind the panel in which the said portion is engaged and the angle of inclination of the shoulder on the stud portion is greater than the angle of inclination of the shoulder on the shank portions whereby the resistance to removal of the stud portion from the aperture in the first panel is substantially greater than that of the shank portion from the aperture in the second panel.

3,704,487
DEVICE FOR HANGING CHRISTMAS TREE DECORATIONS

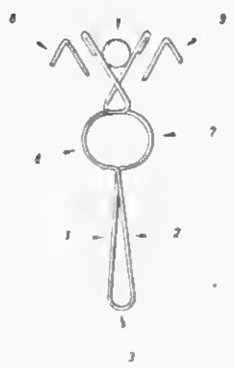
Bruno R. Mohr, 68 Mannheim, 0 7/27, Germany

Filed Feb. 1, 1971, Ser. No. 111,682

Claims priority, application Germany, Feb. 17, 1970, P 20 07 164.1

Int. Cl. A44b *21/00*

U.S. Cl. 24—73 CP **1 Claim**



A device for hanging Christmas tree decorations is shown comprising a clamp which exhibits two spring prongs which cross one another and are moveable in the plane of their longitudinal axes, and in which each prong is bowed in the plane of its moveability in order to accommodate a Christmas tree branch.

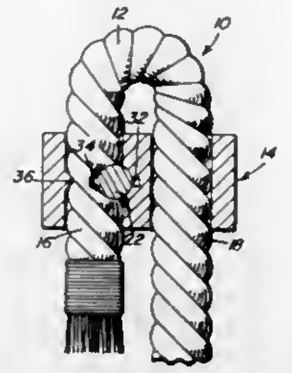
3,704,488
LINE CLAMP

Edward Ted Higgins, Saginaw, Mich., assignor to Line & Rope Clamps, Inc.

Filed Jan. 20, 1972, Ser. No. 219,333

Int. Cl. F16g *11/04*

U.S. Cl. 24—126 A **8 Claims**



A line end clamp for boat lines or the like, said clamp comprising a relatively rigid block with a pair of spaced substantially parallel bores extending therethrough for receiving a line, a hole passing transversely through one of the bores and off set therewith, and a clamping pin removably mounted in the hole for occupying a portion of the bore for retentatively compressing and clamping the line. The hole is provided with a pair of longitudinal slots, one of which is located in the line-receiving area of the associated bore such that the clamping pin may be keyed to either slot depending upon the type of rope being clamped.

3,704,489
HOOKS AND EYES

Kenneth Norman Rudd, No. 8 Greenacres, Ashington, England

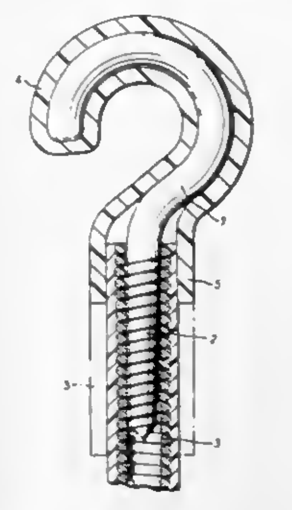
Filed July 20, 1970, Ser. No. 56,494

Claims priority, application Great Britain, Nov. 7, 1969, 54,598/69; Aug. 25, 1969, 42,238/69

Int. Cl. A44b *13/00*

U.S. Cl. 24—122.3 **2 Claims**

The present invention relates to hooks and eyes of the type which may be screwed on to the ends of helically wound curtain cords or into supporting surfaces. In accordance with the main feature of the invention there is provided such a hook or eye of which at least a straight shank portion is at least partly surrounded over at least part of its length by a shroud that is spaced from the said shank thereby to provide an annular gap therebetween. The shroud serves either to permit the leading end of a curtain cord to extend sealingly between the shroud



and the shank or to space the hook or eye from a supporting surface into which it is screwed. The shank may be screw threaded or may be unthreaded and formed of material that will become self-threaded as screwed into a thread such as that of a helically wound curtain cord. In one embodiment of the invention the shroud is moulded as an integral part of the hook or eye thereby to form therewith a one-piece unit.

3,704,490
COUPLING ELEMENT FOR SLIDE FASTENERS

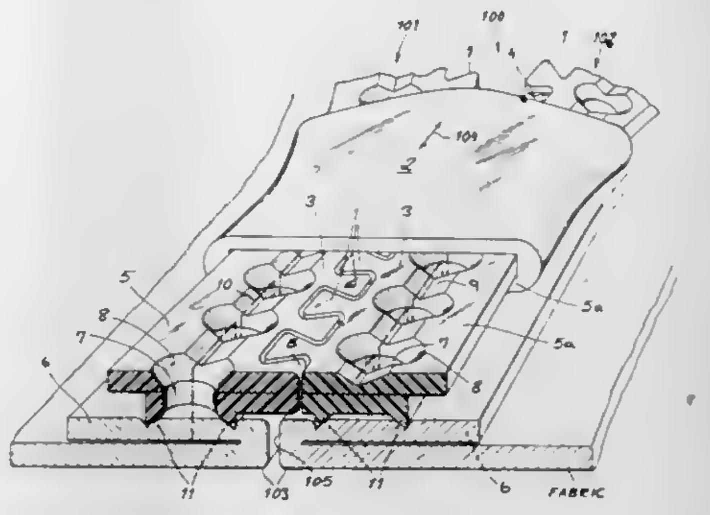
Harry Hansen, Copenhagen, Valby, Denmark, assignor to Opti-Holding AG, Glarus, Switzerland

Filed Oct. 12, 1971, Ser. No. 188,334

Claims priority, application Germany, Oct. 14, 1970, P 20 50 438.5; Jan. 20, 1971, P 21 02 460.2

Int. Cl. A44b *19/14, 19/34*

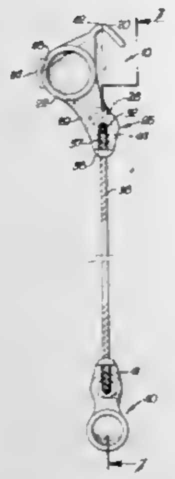
U.S. Cl. 24—205.1 **10 Claims**



A coupling element for a slide fastener consists of a strip of thermoplastic synthetic resin material bent or folded about a longitudinal axis into a U-section or J-section so that a wide leg directly overlies a narrow leg and overhangs the latter to form a guiding edge of the slider. The bight of the folded strip is provided with spaced-apart coupling formations or heads matingly engageable with the heads of the opposing coupling element in a slide-fastener stringer. Openings in the strip are provided to clear a needle which serves to stitch the coupling element to a support tape or directly onto the fabric of the garment, while formations around these openings on the underside of the folded strip engage the fabric to prevent shifting of the coupling element relative to the fabric.

3,704,491
SLIDE ZIPPER OPERATING TOOL

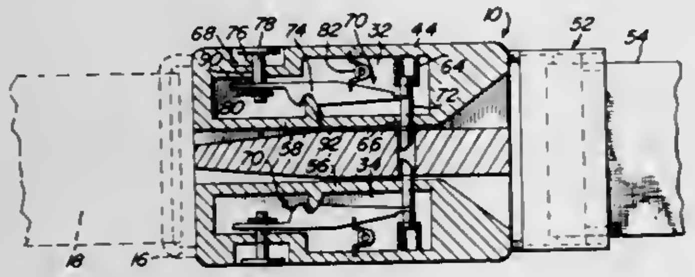
Wilfrid M. Burgess, 575 East Cypress, Burbank, Calif.
Filed Nov. 19, 1971, Ser. No. 200,293
Int. Cl. A44b *19/00, 19/26*
U.S. Cl. 24—205.15 H **7 Claims**



A slide zipper operating tool adapted to hook the slot in the lever of a conventional slide zipper fastener so as to open and close the zipper fastener responsive to a pull from a remote location on a cord attached to the tool. The tool has a wide base that normally rests on the zipper fastener to prevent the tool from twisting out of alignment with the zipper fastener and is proportioned so that the lever of the zipper slider is held at approximately the optimum angle for opening and closing the zipper fastener.

3,704,492
SAFETY BELT BUCKLE CONSTRUCTION

Edwin L. Meredith, Sr., 516 N. Main Street, Cleburne, Tex.
Filed Dec. 20, 1971, Ser. No. 209,992
Int. Cl. A44b *17/00, 11/26*
U.S. Cl. 24—223 **8 Claims**

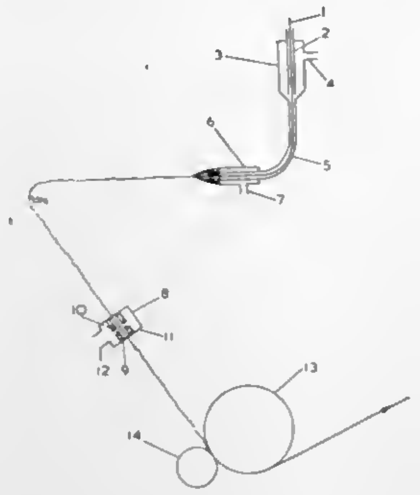


A safety belt buckle capable of being securely fastened and released using only one hand at a time comprises a connector member and a casing member positively locked together by a mechanism which includes a biased slidable element in the casing member adapted to engage a recess in the connector member. The members may be released by depressing a release mechanism which overcomes the bias and withdraws the slidable element from locking engagement with the recess.

3,704,493
HEAT TREATMENT OF YARNS

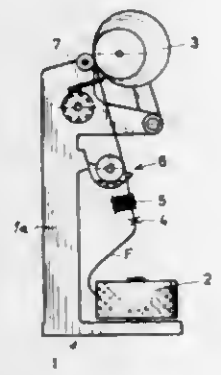
Robert Reid Coats, and John Michael Greenway, both of Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England
Filed March 13, 1970, Ser. No. 19,344
Claims priority, application Great Britain, March 21, 1969, 15,009/69
Int. Cl. D02j *3/16;* **D02g** *1/00*
U.S. Cl. 28—1.2 **6 Claims**

A process and apparatus for the uniform heat treatment of yarns wherein a yarn is entrained in a stream of air and is passed therewith into a central passageway of a burner leaving the outlet of the central passageway at a point where the air and a combustible fluid, which is separately supplied to the burner through a surrounding passageway terminating at the same point, meet and are ignited the yarn continuing to move in an axial direction through the combustion flame.



3,704,494
CONDITIONING APPARATUS FOR YARN OR THREAD

Manfred Schreiber, Horgen, Switzerland, assignor to Maschinenfabrik Schweiter AG, Horgen, Switzerland
Filed Nov. 17, 1970, Ser. No. 90,375
Claims priority, application Switzerland, Nov. 18, 1969, 17130/69
Int. Cl. D06c *1/00;* **B05c** *1/08*
U.S. Cl. 28—59 **6 Claims**

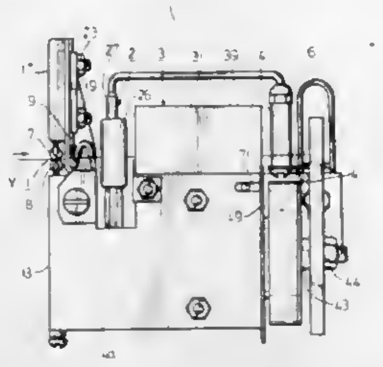


A rotatable finishing roll, which is at least partially immersed in a conditioning agent contained in a trough, is removable and magnetically coupled to a drive shaft. Centering means, preferably formed as a flange on the finishing roll which overlaps a member attached to the drive shaft, maintains the finishing roll coaxial with the drive shaft without the necessity of performing separate alignment operations.

3,704,495
YARN TENSION CONTROLLING APPARATUS

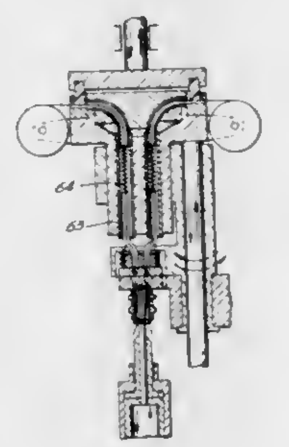
Atsunori Yamamoto, Onomichi, Japan, assignor to Nakao Kurosu, Hiroshima-ken, Japan
Filed June 29, 1971, Ser. No. 157,846
Claims priority, application Japan, Dec. 29, 1970, 45/120850; Dec. 29, 1970, 45/120851; Dec. 29, 1970, 45/120852
Int. Cl. D81b *19/22*
U.S. Cl. 28—64 **8 Claims**

A yarn tension controlling apparatus containing multi-staged yarn tensioning parts of surface friction and nip friction types arranged in sequence wherein large sized infeed yarn tension fluctuations are effectively compensated so as to result in smaller sized delivery yarn tension fluctuations with an effective prevention of possible hunting phenomenon in the compensating reaction.



3,704,496
MACHINE FOR ASSEMBLING CONTACT SOCKETS FOR ELECTRICAL CONNECTIONS OF THE PLUG-AND-SOCKET TYPE

Lev Vasilievich Kuznetsov, ulitsa Beketova, 20, kv. 15; Zunya Mikhailevich Slavinsky, ulitsa Beketova, 20, kv. 24; Vasily Alexeevich Kalachev, ulitsa Krasnoslskaya 13"b", kv. 20; Alexandr Leonidovich Krupin, ulitsa Inzhenernaya, 21, kv. 74; Nikolai Alexandrovich Aristarkhov, ulitsa Kosogornaya, 14, kv. 6, all of Gorky; Eduard Jurievich Popkov, ulitsa Sotsialisticheskaya, 7, kv. 59; Vladimir Alexandrovich Trutnev, ulitsa Vosstania, 90, kv. 1, both of Kazan, and Nikolai Petrovich Bulychev, ulitsa Beketova, 20, kv. 4, Gorky, all of U.S.S.R.
Filed July 2, 1969, Ser. No. 838,488
Int. Cl. H01j *9/06, 9/10, 9/46*
U.S. Cl. 29—25.19 **10 Claims**

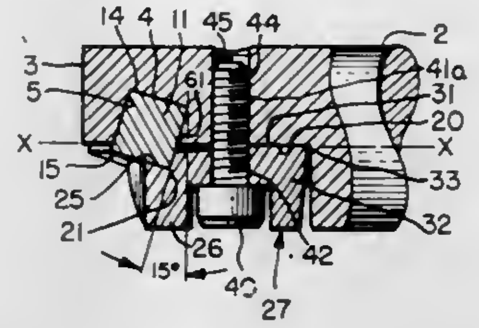


The present disclosure relates to the manufacture of electrical connections of the plug-and-socket type, and, more particularly, it relates to machines for assembling multi-wire contact sockets.

A machine disclosed in the specification perform a complete operating cycle of assembling a multi-wire contact socket for a plug-and-socket connection and comprises an assembling mandrel mounted in a mandrel head carried by a rotary work table and a plurality of operation performing mechanisms mounted about this table, the mechanisms including those for applying the rings and the sleeves of the sockets to be, for step-by-step feeding and cutting of wires, for bending the upper end portions of the cut lengths of wire, for applying the end pieces onto the pre-assembled sockets and for inwardly offsetting the predetermined portions of the pre-assembled sockets. The assembling mandrel cooperates with all said mechanisms in succession, this interaction being effected and controlled by the motion-distributing mechanism of the machine.

3,704,497
CUTTING TOOL

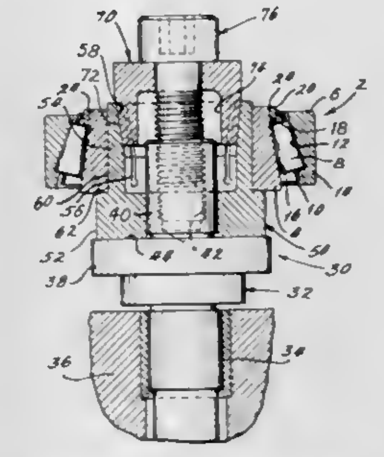
Louis A. Derwin, 4513 Cross Street, Downers Grove, Ill.
Filed Nov. 9, 1970, Ser. No. 87,985
Int. Cl. B26d *1/12*
U.S. Cl. 29—96 **9 Claims**



A cutting bit and holder, wherein the holder is provided with a square edged groove and the tool is of square cross section and fits into the groove and therewith extends diagonally to the axis of the holder. A clamp which tightens against the holder has a right angle notch complimentally admitting an exposed corner of the tool and holding it tightly in the groove and torsionally preloads the tool.

3,704,498
METHOD OF WELDING BEARING COMPONENTS

John W. Rundt, Dellroy, Ohio, assignor to The Timken Company, Canton, Ohio
Continuation-in-part of Ser. No. 85,085, Oct. 29, 1970, abandoned. This application July 26, 1971, Ser. No. 165,927
Int. Cl. B23p *11/00, 11/02*
U.S. Cl. 29—148.4 A **14 Claims**

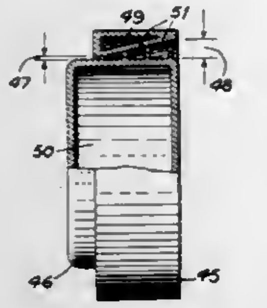


A thrust rib is welded to a bearing race by positioning the rib around one end of the race and then applying an outwardly directed force to the race. The force expands both the race and rib so as to pre-stress them. While the rib and race are prestressed they are welded together. The magnitude of the prestress is approximately equal to the amount of stress induced in the weld metal as that metal solidifies and cools so that when the pre-stress is released the race and rib shrink to their initial size and the metal of the weld area becomes substantially free of stress.

3,704,499
METHOD OF PRODUCING A NOZZLE FOR A TURBOGENERATOR

Charles P. Majkrzak, Nutley, and Michael S. Polgar, Eatontown, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
Division of Ser. No. 556,990, June 13, 1966, Pat. No. 3,449,589, which is a continuation of Ser. No. 807,161, Feb. 10, 1969. This application Oct. 6, 1970, Ser. No. 78,635
Int. Cl. B23p *15/26*
U.S. Cl. 29—157 C **6 Claims**

A method of producing a nozzle for a turbogenerator. A plurality of spiraling grooves are cut on a constant-diameter bar, the bar is tapered by cutting away part of the ridges between the grooves, a cavity is formed with the bar, the cavity is evacuated and sealed, a shroud is formed having a cavity therein, the shroud cavity is evacuated and sealed, and the bar and shroud are assembled together to form a nozzle.



3,704,500
METHOD OF CORRECTING A NUMBER OF REVOLUTION OF A SCREW PROPELLER

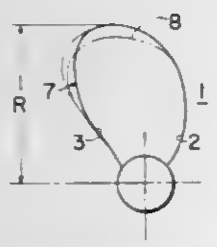
Hiroshi Okamoto, Kazuya Okada, Kobe, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kyogo, Japan

Filed Oct. 15, 1970, Ser. No. 80,859

Claims priority, application Japan, Oct. 15, 1969, 44/82331

Int. Cl. B23p *7/00*

U.S. Cl. 29—401 **1 Claim**



A method of adjusting the number of revolutions of a screw propeller having the steps of cutting the trailing edge of each blade of the propeller from and along the trailing edge, and working and shaping the face of the blade to a curvature to provide a proper setback.

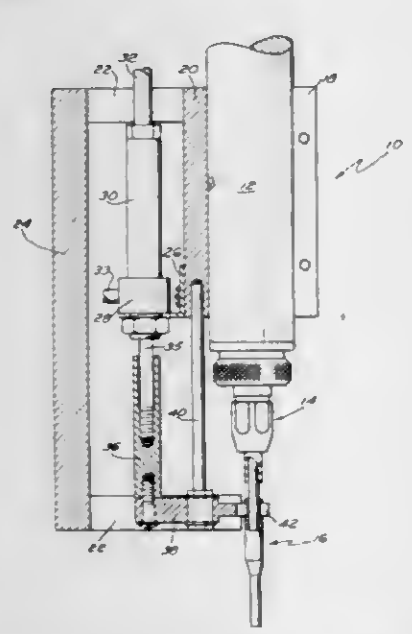
3,704,501
WIRE WRAPPING DEVICE

Daniel T. Hannify, Warren, R.I., assignor to Ostby & Barton Co., Providence, R.I.

Filed June 11, 1971, Ser. No. 152,181

Int. Cl. H01r *43/04*

U.S. Cl. 29—203 D **4 Claims**



A wire wrapping device having a rotatable bit assembly comprised of a sleeve and a bit. A transversely oriented bore in said bit mates with an aperture through one wall of the sleeve and has a pin inserted in said bore which extends into said aperture to prevent rotational movement between the two The aperture in the sleeve is formed as a vertical slot which along with the pin controls the axial movement of the sleeve with respect to the bit. One end of the bit has a longitudinally extending groove along its outer surface and also a longitudinally extending groove along its surface and also a longitudinally extending bore formed internally from the outer surface of the bit for receiving a terminal pin upon which the wire is to be wound. The bit also has a channel extending completely across its end face passing over both the mouth of the groove and the bore. The sleeve has bit support gripping means formed adjacent its one end, with its other end having an elongated neck whose intermediate portion has part of its circumferential surface longitudinally cut away. Formed at the tip of the neck is a hook finger for capturing the end of a wire which is to be wound upon a pin terminal. The hook is brought into operation after the wire is oriented transversely to the intermediate portion of the neck at a position somewhere between the channel in the end face of the bit and the mouth of the finger hook. As the sleeve is axially drawn upwardly around the bit the mouth of the hook engages the wire and draws it into the channel located in the open face of the bit. Continued upward movement cams the tip of the wire into the groove along the outer surface of the bit, thus placing the apparatus in readiness for winding of the wire upon a terminal pin.

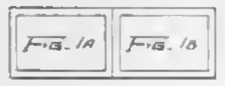
3,704,502
APPARATUS FOR FLUIDICALLY CONTROLLING THE ASSEMBLY AND DYNAMIC RESISTANCE ADJUSTMENT OF ACOUSTIC RESISTORS

Benjamin F. Meyers, Indianapolis, Ind., and John E. Oldis, Jr., Titusville, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed June 25, 1970, Ser. No. 49,636

Int. Cl. H01r

U.S. Cl. 29—203 R **11 Claims**



A method of and apparatus for fluidically controlling the sensing, staking and dynamic acoustic resistance adjusting of porous, sintered metal disc-type resistors mechanically fed to and seated within pre-formed apertures in the armature-supporting frame of carbon type telephone transmitter or central armature type receiver units. At a "sensing" station, air flow is established through each acoustic resistor previously positioned within a pre-formed aperture of the frame, and the total resultant back pressure is measured, with the magnitude thereof being used as a control parameter in a fluidic circuit to determine the presence or absence, as well as acceptable or unacceptable position, of one or more resistors which should have pre-viously been seated in the frame. At the "staking" station, the magnitude of a similarly established back pressure is utilized as a control parameter in the fluidic circuit to determine the particular degree of force which should be applied to each resistor by the staking punches during each staking operation. This permits the air flow resistance exhibited by the resistors staked in each frame to be dynamically adjusted within very close limits, regardless of any physical variations that may exist between such resistors as manufactured. Memory circuitry within the fluidic circuit stores information received from both the sensing and staking stations and provides delayed output control signals for selectively operating frame ejection apparatus employed at Accept or Reject stations associated with, but removed from, the sensing and staking stations, respectively.

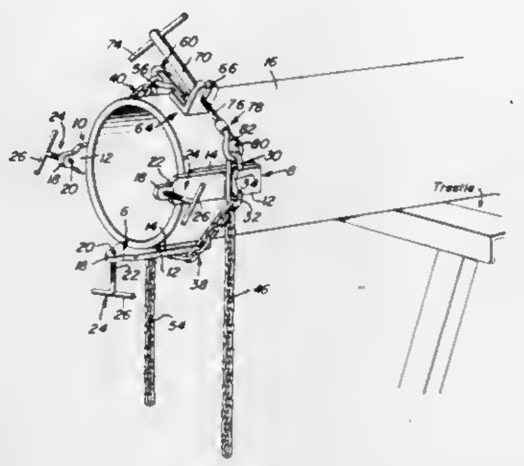
3,704,503
PIPE ALIGNING CLAMPING DEVICE

Jesse B. Haywood, 141 Louise Drive, S.E., Concord, N.C.

No Drawing. Filed Jan. 27, 1971, Ser. No. 110,048

Int. Cl. B23p *19/00*

U.S. Cl. 29—200 P **7 Claims**



A device for lining up and temporarily maintaining abutting ends of pipe sections in alignment preparatory to welding and permanently joining said sections. It comprises a plurality of companion clamps positioned and circumferentially spaced around a selected one of said pipe sections. Several chains, one short and two long, are operatively coordinated with and serve to link the several clamps together. Manually regulatable slack take-up and chain tautening means connects end portions of two of the encircling chains in a manner to draw the chains around the selected pipe section. Corresponding ends of the respective clamps project and provide circumferentially spaced jaw-like piloting guides which center and align the pipe sections. Setscrews or equivalent means on the projecting ends serve in a manner to retain the aligned ends for precision welding. This device saves time and material, dispenses with other tools, and takes the place of a helper.

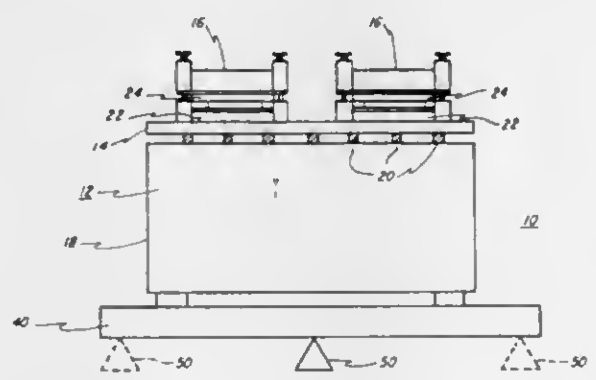
3,704,504
APPARATUS FOR INSERTING SMALL ARTICLES IN A MATRIX PLATE

Ansel A. Koegler, Macedon, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Aug. 6, 1971, Ser. No. 169,719

Int. Cl. B23p *19/04*

U.S. Cl. 29—208 R **10 Claims**



A matrix plate, formed with a plurality of apertures for receiving elongated articles therein, is mounted on a vibration machine. A honeycomb assembly having a plurality of cells is mounted on the matrix plate. Each cell has a preferred dimensional configuration to enhance the tumbling action of the elongated articles as they are walked from one cell to the next adjacent cell as well as to orient the articles in an erect position for insertion into the apertures of the matrix plate.

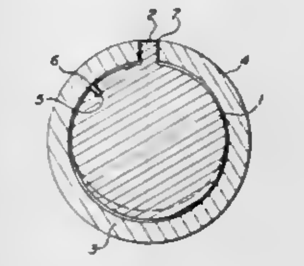
3,704,505
O-RING INSERTION TOOL

Wilford G. Lacer, Jr., 4013 W. Maricopa, Phoenix, Ariz., and Leland E. Mathews, 4422 W. Crittenden Lane, Phoenix, Ariz.

Filed May 10, 1971, Ser. No. 141,555

Int. Cl. B23p *19/00*

U.S. Cl. 29—235 **10 Claims**



A tool which provides for facile and rapid insertion of O-ring sealing members within rectilinear bushing seals.

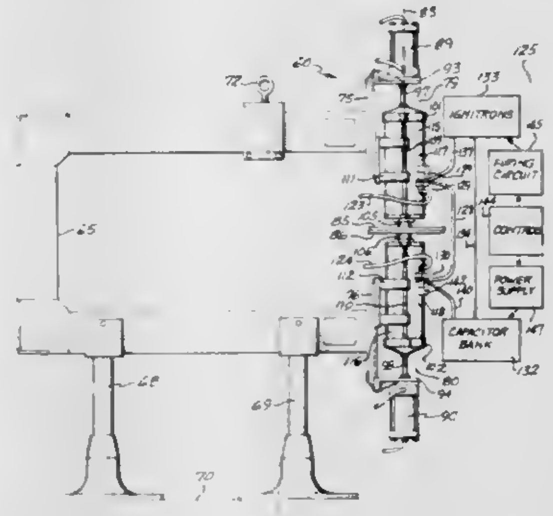
3,704,506
ELECTROMAGNETIC HIGH ENERGY FORMING

La Vero G. Orr, Auburn, and Nobuo Yutani, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Aug. 1, 1968, Ser. No. 749,386

Int. Cl. B23p *11/00*; **B21j** *15/24*; **B21d** *26/02*

U.S. Cl. 29—243.54 **31 Claims**



Disclosed is an apparatus utilizing the forces exerted upon a conducting surface of a tool by a pulsed intense magnetic field to propel the tool against a workpiece. The conductor surface is initially positioned in a pulsed high flux density magnetic field. As the conductor is subjected to the suddenly rising magnetic field, electrical currents (so-called eddy currents) are produced by the passage of the field into the conductor surface developing an intense force repelling the tool away from the means generating the magnetic field. The working surface of the propelled tool imposes a high density force against the workpiece suitable for cutting or otherwise forming it. A specific application of such a tool for installing rivets is described in detail. The improved riveted structure produced by the electromagnetically propelled riveter is also disclosed.

3,704,507
METHOD OF FABRICATING AND ATTACHING PIERCE NUTS TO A PANEL

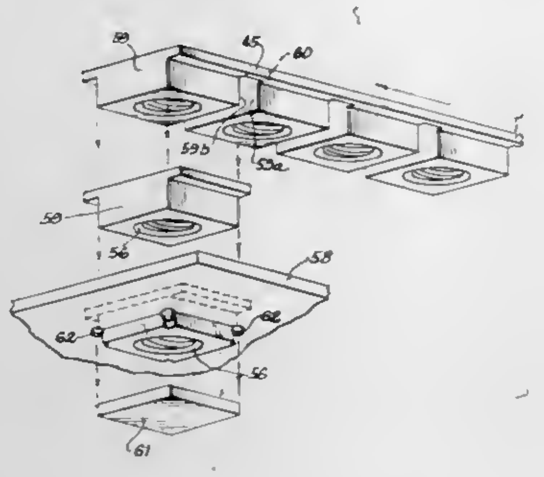
William L. Grube, Lake Bluff, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.

Filed March 23, 1970, Ser. No. 21,777

Int. Cl. B23p *17/00, 11/00*

U.S. Cl. 29—417 **5 Claims**

A strip containing a series of flanged pierce nuts connected by flexible and severable sections for use in automatically applying flanged pierce nuts to a panel. The method of forming the strip is also disclosed and comprises providing a blank strip formed with opposed laterally extending flanges, perforating the strip between the flanges, and then slotting the strip between adjacent perforations to form the nut body, after which the sides of the strips are straightened, the holes are threaded and the strip coiled into predetermined lengths. Further, there is disclosed the method of applying pierce nuts from such strip to a panel.



3,704,508
PROCESS FOR COMPACTING METALLIC POWDERS

Vincent N. Di Giambattista, 3371 Tacoma Circle, Ann Arbor, Mich.

Filed Feb. 24, 1971, Ser. No. 118,562
Int. Cl. B22f *1/00*

U.S. Cl. 29—420.5 **27 Claims**

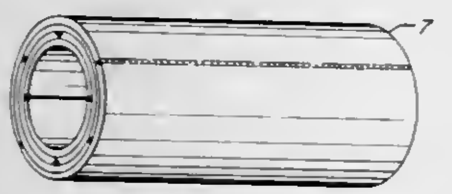
Metallic powders or mixtures of metallic powders together with a dilute solution of boric acid in methanol are consolidated at substantially atmospheric pressure and a temperature below the solidus point of the metallic powder to form consolidated articles having a theoretical density of 99% or greater. By employing different metallic powders, alloys can also be obtained.

3,704,509
ANNEALING FOR STRESS RELIEVING OF MULTILAYER PRESSURE VESSELS

Takeshi Yamauchi, Kobe, Japan, assignor to Kobe Steel, Ltd., Fukiai-ku, Kobe-shi, Japan

Filed July 6, 1970, Ser. No. 52,410
Claims priority, application Japan, July 5, 1969, 44/53385
Int. Cl. B23k *31/02*

U.S. Cl. 29—471.1 **6 Claims**



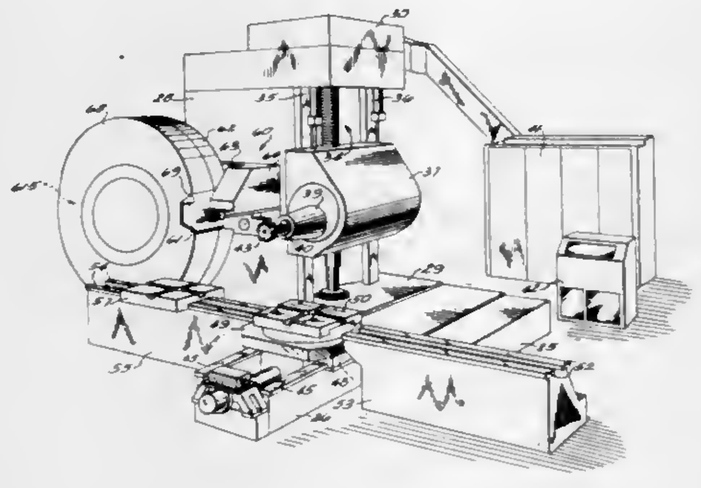
A process of annealing for stress relieving of multilayer pressure vessels having a multilayer wall of a material capable of being appreciably hardened upon subjection to the welding heat or of relatively thick plates, which comprises individually annealing for stress relieving a unitary multilayer cylinder with or without prior annealing of the innermost layer alone, and then locally annealing the vessel fabricated of the cylinder and end plates along the circumferential welds thereof.

3,704,510
MACHINE TOOL WITH TOOL CHANGER

Robert K. Sedgwick, Waukesha, Wis.; Werner K. Behrendt, Bielefeld, Germany, and Hans J. Baechle, Rockford, Ill., assignors to Kearney & Trecker Corporation, West Allis, Wis.

Continuation of Ser. No. 50,495, Aug. 18, 1960, abandoned. This application March 13, 1962, Ser. No. 181,226
Int. Cl. B23q *3/157*

U.S. Cl. 29—568 **37 Claims**



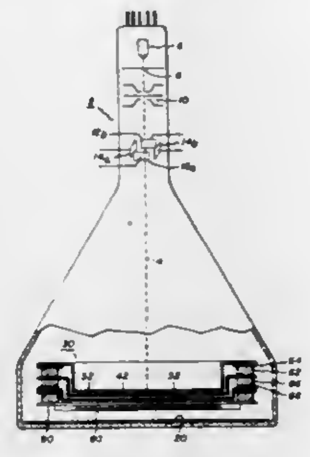
4. In a machine tool having a tool change station;
a tool change mechanism provided with extensible tool gripping means carried for bodily movement in the tool change station;
a tool storage matrix adapted to carry a plurality of cutting tools;
power operable means connected to move said storage matrix for moving a preselected tool into said tool change station;
positive drive means affixed to the preselected tool stored in said change station;
a power driven rotatable tool spindle provided with complementary positive driving means and being carried for bodily movement relative to the tool change station;
power driven means connected to effect bodily movement of said tool spindle into proximity to the tool change station and into predetermined spaced relationship to the preselected tool;
means for rotating said tool spindle to a predetermined angular position to facilitate insertion of a preselected tool carrying the positive driving means;
a releasable clamp mechanism carried by the tool receiving end of said tool spindle;
a control mechanism including power driving means connected to actuate said gripping means for extensible movement into clamping engagement with the preselected tool carried by said matrix, said control means being operative after the tool is clamped to effect bodily movement of said tool change mechanism for withdrawing the preselected tool carried thereby from said storage matrix to effect bodily movement of the preselected tool into a position of axial alignment with said tool spindle, and to effect bodily insertion of the preselected tool into the tool receiving end of said spindle, said control mechanism being then operative to release said gripping means to inactive position;
and means for actuating said clamp mechanism for securing the preselected tool in said spindle in a manner that the positive driving means respectively carried by said tool and said spindle are in positive intermeshing engagement.

3,704,511
FLY'S EYE LENS PROCESS

John M. Hooker, Owensboro, Ky., assignor to General Electric Company

Filed Dec. 18, 1969, Ser. No. 886,218
Int. Cl. B23k *21/00;* **B23p** *11/02*

U.S. Cl. 29—592 **9 Claims**



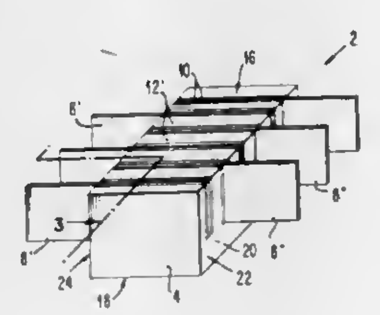
An improved structure and method for the electrostatic lens array of a fly's eye lens in an electron beam device resulting in precise parallel spacing of the planar lens electrodes as well as precise axial alignment of the arrays of openings in the lens electrodes.

3,704,512
UNITARY ELECTRO-OPTIC ARRAY DEVICE MAKING PROCESS

Arthur R. Siegel, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 29, 1968, Ser. No. 779,826
Int. Cl. H01c *7/00;* **H01j** *15/02*

U.S. Cl. 29—572 R **1 Claim**



An array of electro-optical units in the form of a unitary device is formed. A single electro-optical crystal, such as lithium, niobate, or its equivalent, has a number of parallel slots cut into the body of the crystal. Each slot is filled with an electrically conductive foil that is made to adhere to the walls of the slot using an electrically conductive adhesive. The foils extend beyond the boundaries of the crystal to serve as electrodes.

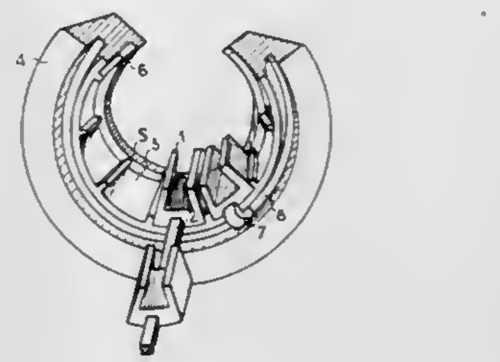
3,704,513
METHOD OF MANUFACTURING ROTATING COMMUTATORS, PARTICULARLY ADAPTED FOR AUTOMATIC MACHINE ASSEMBLY

Lucien Coquard, Asnieres, France, assignor to Societe Industrielle de Travaux Electro-Mecaniques (S.I.T.E.M.)

Filed May 14, 1970, Ser. No. 37,277
Int. Cl. H01r *43/00*

U.S. Cl. 29—597 **8 Claims**

A continuous strip of conductive material, for example copper, bronze, aluminum or the like is provided having, in alternate sections, the cross-sectional shape of commutator segments (channel-shaped, T-shaped, L-shaped, C-shaped), and rod-like connecting strips, preferably half, or less the thickness of the commutator segments. A ring-shaped mold is provided, having segmental steel inserts separated by separator strips of blued steel; the steel inserts form guide ways for the segments, which are pushed in, severed at the far end of the connecting strip, and the mold is then indexed to the next guide way position accepting a commutator segment from the continuous strip. The commutator ring is then secured together by molding plastic in the spaces between the commutator segments, as known, or are otherwise locked together for example by means of insulating spacer shims inserted between the segments, and the mold pressed together.

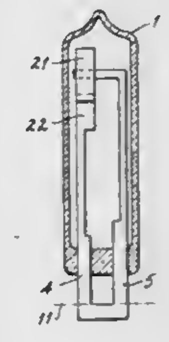


3,704,514
SEALED ARMATURE CONTACT RELAY MAKING PROCESS

Walter Fuchs, and Horst Esche, both of Berlin, Germany, assignors to Deutsche Telephonwerk und Kabelindustrie Aktiengesellschaft, Berlin, Germany

Continuation of Ser. No. 641,570, May 26, 1967, abandoned. This application Dec. 30, 1969, Ser. No. 888,125
Claims priority, application Germany, June 4, 1966, D 50248
Int. Cl. H01h *69/02*

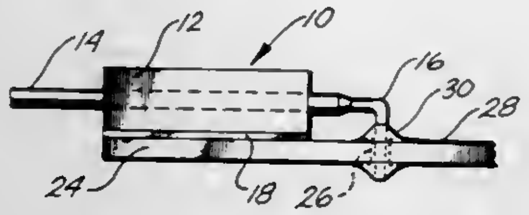
U.S. Cl. 29—622 **4 Claims**



Two magnetizable contact springs are hermetically sealed in a tube to be controlled by magnetic force from the outside. The two contact springs are made from flat strip material by a single stamping operation which produces a substantially rectangular frame structure which is open at one of the short sides where the contact faces are to be located. The frame is joined with, and sealed in, the tube so that the two leg portions of the frame structure extend to the outside of the tube where the frame structure is ultimately cut away to leave two separate terminals. A normally open contact is formed by bending one of the two legs, at least at its top portion, so that it forms a contact face opposite the contact face of the other leg.

3,704,515
METHOD FOR MOUNTING CONNECTORS ON PRINTED CIRCUIT BOARDS

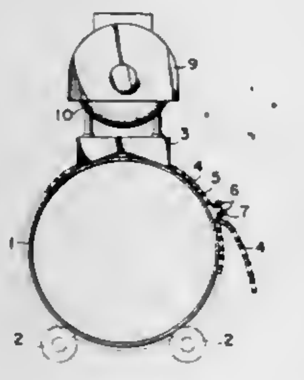
Robert D. Nelson, Covina, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed Dec. 10, 1969, Ser. No. 883,861
Int. Cl. H05k *3/30*; B21p *17/00*
U.S. Cl. 29—626 **1 Claim**



A method for mounting a connector with molded-in contacts on a printed circuit board using adhesive material for temporarily bonding the connector to the board during the time that the terminal pins of the molded-in contacts are permanently bonded to the board.

3,704,516
LARGE DIAMETER PIPE CUTTING DEVICE

Teizo Ono, 4-32 Itachibori Kitadori Nishiku, Osaka, Japan
Filed Oct. 22, 1970, Ser. No. 82,892
Int. Cl. B23d *45/12*, *47/02*
U.S. Cl. 30—96 **5 Claims**

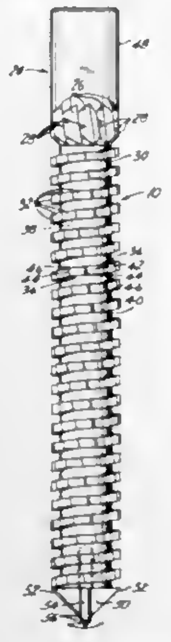


This invention relates to a large diameter pipe cutting device for cutting a large diameter steel or cast pipe by moving a cutting machine vertically and bilaterally along the outer periphery of the pipe, said cutting machine including a two-parallelly opposed legged plate support and a cutter driven by an electric motor, said plate support being guided along the outer periphery of the pipe by a bush chain or chains wound tightly on the pipe in a relation forming a vertical plane meeting at right angles with the axis of the pipe.

3,704,517
ROTATING ROD SAW AND METHOD OF MAKING SAME

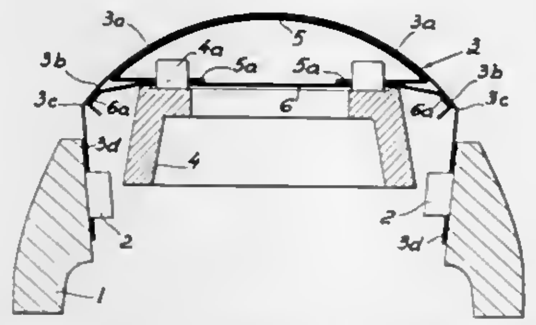
Thomas M. Deterling, 660 via Zapata, Riverside, Calif.
Filed Dec. 7, 1970, Ser. No. 95,475
Int. Cl. B27b *5/12*
U.S. Cl. 408—26 **6 Claims**

A rod is first grooved longitudinally along helical lines by broaching, milling, forging, or the like, after which a helical groove is cut by a threading die across the longitudinal grooves, the helixes of the grooves being oppositely directed to form cutting teeth having a leading chisel-like cutting edge from which a facing surface and a side surface trail, the included angle between the surfaces being acute. After wear, the teeth can be sharpened by reforming the grooves using dies of slightly smaller size. During cutting action, the rod saw develops thrust and tends to move lengthwise; a reaction member is provided to resist such movement and make for easier operation.



3,704,518
CUTTER HEAD FOR DRY SHAVING APPARATUS

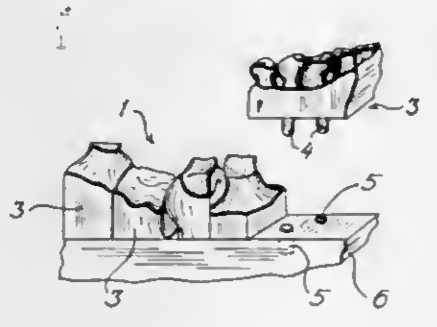
Gerhard Heyek, Rosenberggasse 61, 8010 Graz, Austria
Filed Sept. 8, 1970, Ser. No. 70,084
Int. Cl. B26b *19/04*, *19/10*
U.S. Cl. 30—346.51 **3 Claims**



In a cutter head for a dry shaver, a foil constituting an upper cutter is bent downwards at a margin to constitute an upper comb, a lower cutter and a lower comb constitute a unit which is reciprocated and urged upwards, but the lower comb is nevertheless a resilient part independent of the lower cutter.

3,704,519
METHOD TO PREPARE A DENTAL MODEL

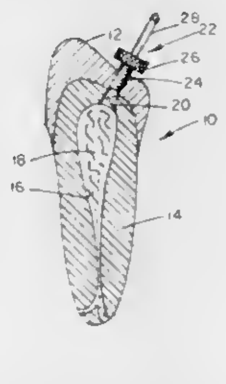
Gregers Lystager, Vedbaek, Denmark, assignor to Whaledent, Inc., New York, N.Y.
Filed May 19, 1971, Ser. No. 144,835
Claims priority, application Denmark, May 27, 1970, 2700/70
Int. Cl. A61c *13/00*
U.S. Cl. 32—11 **1 Claim**



A method of producing a model of teeth and jaws by providing a base having holes into which at least two pins on each removable segment of the model extend and mounting the jaw impression on the base so that the bushings stick into the base after the base has hardened.

3,704,520
METHOD OF REMOVING PULP FROM THE PULP CAVITY OF A NATURAL TOOTH AND APPARATUS FOR SAME

Bernard Weissman, 304 Ashland Place, Brooklyn, N.Y.
Filed March 9, 1971, Ser. No. 122,376
Int. Cl. A61c *5/02*
U.S. Cl. 32—57 **14 Claims**

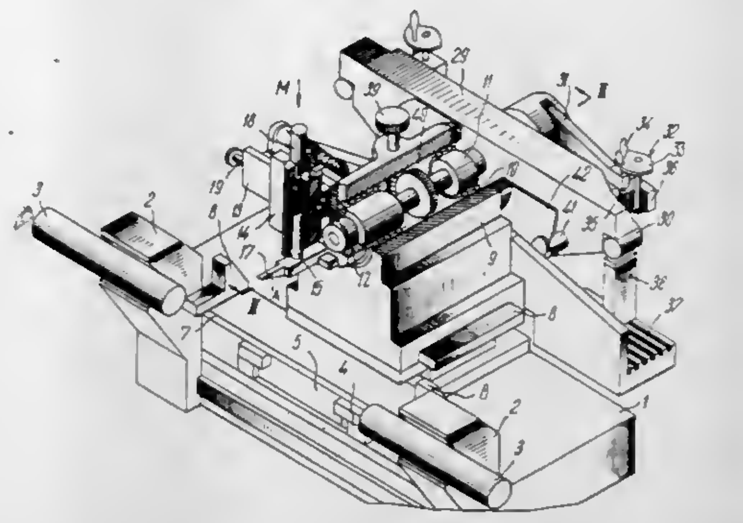


A method for extracting pulp from a pulp canal in teeth comprises forming a channel in a tooth and extending the channel into communication with a pulp canal in the tooth. An external suction source is then secured into communicating operative association with the channel and suction is induced in the pulp canal to extract pulp from the latter. The method furthermore comprises securing a liquid supplying external source into communicating operative association with the channel formed in the tooth and feeding the liquid into the pulp canal for flushing pulp out of the latter. The inducing of the suction and the feeding of the liquid is generally done in alternating relation with one another. Apparatus for extracting pulp in accordance with the method for same comprises a hollow member which may be detachably connected to the preformed channel provided in the tooth, separate conduit members for communicating with the external suction source and the liquid supplying source respectively, and a coupling member for connecting each of the conduits to the hollow member such that both the external suction source and the liquid supplying source each communicates with the pulp canal for extraction of the pulp in the latter.

3,704,521
INSTRUMENT FOR CHECKING LINE OF CONTACT OF SPUR GEARS FOR STRAIGHTNESS AND NOMINAL DIRECTION

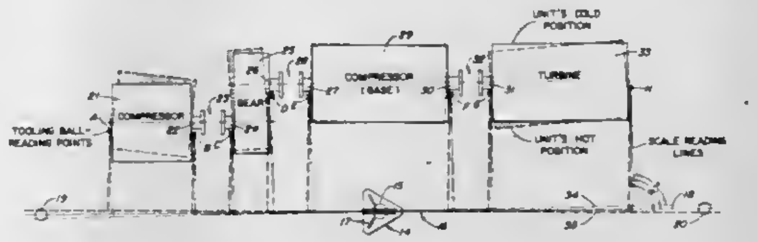
Lev Arkadievich Arkhangelsky, and Ljubov Mikhailovoa Semenova, both of Moscow, U.S.S.R., assignors to Bjuro Vzaimozamenyaemosti V. Metalloobrabatyvajuschei Promyshlennosti, Moscow, U.S.S.R.
Filed Sept. 2, 1969, Ser. No. 854,611
Int. Cl. G01b *3/20*, *5/20*
U.S. Cl. 33—179.5 R **3 Claims**

Method and apparatus for checking the line of contact of helical gears in which a measuring carriage with a tangential measuring instrument acts on a measuring head, when the carriage is moving along a guide, to move the head through an angle equal to the spiral angle on the pitch cylinder of the gear being measured. The apparatus also comprises a removable blade for determining the point on the edge of the tangential measuring instrument which contacts the line of contact at the pitch cylinder of the gear.



3,704,522
METHOD AND APPARATUS FOR OPTICAL ALIGNMENT OF INDUSTRIAL EQUIPMENT

Robert L. Blubaugh; Robert A. Ruckle, and Hubert J. Watts, all of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
Continuation-in-part of Ser. Nos. 702,478, Feb. 1, 1968, abandoned, and Ser. No. 836,503, June 25, 1969. This application Jan. 19, 1970, Ser. No. 3,968
Int. Cl. G01c *21/00*
U.S. Cl. 33—286 **7 Claims**

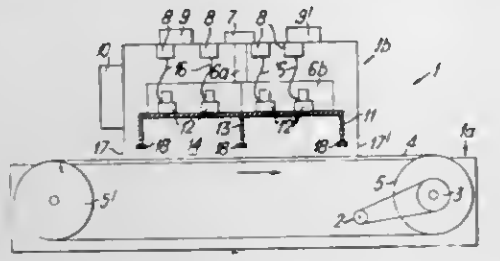


A method and apparatus for aligning kinematic trains of industrial apparatus by optical metrology, the method including the steps of establishing a reference line of sight adjacent the devices in the kinematic train and extending generally parallel to the train, then obtaining precise measurements to the shortest distance to the reference points on the several devices by optical measurements. The measurements are made when the apparatus is in a cold, inoperative state. Then, after the apparatus has become heated and is in operation, a reference line of sight is again established adjacent the devices in the kinematic train, and then the shortest distance is then measured from the line of sight the same reference points on the devices that were used in obtaining the cold measurements. Comparison of the sets of hot and cold measurements is then made to determine the shift or change in position of the devices relative to each other which has occurred in the course of the operation of the apparatus.

3,704,523
MICROWAVE DRYER FOR CERAMIC ARTICLES

Michel Henri Guerga, Clichy sous Bois, and Bernard Lucien Desire Hailler, La Varenne, both of France, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Jan. 11, 1971, Ser. No. 105,391
Claims priority, application France, Jan. 14, 1970, 7001187
Int. Cl. B01k *5/00*
U.S. Cl. 34—1 **9 Claims**

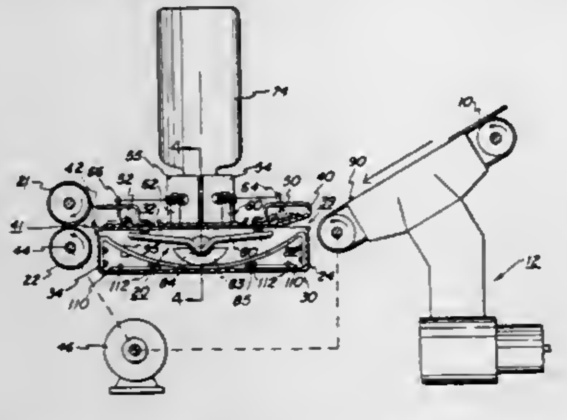
A process and an apparatus are provided for drying molded ceramic objects using a combination of microwave heating and air ventilation. The objects are heated rapidly in a first microwave cavity oven while applying a relatively light flow of air. The objects are then maintained at a constant temperature in a second microwave oven while applying a heavy flow of air to evaporate water. The oven cavities are in a common enclosure divided by a partition with separate magnetron generators mounted in each portion. Ventilating ducts connected to an air source supply air to the cavities. Molds carrying the objects are fed by a belt into each cavity in a controlled heating and drying sequence to produce large quantities of ceramic objects with minimum cracking and warping. The power and space requirements are also reduced.



3,704,524
APPARATUS FOR DEVELOPING LATENT ELECTROSTATIC IMAGES

Roman C. Kamola, North Rose; Michael A. Vince, Penfield; Robert W. Gundlach, Victor, and Kenneth W. Gunther, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 874,423, Nov. 6, 1969, abandoned. This application March 1, 1971, Ser. No. 119,775
Int. Cl. F26b ***19/00***
U.S. Cl. 34—56 **4 Claims**



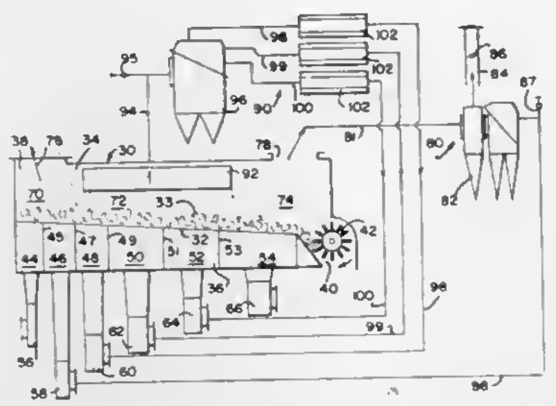
Vapor fusing apparatus comprising a substantially enclosed chamber having ingress and egress openings associated therewith. A solvent soluble powder image, formed on a support member, is delivered to the chamber through the ingress opening, the image being fused to the support member by solvent vapor generated in the chamber. The support member, after the image is fused thereto, exits from the chamber through the egress opening. The ingress and egress openings of the chamber are located above the level of maximum concentration of the solvent vapor generated in the chamber to minimize vapor loss to the atmosphere. The support member is under continuous and positive control during the fusing operation.

3,704,525
MATERIAL COOLER WITH RECYCLING OF COOLING GAS

Daniel T. Devel, Le Perreux, France, assignor to Fuller Company, Catasanqua, Pa.

Filed Oct. 27, 1971, Ser. No. 193,027
Claims priority, application France, Nov. 6, 1970, 7040103
Int. Cl. F26b ***9/00***
U.S. Cl. 34—164 **10 Claims**

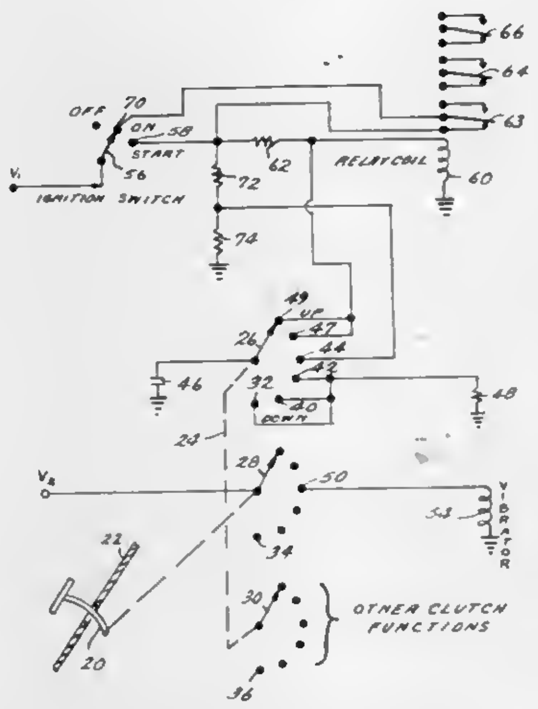
A cooler for hot material such as cement clinker with an arrangement for recycling cooling air. The cooler includes a housing divided into an upper material chamber and a lower plenum chamber by a gas permeable grate which supports and advances the material through the material chamber. Ambient cooling air is blown through the hottest and the coolest material. Two air recirculation circuits are employed. The ambient air blown through the coolest material is divided so that a portion goes to each recirculation circuit. One recirculation circuit returns air to the plenum chamber at a point where it will pass through the material to be cooled and then be conducted to the furnace. The other recirculation circuit returns air to the plenum chamber at points where it will pass through the material and some of it will be conducted to a furnace, while the remaining air will be returned to the recirculation circuit. An indirect heat exchanger is mounted in one of the recirculation circuits.



3,704,526
RC CLUTCH STALL CIRCUIT FOR A DRIVER-TRAINER SIMULATOR

Wayne W. Frame; Roy A. Gustavson, and James Wiltse, all of Michigan City, Ind., assignors to Aetna Life & Casuality

Filed Dec. 23, 1970, Ser. No. 101,085
Int. Cl. G09b ***9/02***
U.S. Cl. 35—11 **10 Claims**

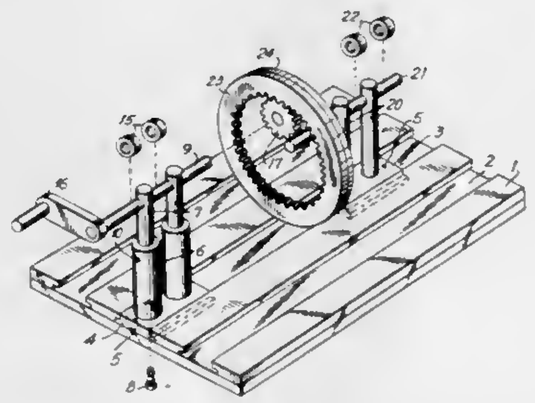


A method and apparatus for use in a driver trainer simulator of the type wherein a clutch pedal is provided for operation by the student under simulated driving conditions. In the embodiment described below, the clutch pedal is mechanically linked to a plurality of switches which each sequentially connect to a number of associated contacts as the pedal is pressed and released. One of these contacts is associated with the point at which the clutch pedal would be engaged in a conventional vehicle and when the switch is connected to this contact an associated capacitor is charged through a resistive network. The next contact encountered by the switch as the now engaged clutch pedal is further released connects the charged capacitor across a relay coil so that the relay remains activated only if the rate at which the clutch pedal was released through the friction point was slow enough for the capacitor to charge to a given level. Thus deactivation of the relay coil represents a popped clutch and causes controlled switches to produce an indication on the simulator that a stall condition has been produced.

3,704,527
MECHANICAL TRANSFER TEACHING SYSTEM WITH UNIVERSAL MOUNTINGS

Stephen A. Berkman, 68 Barnsdale Rd., Wayne, N.J.

Filed April 6, 1970, Ser. No. 25,751
Int. Cl. G09b ***25/02***
U.S. Cl. 35—13 **2 Claims**

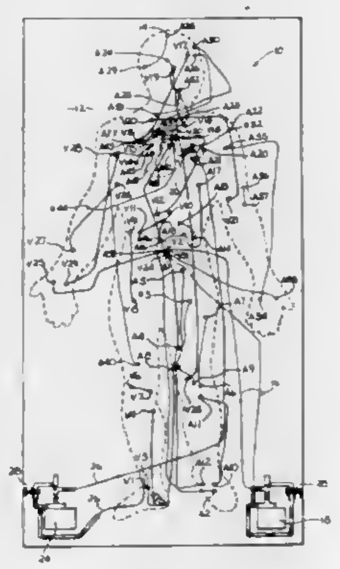


A mechanical transfer teaching system including a planar base having a plurality of parallel grooves therein, a plurality of shaft support bases slidably disposed within and interlocked with said grooves, one or more shaft supports perpendicular to each shaft support base and rotatably attached thereto, which shaft support base and shaft support serve as a universal mounting to which mechanical transfer elements can be interchangably attached.

3,704,528
DISPLAY DEVICE FOR AN ANIMAL CIRCULATION SYSTEM

Raymond J. Lewis, 9802 Lincoln Avenue, Apt. U6, Anaheim, Calif.

Filed Aug. 17, 1970, Ser. No. 64,247
Int. Cl. G09b ***23/28;*** **G09f** ***13/24***
U.S. Cl. 35—17 **1 Claim**

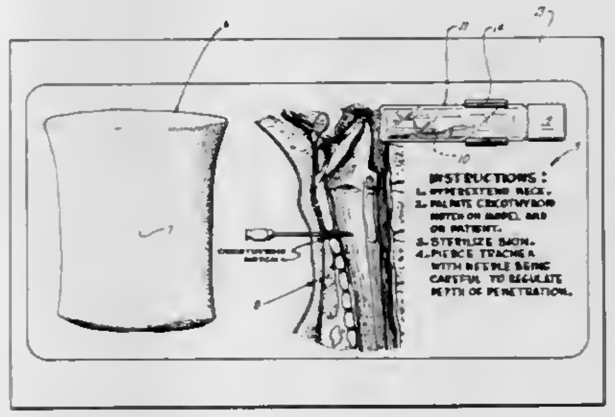


A display device for an animal circulation system having a sheet material base in the form of a likeness of the animal, locating a first transparent fluid conducting tube system upon the base to represent the blood circulation arteries of the animal, locating a second transparent fluid conducting tube system upon the base to represent the blood circulating veins of the animal, visually differentiating the first system from the second system, the fluid flowing within each system including both liquid and gas.

3,704,529
TRAINING AND INSTRUCTION DEVICE FOR PERFORMING CRICOTHYROIDOTOMY

Forrest J. Cioppa, 3346 Vaughn Road, Lafayette, Calif.

Filed July 13, 1970, Ser. No. 54,283
Int. Cl. G09b ***23/30;*** **A61b** ***17/00***
U.S. Cl. 35—17 **4 Claims**

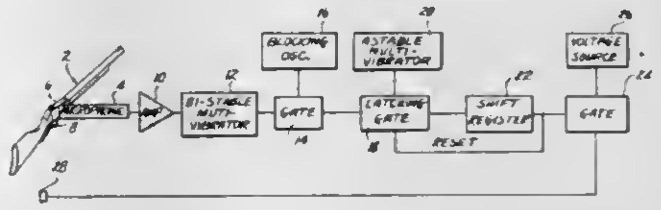


A training and instruction device for performing a cricothyroidotomy on a patient having an upper airway obstruction and including an anatomical model of the human throat formed with a cricothyroid notch for visual and tactile instruction of the location of the cricothyroid notch and the corresponding anatomical landmark on the patient, and a hollow bore needle demountably secured adjacent the model for removal and insertion into the throat of the patient at the thus identified cricothyroid notch.

3,704,530
ANTI-FLINCH TRAINING APPARATUS

Gary N. Arenson, 6717 Anders Terrace, Springfield, Va.

Filed June 14, 1971, Ser. No. 152,691
Int. Cl. F41g ***3/26***
U.S. Cl. 35—25 **5 Claims**



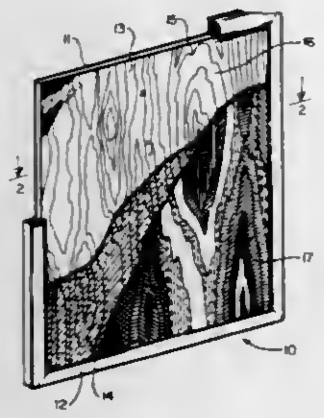
A microphone on a firearm detects the fall of the hammer and a pulse output is processed to be passed only as a result of closure of a randomly operated gate. A pulse passing through said gate encounters a selectively variable delay then directs a voltage pulse to a trainee operating the rifle, to provide a stimulus to simulate the recoil of the weapon.

3,704,531
NATURE ART WOOD GRAIN PAINTING KIT

Calvin L. Seals, P.O. Box 424, Daphne, Ala.

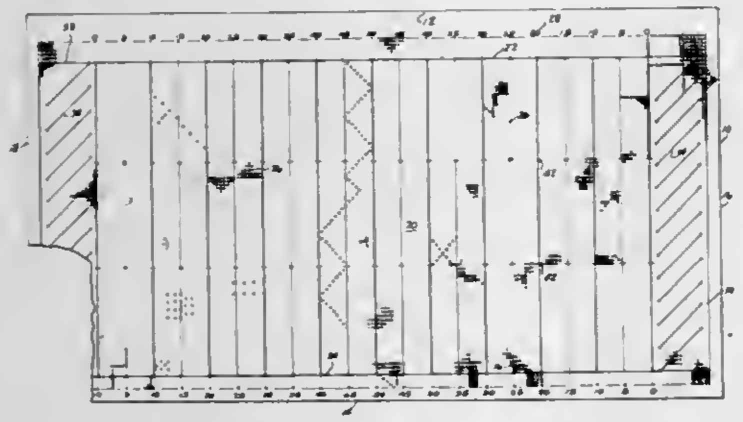
Filed Oct. 23, 1970, Ser. No. 83,316
Int. Cl. G09b ***11/04***
U.S. Cl. 35—26 **8 Claims**

A method of making an abstract picture which involves preparing a wood panel or wood section for application of differently colored coatings thereto. The surface of a wood panel; such as in plywood, has a multiplicity of irregular shape and size sections defined by distinctive, irregular wood graining. Dependent upon the cutting angle of a solid piece of wood, the cut section may provide a surface with a distinctive, somewhat regular line pattern from the age or year lines of the growth of a tree. The surface of the wood panel or wood section may further be sand blasted to give unique depth and contour irregularity, which can then be sealed. Conversely, the pores of the surface of the wood panel or sections may be filled to evenness, and then sealed. Thereafter, paints, lacquers or other opaque or translucent colored liquids can be used in applying the colored decorative coatings. Alternatively, colored pieces of paper, plastic, wood or metal materials may be cut respectively to be applied to sections within the outline defined by the graining. The unique, self imaginative, colored art creation could then be framed and hung. Furthermore, a kit may be provided which contains paints, brushes, wood panels and/or sections of different cuts and periphery shapes for making wood grain art pictures.



3,704,532
CHART BOARD AND METHOD FOR DEMONSTRATING BAND FORMATIONS AND MANEUVERS

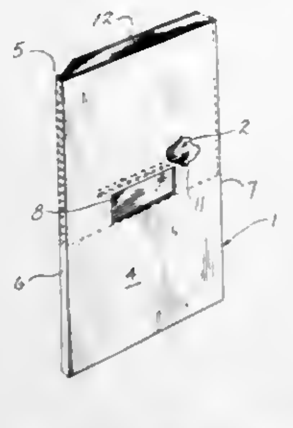
Richard W. Dambach, 618 N. Cherry Street, Kenton, Ohio
Continuation of Ser. No. 715,219, March 22, 1968, abandoned. This application March 13, 1970, Ser. No. 19,479
Int. Cl. G09b *1/10*
U.S. Cl. 35—29 R **3 Claims**



A chart board for teaching marching band formations and maneuvers on a football field. The board has a planar surface inscribed with indicia simulating a football field. Openings are provided on the surface of said board to receive pegs representing the band members. The spacing between the openings is scaled and correlated to the indicia on the board to duplicate an average marching interval or step on the football field.

3,704,533
TACHISTOSCOPE

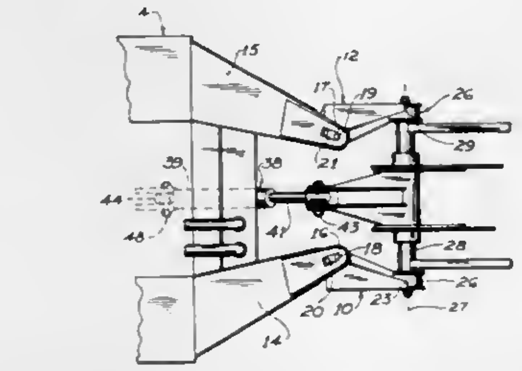
Raymond B. Weber, Oconomowoc, Wis., assignor to Milprint, Inc., Milwaukee, Wis.
Filed June 24, 1970, Ser. No. 49,373
Int. Cl. G09b *17/04*
U.S. Cl. 35—35 B **3 Claims**



A tachistoscope formed of a paperboard blank folded into a sleeve and a shutter which slides freely within the sleeve. A viewing window in the front wall of the sleeve is aligned with an index window in the back wall, and an index card containing printed matter is retained against the back wall of the sleeve over the index window. The shutter is dropped through the sleeve and an opening in the shutter momentarily passes between the windows to allow a person looking through the viewing window a brief glimpse of the printed matter on the index card.

3,704,534
ARTICULATED LINKAGE CONNECTION FOR AN EXCAVATING MACHINE

Hans L. Preu, Huron, Ohio, assignor to American Hoist and Derrick Company, St. Paul, Minn.
Filed Aug. 12, 1970, Ser. No. 63,234
Int. Cl. E02f *5/06*
U.S. Cl. 37—83 **5 Claims**



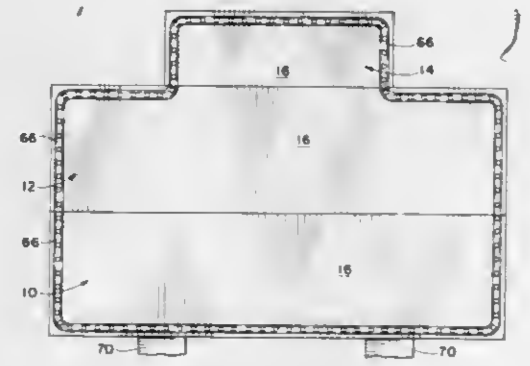
An articulated connection for use in an excavating machine having a tractor frame and a digger frame. The articulated connection comprises a pair of link members each being pivotally connected at one end to the tractor frame and at their other ends to the digger frame to enable shifting movement of the tractor frame with respect to the digger frame for digging a curved trench.

3,704,535
SIGN CONSTRUCTION INCLUDING NOVEL SECTION ASSEMBLIES AND SECTION JOINDERS

Hugh V. Penton, San Marino, and Gerald P. Dunphy, Anaheim, both of Calif., assignors to California Metal Enamelling Company, Los Angeles, Calif.
Filed Aug. 13, 1970, Ser. No. 63,543
Int. Cl. G09f *7/20*
U.S. Cl. 40—125 K **6 Claims**

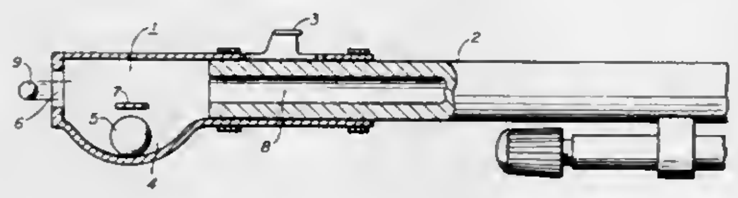
A plurality of sign various sizes of sections are similarly formed so that a plurality of selected sign sections may be

positioned vertically and/or horizontally abutting such as a lower first and intermediate second both secured to spaced, vertical ground supporting posts and the intermediate second and an upper third both secured to spaced, vertical tying members. Each sign section has spaced, front and rear, sheet-like face panels adhesively secured internally to a honeycomb core and at edge portions to upper, lower and side border members extending between the face panels. Each sign section has opposite unitary border members having in transverse cross section upper U-shaped and lower inverted U-shaped portions vertically spaced by a central vertical portion, a longitudinally extending, C-shaped chamber being formed between the upper and lower portions and rearwardly of the vertical portion opening rearwardly through a vertically intermediate, horizontal slot formed by flange extensions of the upper and lower portions. These C-shaped chambers are dimensioned for slidably and nonrotatably receiving heads of fastening bolts therein through enlarged slot openings with shanks of the bolts projecting rearwardly through the slots for securement to the ground supporting posts or tying members or both. In vertically abutting sign sections, the side border members are vertically extending and outwardly opening, U-shaped cross section extending vertically upwardly covering end extremities of the upper border members with water drain openings being formed through the side border members horizontally into the upper portions of the upper border members. Between abutting sign sections, H-shaped cross section alignment members are positioned partially in each of the opposed open border member portions retaining alignment between the abutting sign sections.



3,704,536
GUN SAFETY DEVICE

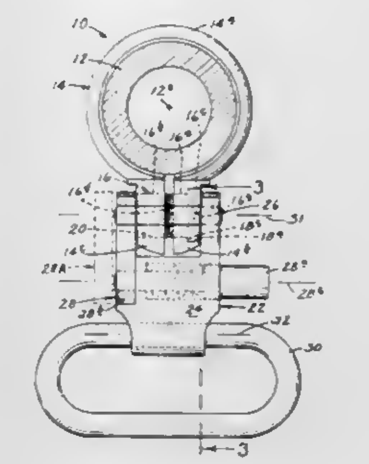
Henry J. Kratt, 6633 S. Birmingham, Tulsa, Okla.
Filed Aug. 7, 1970, Ser. No. 61,924
Int. Cl. F41c *17/06, 17/08*
U.S. Cl. 42—1 R **3 Claims**



In combination with the barrel of a gun, a gun safety device comprising a chamber with a obstructing object therein, the said chamber being constructed in such a manner so as to allow the movement of the obstructing object into the path of a projectile traveling in the gun barrel when the barrel of the gun is in any position but approximately horizontal.

3,704,537
GUN BARREL MOUNTING FOR SLING SWIVEL

Preston V. McKinzie, Auburn, Calif., assignor to Michaels of Oregon Co., Portland, Oreg.
Filed Jan. 14, 1971, Ser. No. 106,473
Int. Cl. F41c *23/02*
U.S. Cl. 42—85 **6 Claims**



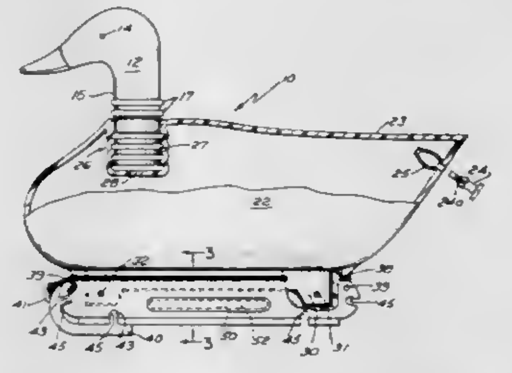
A gun barrel mounting for a sling swivel of the type having a hinge pin for mounting purposes. The mounting includes a band which is adapted to be tightened around a barrel by means of a screw device which attaches to end portions in the band, and which contains a double-open-ended bore that is sized freely to receive the hinge pin in a swivel.

ERRATUM

For Class 43—135 see:
Patent No. 3,704,981

3,704,538
WATERFOWL DECOY

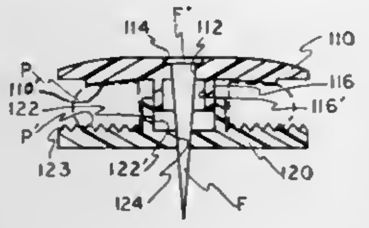
Kenneth M. Gagnon, 302 Reservoir Avenue, Lincoln, R.I.
Filed June 15, 1971, Ser. No. 153,367
Int. Cl. A01m *31/06*
U.S. Cl. 43—3 **7 Claims**



An air inflatable waterfowl decoy comprised of separable head and body portions. The head portion has a neck having annular ridges formed adjacent its bottom. The body portion is a flexible shell having a neck socket formed along its top forward area. A plurality of vertically spaced annular recesses are formed within the neck socket for matingly engaging the annular ridges on the neck to position the head of the decoy at a plurality of different vertical locking positions. Formed integrally and internally within the shell is a valve seat sleeve into which is inserted the plug valve used to inflate the body portion. A keel positioned along the bottom surface of the body portion has grooves at opposite ends for receiving an anchor line wound therearound when the decoy is not in use. It also has identical cavities at its opposite ends so that a mating protuberance on the anchor weight may be lockingly received at either end of the keel. The keel may also be detachable; thus the decoy can be used on land as well as upon water.

3,704,539
POISON BAIT STATION FOR SMALL BUGS OR THE LIKE

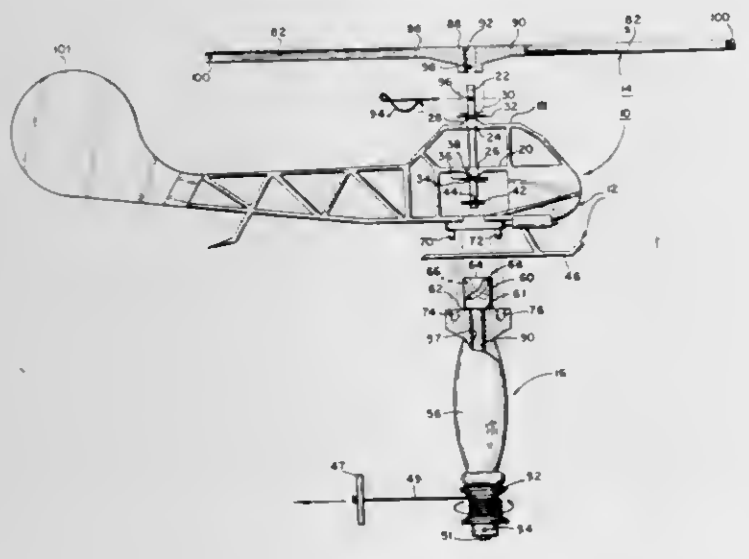
Bernard V. Alvarez, Route 1, Box 32, Inman, S.C.
Filed Oct. 12, 1971, Ser. No. 188,167
Int. Cl. A01m *1/20*
U.S. Cl. 43—131 **22 Claims**



A poison bait station is disclosed that is capable of deployment within the household so as to position a poison at any desired location and attitude along a path used by roaches, ants, bugs or the like. The poison station of the present invention is designed to prevent access to the poison by children or dogs, cats or other pets; to permit installation at virtually any desired location; and to maintain the poison in place during use without the danger of inadvertent spreading of the poison. The instant poison station comprises a cover that may be of unitary or two piece construction, said cover having a centrally located member secured thereto and depending therefrom, around which a unitary poison tablet, gel or the like is positioned and secured. A fastening member and/or a pressure sensitive adhesive are incorporated into the design to permit semi-permanent securement of the station to virtually any surface. Furthermore, the cover is preferably transparent whereby one can visually inspect the device from time to time to determine whether any poison remains therein. Spacers may also be provided around the cover to limit the degree of securement of the station while simultaneously determining the size of the opening under the cover through which the bug, etc. may pass to reach the poison. A shield may also be made a part of the station to permit outside use where the poison is disposed in a vertical plane.

3,704,540
HELICOPTER WITH ROTOR HAVING METAL RING FOR FLYWHEEL EFFECT

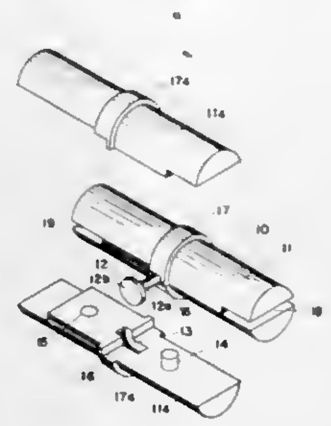
Roland P. Montagu, Houston, Tex., assignor to Olympic Overseas, Inc., Houston, Tex.
Filed Aug. 24, 1970, Ser. No. 66,247
Int. Cl. A63h *27/12, 27/14*
U.S. Cl. 46—75 **1 Claim**



A toy helicopter having a rotating bladed wheel with a spindle extending from the center and a launcher detachably receiving the spindle for transmitting rotational movement thereby storing kinetic energy in the wheel. At the end of the transmitted rotational movement, the toy is automatically ejected from the launcher and becomes airborne. A fuselage of desired configuration and with suitable landing gear is rotatably mounted on the spindle to allow the wheel to freely spin relative to the fuselage during both the launching movement and flight.

3,704,541
TUBULAR MAZE TOYS

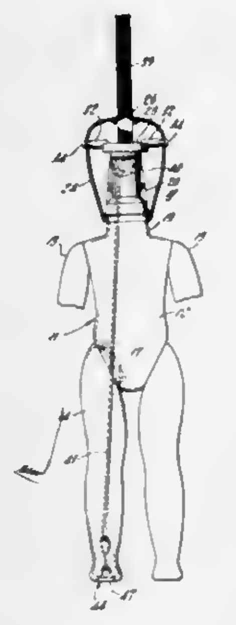
Robert Arthur Kennedy, 600 Hamilton Street, Stoughton, Wis.
Filed Aug. 11, 1971, Ser. No. 170,704
Int. Cl. A63h *33/10*
U.S. Cl. 46—26 **3 Claims**



An instructional toy for building multidimensional circular and arcuate structures which suggest non-circular configurations in appearance. The toy has a plurality of substantially elongated flexible but resilient arcuate elements and a plurality of multiple connecting devices for linking the arcuate elements end-to-end and tangentially.

3,704,542
DOLL

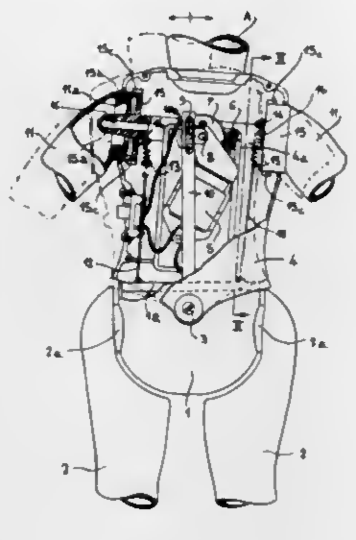
Bernard Suchowski, Howard Beach, N.Y., assignor to Alsu Development Corporation, Queens County, N.Y.
Filed July 1, 1970, Ser. No. 51,486
Int. Cl. A63h *11/00*
U.S. Cl. 46—135 R **9 Claims**



A doll hollow body includes a turnable head having an opening in its top and a lock of hair extends through the opening and is retracted by a rubber band extending between the lock of hair and a leg outer end. The lock of hair passes through a pair of eccentric openings in superimposed clamp plates in the head; one plate being affixed to the torso and the other to the head so that turning of the head opens and closes the aperture delineated by the plate openings to alternatively lock or release the lock of hair. A stop is provided to limit the maximum extension of the hair.

3,704,543
WALKING DOLLS

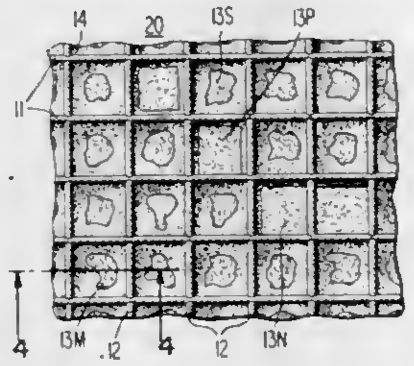
Germain Giroud, Moingt-par-Montbrison, Loire, France
Filed July 27, 1971, Ser. No. 166,407
Claims priority, application France, Aug. 5, 1970, 7029608
Int. Cl. A63h *11/14*
U.S. Cl. 46—150 **4 Claims**



A walking doll of the kind in which the upper part of the body receives an alternate lateral rocking movement in relation to the lower part bearing the legs, characterized in that said lower part is connected to arms which are mounted pivotally on the upper part, in such manner that said arms receive an alternate angular displacement in synchronism with the pivoting of the legs.

3,704,544
GROUND COVER SHEET

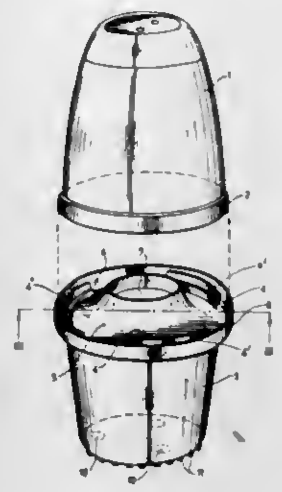
Abram N. Spanel, Princeton, N.J., and Roy P. Terry, Jr., Columbus, Ga., assignors to Abram N. Spanel, a part interest
Filed Sept. 28, 1970, Ser. No. 75,930
Int. Cl. A01g *1/00*
U.S. Cl. 47—9 **3 Claims**



A ground cover sheet for protection against soil erosion is provided with a plurality of recesses, portions of which are moisture-permeable for controlled flow of water through the permeable portions to the soil beneath. The recesses are formed by the strands of an open mesh web adhesively secured to a relatively thin paper-tissue, preferably of the wet-strength type, the adhesive itself being a plant food and which may contain added fertilizer for feeding plants.

3,704,545
PLASTIC CONTAINER FOR BULBOUS PLANTS

George Leonardus Johannes Van Reisen, Hoofdstraat 307, Sassenheim, Netherlands
Filed April 21, 1970, Ser. No. 30,426
Int. Cl. A01g *9/02*
U.S. Cl. 47—34.11 **8 Claims**



A plastic container for bulbous plants is disclosed comprising an opaque pot for the bulb and the surrounding earth, a resilient coupling rosette that acts as a lid for the pot and retains the bulb and the earth in the pot at any moment and a transparent cover mounted or mountable over the pot and — if mounted — coupled to the rosette and thus directly to the pot.

The coupling rosette preferably has a central part provided with a growing aperture.

The transparent cover both acts as a protection of the green parts of the bulbous plant during transport and as a hot house after delivery at the customer.

In a preferred embodiment the couplings between both the pot and the rosette and between the rosette and the cover are rotationally symmetrical in order to be mechanically achievable.

The container is also useful without cover.

3,704,546
SYMBIOTIC FIXATION OF ATMOSPHERIC NITROGEN

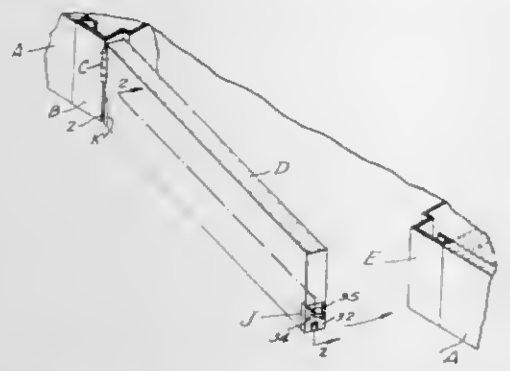
Ralph W. F. Hardy, Unionville, Pa., and Richard D. Holsten, Wilmington, Del., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del.
Continuation-in-part of Ser. No. 805,382, March 7, 1969, abandoned. This application June 4, 1971, Ser. No. 150,179
Int. Cl. A01h *17/00*
U.S. Cl. 47—58 **3 Claims**

inoculated cells from plants are caused to grow aseptically in a synthetic liquid culture medium to produce a mass of undifferentiated plant cells. These are aseptically incoulated with a symbiotic microorganism to produce a synthetic symbiotic system that is capable of fixing atmospheric nitrogen. The end product contains available protein material.

3,704,547
AUTOMATIC CLOSURE SEAL

Robert A. Hansen, Katonah, N.Y., and Lewis A. Jerchower, Paramus, N.J., assignors to Pioneer Industries, Division of SOS Consolidated, Inc.
Filed May 2, 1969, Ser. No. 828,078
Int. Cl. E06b *7/20*
U.S. Cl. 49—308 **4 Claims**

The present closure seal is mounted completely along an edge of a closure such as a door, window or the like and with the closure in its open position, the seal is spaced from a sill, but upon the closure being in its closed position, the seal automatically engages the sill sealing off the space between the closure and the sill.



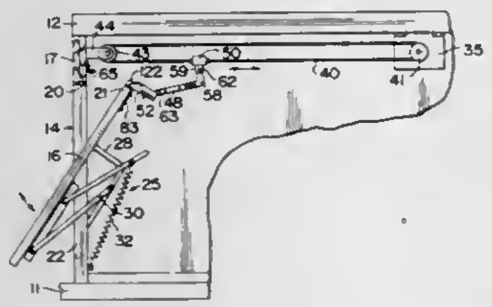
3,704,548
SAFETY DOOR LATCH

Edward A. Wiegleb, Totowa, N.J., assignor to The Celotex Corporation, Tampa, Fla.

Filed April 26, 1971, Ser. No. 137,510

Int. Cl. E05f *15/00*

U.S. Cl. 49—199 **4 Claims**



A novel door latch is provided in which a catch element is secured to the inside of a door lintel and a pivotal latch finger engages and is disengaged from the catch by the operating arm which opens and closes the door.

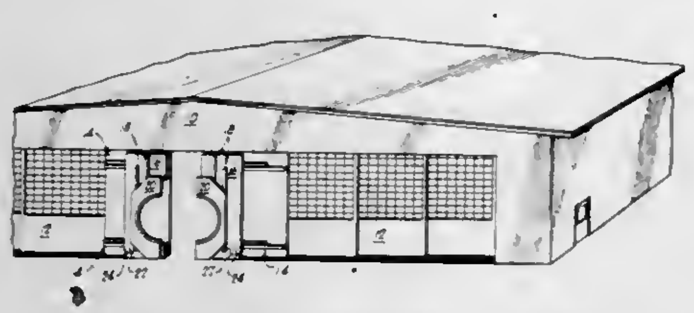
3,704,549
AUXILIARY DOOR FUSELAGE CLOSURE

Everette G. McGhee, 4917 N.W. 34th Street, Oklahoma City, Okla.

Filed March 22, 1971, Ser. No. 126,449

Int. Cl. E06b *3/42*

U.S. Cl. 49—370 **15 Claims**



The present invention contemplates a closure having primary utility for creating a snug fit between a hangar door and the tail section of an aircraft which projects through the door. In one embodiment, the invention includes carrier support means which are fixed to the hangar door on two opposing sections thereof. Secured to the carrier support means on each side of the opening in the hangar door are aperture carriers, each of which is mounted for movement on the support means toward and away from the other aperture carrier. A slot is formed in the abutting edges of each of the carriers so that when the carriers are adjacent each other, a continuous opening of generally circular cross-sectional configuration is created. Sliding vertically along support means mounted on each of the aperture carriers is an aperture frame which has a semicircular cutout formed thereon to register with the slot formed in the aperture carriers. As in the case of the aperture carriers, the semicircular cutouts formed in the aperture frames are so situated in each of the frames that when the frames abut a circular opening through the planes thereof is formed. Motive means are provided for moving the aperture frames vertically upward and downward with respect to the aperture carriers while similar motive means are provided for moving the aperture carriers toward and away from each other.

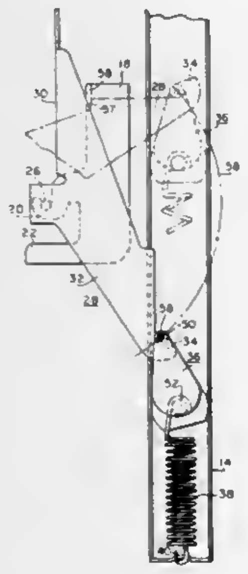
3,704,550
DISHWASHER DOOR COUNTERBALANCE ARRANGEMENT

Charlie L. Hancock, Grove City, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 11, 1971, Ser. No. 142,307

Int. Cl. E05f *1/10*

U.S. Cl. 49—386 **10 Claims**



Tension springs for counterbalancing a swing-down dishwasher door are nested in outwardly-open, channel-shape support legs for the dishwasher tub, and pivotal connector means which slide along the legs connect the upper ends of the springs to the ends of the lever arms of the dishwasher door bracket so that the springs will be elongated only along their axes and the connectors will pivot to accommodate the varying perpendicular distances between each spring axis and points on the path of movement of the end portion of the lever arm when the door is moved between its opposite positions.

3,704,551
AUTOMATIC GRINDING MACHINE

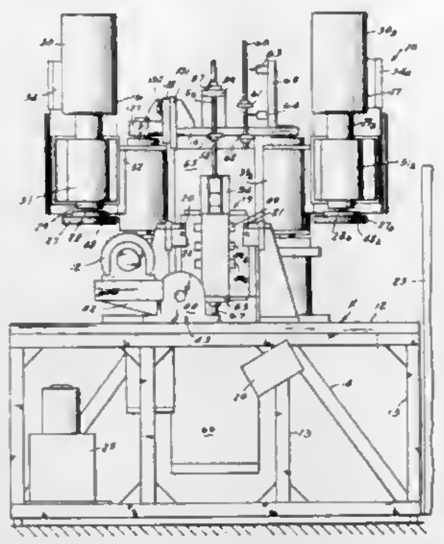
Charles L. Mueller, Harrisburg, Pa., assignor to TRW Inc., Cleveland, Ohio

Filed Aug. 26, 1970, Ser. No. 67,069

Int. Cl. B24b *7/00, 9/00, 5/00*

U.S. Cl. 51—5 **10 Claims**

A method and an apparatus for performing the method characterized by forming a plurality of locating surfaces on a workpiece during a grinding cycle, positioning a new workpiece and repeating the grinding cycle to form identical locating surfaces thereon. The apparatus utilizes a control means which moves grinding wheels across their respective dress blocks in a predetermined sequence during each cycle prior to grinding the workpiece. The control means then actuates feed means on each of the grinding wheels to advance the respective grinding wheels in a predetermined axial distance for a subsequent dressing during the next grinding cycle and the control means positions a new workpiece in position relative to the dress blocks for a new grinding cycle. The apparatus utilizes a workholder which holds three workpieces in spaced relationship and the control means after performing the grinding cycle on each of the workpieces stops the operation of the machine.



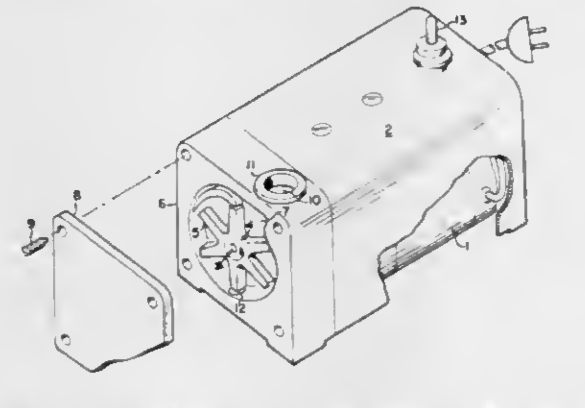
3,704,552
SPARK PLUG CLEANING DEVICES

Bud K. Beaver, 1040 Alameda Blvd., Coronado, Calif., and A. David Zakarian, P.O. Box 7, Del Mar, Calif.

Filed Dec. 21, 1970, Ser. No. 100,225

Int. Cl. B24c *3/00*

U.S. Cl. 51—9 **6 Claims**



In a spark plug cleaning device to remove carbon, sulphur, oxides, oil and other deposits from spark plug electrodes an electric motor drives an impeller which imparts mechanical energy to abrasive particles which are directionally controlled to impinge against the electrodes of the spark plug.

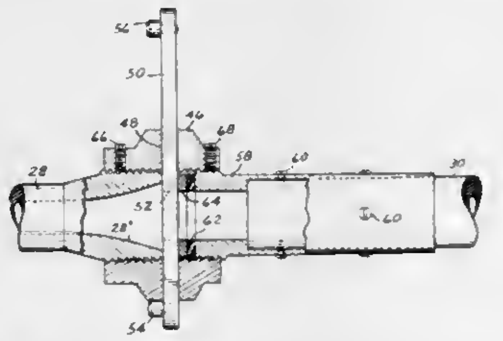
3,704,553
NOZZLE CONTROL VALVE FOR SANDBLASTING AND LIKE SPRAYING APPARATUS

Laverne F. Hehr, 12600 S.E. 87th Ave., Portland, Oreg., and Raymond E. Campbell, 1306 S.E. 37th Ave., Milwaukie, Oreg.

Filed Oct. 16, 1970, Ser. No. 81,319

Int. Cl. B24c *7/00*

U.S. Cl. 51—11 **7 Claims**



A gate valve is interposed in the delivery line between a spray nozzle and a source of air under pressure, in an area of minimum flow velocity. A threaded opening through the valve body intercepts the valve slide and connects opposed coupling members which slidably confine the slide between them. In one embodiment the coupling members are a nozzle and a hose collar, and the slide is manually adjustable. In a second embodiment the coupling members are a pair of adapters which connect the valve between sections of the delivery line, and the valve slide is adjustable by a power unit driven by air under pressure from said source.

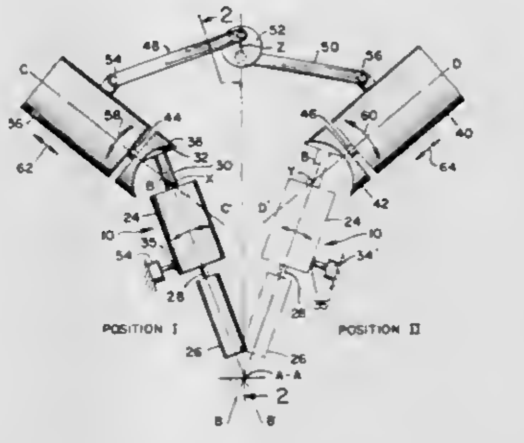
3,704,554
LENS PROCESSING MACHINE WITH MOVABLE WORKPIECE SPINDLE

George J. Laughman, Perinton, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed April 26, 1971, Ser. No. 137,386

Int. Cl. B24b *7/00, 41/06*

U.S. Cl. 51—55 **9 Claims**



A machine has a plurality of generally fixed work-tool heads for performing multiple operations upon lens material to form a lens at a common mounting block disposed upon a movable, for example pivotal, workpiece spindle. The plurality of work-tool heads are generally stationary relative to the exemplary pivotal workpiece spindle. The provision of the common mounting block reduces operational time for manufacturing a spherical or plano lens by eliminating the need for mounting, dismounting and remounting the lens at each of different and separate operational stations. Runout of the optical axis of the formed lens surface due to remounting is thereby eliminated and is a significant factor in reducing machine operating time and reducing tool wear. The work-tool heads have spindles which carry, for example, tools for generating, lapping, edging and/or polishing a lens. The lens material is carried by the exemplary pivotal workpiece spindle about a fixed pivot point to move in an arcuate path between the work-tools heads to dispose the axis of the workpiece spindle to intersect the axis of each work-tool head, respectively, at a fixed pivot point irrespective of the design parameters of the lens. After alignment of each of the axes to its respective fixed pivot point the lens material is linearly moved, respectively, toward each work-tool which is, in turn, cooperatively linearly moved toward the lens material to engage and perform an operation upon the lens material.

3,704,555
PRECISION DISK GRINDER

Ray C. Millett, Costa Mesa, Calif., assignor to Marion Industries, Inc.

Filed June 10, 1971, Ser. No. 151,815

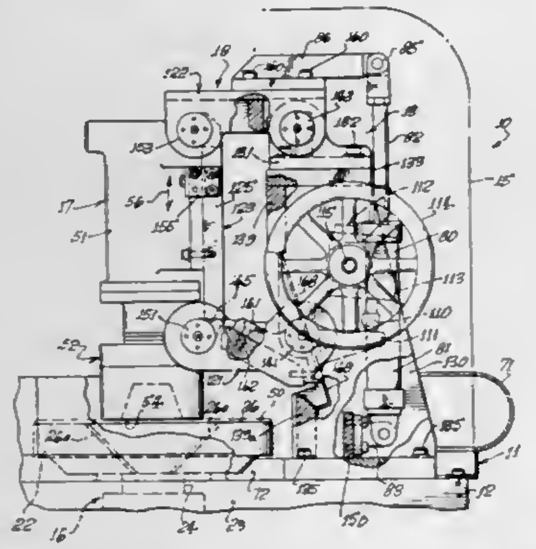
Int. Cl. B24b *7/04*

U.S. Cl. 51—132 **19 Claims**

A grinder for producing a precise planar surface on a workpiece, the grinder being of the general type in which the chuck carrying the workpiece and the shaft carrying the grinding wheel are rotated about axes which are perfectly parallel to one another and perfectly normal to the desired planar surface. In the grinder of the invention, a grinding system, comprising a grinder motor and a grinding wheel, is mounted on a parallelogram linkage to be movable along the rotational axis of the grinding system.

A resilient actuator means urges the grinding system into grinding engagement. Preferably, the actuator means is a pneumatically cushioned hydraulic cylinder, and the pressure is adjustable to aid in adjusting to a predetermined grinding load.

The actuator means is opposed by an adjustable stop. The stop may be adjusted to precisely locate the plane of application of the grinding load. Operation of the actuator against the stop aids in bringing under control the deformation and displacement occurring in the grinder during operation.



In the preferred form of the invention, the stop and/ or actuator may be adjusted during the grinding operation. In a further refinement of the preferred form, the grinder includes a continuous grinding load indicating means and a timer or clock for indicating the time period of application of each grinder load stage. Production of the desired surface on the workpiece is achieved by adjustment during grinding according to a predetermined load-time program.

3,704,556

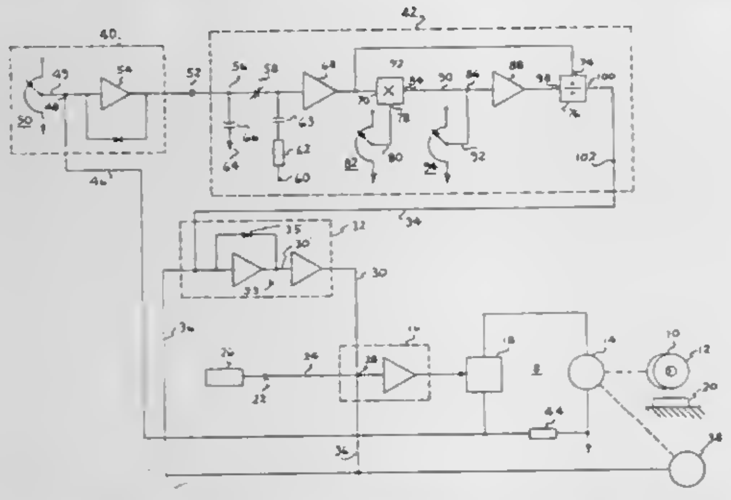
SPEED ADJUSTING SYSTEM FOR GRINDING WHEEL DRIVES AND THE LIKE

Robert Joseph Nedreski, Erie, Pa., assignor to General Electric Company

Filed Dec. 22, 1971, Ser. No. 210,771

Int. Cl. B24b *5/00*

U.S. Cl. 51—134.5 R **12 Claims**



Apparatus and method for adjusting the operating speed of a driven member of variable diameter, such as a grinding wheel, to provide a predetermined peripheral speed. The incremental current required to accelerate the member at a predetermined rate is sensed and utilized to establish a program speed, and the established program speed is thereafter utilized along with actual speed to maintain operation at the program speed.

3,704,557

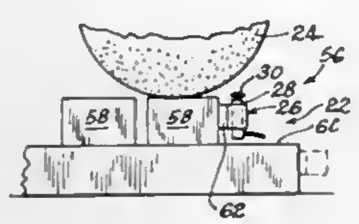
MACHINE TOOL AND GAGING APPARATUS

Edward Peonski, West Dundee, Ill., assignor to American Gage & Machine Company, Elgin, Ill.

Filed Nov. 30, 1970, Ser. No. 93,633

Int. Cl. B24b *49/00*

U.S. Cl. 51—165.75 **18 Claims**



The disclosed gaging apparatus is primarily applicable to grinding machines, but is also applicable to other machine tools. The apparatus comprises a gaging head having a movable gaging member with a contact element made of extremely hard material for direct engagement with grinding wheel. Such engagement moves the gaging member to a position corresponding to the size of the workpiece after being ground by the wheel. The gaging head is provided with a clamping magnet or other device for mounting the gaging head on the workpiece or the work support. Retaining means are provided to hold the movable gaging member in any position to which it may be moved, such retaining means preferably providing frictional resistance to movement of the gaging member. The retaining means may comprise a magnet to produce a retaining force or a frictional spring acting between the gaging member and the gaging head. An indicator is provided for precisely indicating the position of the gaging member. Such indicator may be of an electronic or pneumatic type, for example.

3,704,558

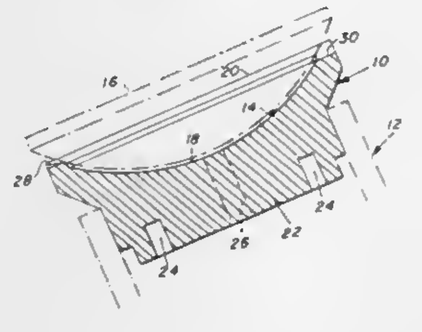
LENS BLOCK

George M. J. Saroleen, Colonial Heights, Va., assignor to Coburn Manufacturing Co., Muskogee, Okla.

Filed Feb. 24, 1971, Ser. No. 118,318

Int. Cl. B24b *41/06;* B22d *17/24*

U.S. Cl. 51—216 LP **5 Claims**



A lens block for plastic lens having a circumferential lens blank supporting ledge which is provided with a pair of diametrically opposed vents or grooves. One of the grooves is of a size to permit the egress of air but not of the blocking material.

3,704,559

POWER SANDER ATTACHMENT

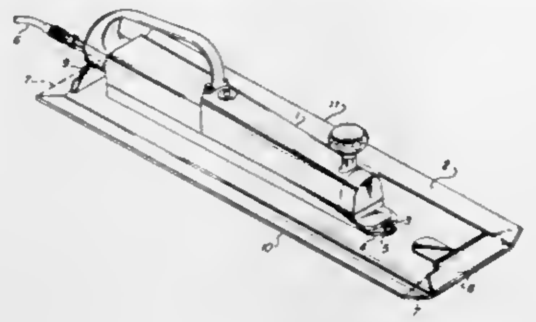
Andrew Morgan, Tolleson, Ariz., assignor to Manuel M. Leyva, Jr., a part interest

Filed Feb. 11, 1971, Ser. No. 114,587

Int. Cl. B24d *17/00*

U.S. Cl. 51—382 **4 Claims**

An attachment is provided for heavy duty power sanders, such as the air operated types utilized in automotive body shops, which facilitates sanding the sculptured portions of a car body. The attachment consists of a generally rectangular plate faced, on its lower surface, with a resilient material and provided with spring clasps at both ends of the upper surface for clasping a sheet of abrasive paper between the resilient surface and the work surface. The attachment according to the invention departs from standard abrasive paper holding plates in that each of its long edges is turned up at an angle which, in variant embodiments, may be the same or different on each side and range from approximately 7° to 60°. The angled lips back the abrasive paper in such a manner that the sanding operation tends to follow a sculptured surface rather than bite into it.



3,704,560

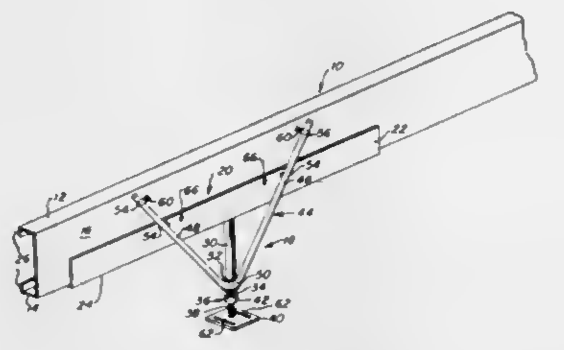
SUPPORT ASSEMBLY

George D. Ratliff, Jr., Churchill Borough, Pa., assignor to United States Steel Corporation

Filed June 18, 1971, Ser. No. 154,518

Int. Cl. E04g *25/04*

U.S. Cl. 52—122 **22 Claims**



A support assembly for a C-beam having a top flange and a bottom flange integrated by a beam web is disclosed.

The support assembly has a saddle having a saddle web in engagement with the beam web along a portion of the beam web and a saddle flange supporting the bottom flange. Retaining means connect the bottom flange to the saddle flange. A vertical support member is disposed adjacent the saddle flange and has a free end. Elevating means are on a foundation and are engageable with the free end of the support member to reciprocate the saddle and the C-beam with respect to the foundation. A V-shaped support member has a first support leg and a second support leg terminating in a vee. The vee is affixed to the vertical support member adjacent its free end. The first support leg and the second support leg are connected at first connections to the saddle web adjacent the top of the saddle web to obtain maximum projected bearing area along the saddle flange for the bottom flange, and such legs pass through the shear center of the C-beam to minimize torsion in the C-beam.

Further, the first support leg and the second support leg project beyond the saddle web and are connected at second connections to the beam web adjacent the top flange to strengthen the beam web against collapse of the beam web under lateral load.

3,704,561

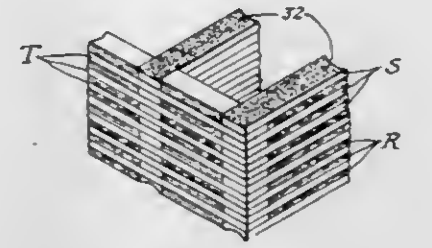
FIBER REINFORCED RESIN GRATING

Leonard S. Meyer, Columbia, S.C., assignor to Sybron Corporation, Rochester, N.Y.

Filed Jan. 27, 1971, Ser. No. 110,076

Int. Cl. E04f *15/10*

U.S. Cl. 52—180 **9 Claims**



A grating comprising preformed fiber reinforced resin strips stacked in the positions of the intersecting bars of the grating and with the strips interleaving at the points of intersection, the reinforcement strips being embedded in a resin matrix. The method for making the grating comprises forming the fiber reinforced strips with the fibers under tension, and assembling such preformed strips in a mold having a network of intersecting cavities for defining the grating bars, the cavities being initially charged with liquid hardenable resin material, so that the reinforcement strips are submerged in the liquid resin during assembly, the embedment resin being subsequently hardened.

3,704,562

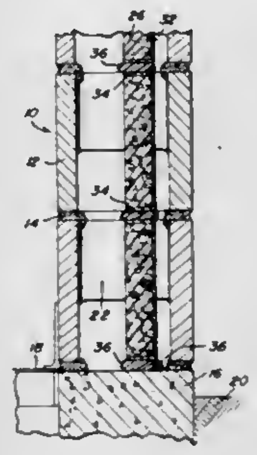
PREFORMED ENCLOSED INSULATING FILLER AND INSULATING STRIP

Paul R. Grants, Roselle Park, N.J., assignor to I. F. S. Incorporation

Filed Oct. 5, 1970, Ser. No. 78,095

Int. Cl. E04b *1/62*

U.S. Cl. 52—396 **1 Claim**



An insulating filler or insert for hollow building blocks which is preformed and enclosed with a covering material together with an insulating strip engaged with a portion of the periphery of the filler to provide a continuous insulating wall within a hollow wall formed by hollow building blocks.

3,704,563

RETAINING CLIP ASSEMBLY

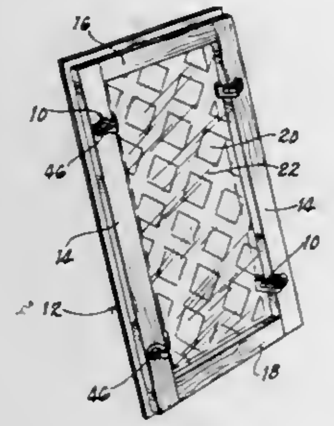
Arthur Waller, Highland Park, Ill., assignor to Bull Dog Lock Company, Chicago, Ill.

Filed Jan. 11, 1971, Ser. No. 105,269

Int. Cl. E06b *3/58;* F16b *21/20*

U.S. Cl. 52—455 **9 Claims**

A means for releasibly attaching an article such as a decorative panel to a supporting surface such as a cabinet door. The means comprises a generally V-shaped clip having one end for engaging the article and the other end engaging the body on which the article is to be retained. The clip comprises one end defining an elongated opening, and a stud having an enlarged head is adapted to be received in an enlarged portion of the elongated opening with the shank of the stud then being retained by sliding this clip portion relative to the stud whereby a narrower portion of the elongated opening is positioned around the stud. The same end of the clip defines a ledge engaging portion which engages a ledge positioned adjacent the stud whereby the clip will be retained in position when the shank is received by the elongated opening and when the ledge engaging means engages the surrounding ledge. The clip is located in place by sliding the end defining the opening relative to the associated stud. Reverse sliding action is required for removing the clip.



3,704,564

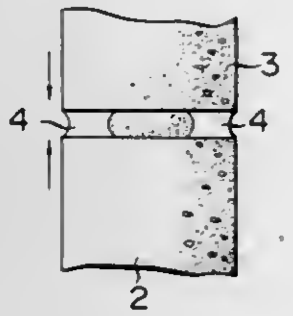
METHOD OF FABRICATING STRUCTURAL BLOCK ASSEMBLIES

Motoyoki Koga, Tokyo, Japan, assignor to Hakko Co., Ltd., Tokyo, Japan

Filed Dec. 29, 1969, Ser. No. 888,262

Int. Cl. B04g *21/14*

U.S. Cl. 52—747 **2 Claims**



Structural blocks are bonded together by interposing between them an elastic foamed body impregnated with a flowable binder, applying a pressure to the foamed body to squeeze out the impregnated binder in the gap between blocks and then causing the binder to set.

3,704,565

METHOD OF AND APPARATUS FOR PRODUCING HOSIERY

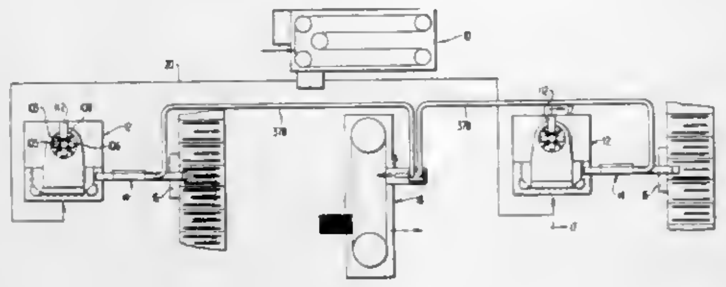
John W. Glaze, Jr., Charlotte, N.C., assignor to Intech Corporation

Filed Aug. 24, 1970, Ser. No. 66,338

Int. Cl. B65b *63/04, 63/02*

U.S. Cl. 53—21 FW **37 Claims**

A method of an apparatus for shaping and inspecting hosiery articles on a form, automatically stripping the articles from the form, and conveying the stripped articles selectively to either a stacking apparatus where successive articles are automatically stacked in superimposed flat relation or to a packaging apparatus where the successive articles are automatically packaged. Individual components of the apparatus may be employed separately to perform individual functions, or collectively in an overall system.



3,704,566

METHOD AND APPARATUS FOR PACKING VERTICALLY STACKED COINS, STAMPS AND OTHER STACKED ARTICLES IN A SHRINKING FILM

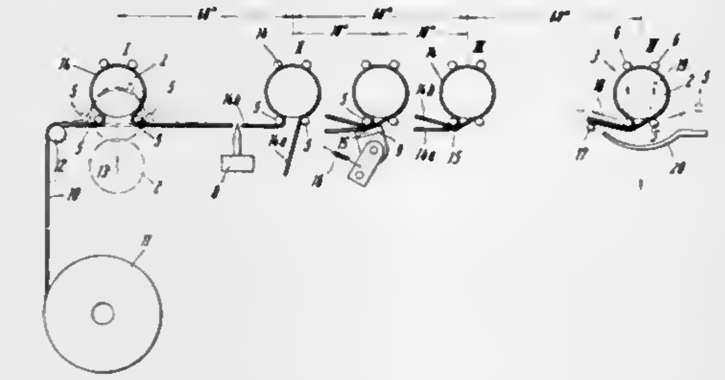
Gert Zimmermann, Berlin, Germany, assignor to Firma F. Zimmermann & Co., Berlin, Germany

Filed May 20, 1971, Ser. No. 145,241

Claims priority, application Germany, June 6, 1970, P 20 28 789.2

Int. Cl. B65b *11/02*

U.S. Cl. 53—30 **19 Claims**



The film is fed from the roll longitudinally in a direction transverse to the stack length, and the stack is pushed into the film to form a relatively large film loop corresponding to the lateral peripheral dimension of the stack, with the stack being clamped in the film loop with the free loop ends overlapped in superposition with each other and extending substantially tangentially of the loop. The free ends are formed by severing the loop from the continuous length of film after wrapping of the stack in the film. The free ends may be sealed to each other. The wrapped stack is then turned into a substantially horizontal orientation with the free loop ends down, and the film loop is shrunk around the stack while maintaining such substantially horizontal orientation of the wrapped stack. The wrapped stack is fed to a heating furnace, for shrinking of the film, by a conveyor which is inclined laterally of its direction of movement, and pivoted angle levers are provided to push against the lower ends of the stacks to align the articles in the stack in superposition with each other.

3,704,567

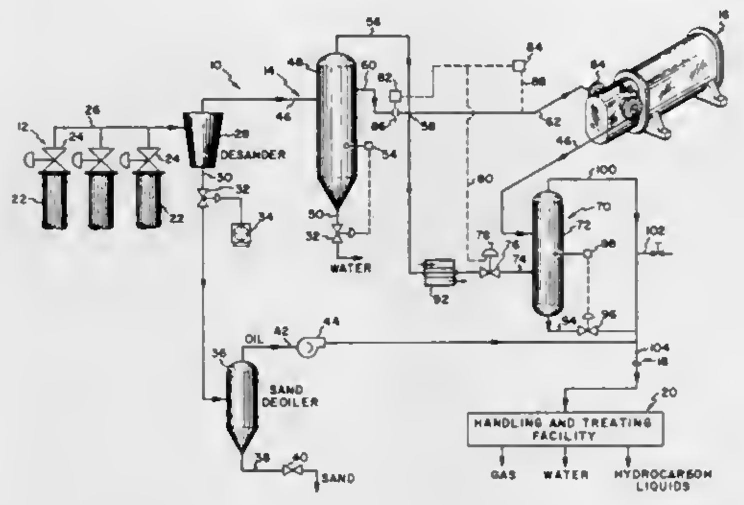
WELL PRODUCTION METHOD AND APPARATUS

Robert F. Engel, New Orleans, La., assignor to Shell Oil Company, New York, N.Y.

Filed Dec. 9, 1970, Ser. No. 96,500

Int. Cl. B01d *19/00*

U.S. Cl. 55—43 **12 Claims**



A multiphase hydrocarbon mixture is produced from each of a plurality of wells. The multiphase mixture is pressurized by a single machine without separating the gas and liquid components. The multiphase mixture is then transported through a conduit to a treating facility where the gas and liquid components are separated for ultimate sale or use.

3,704,568

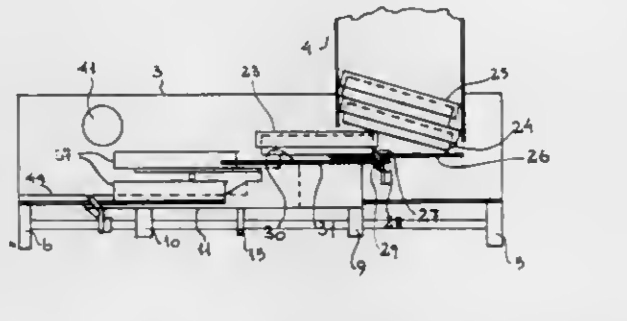
APPARATUS FOR THE FILLING OF PETRI DISHES

Ornolf Dubring, Bronshol, and Lavritz Gudmund Damgaard, Virum, both of Denmark, assignors to H. Struers Chemiske Laboratorium, Copenhagen, Denmark

Filed June 23, 1971, Ser. No. 155,708

Int. Cl. B65b *31/02*

U.S. Cl. 53—109 **9 Claims**



An apparatus for filling Petri dishes with cover comprises an alongated sterile chamber in which a dish and lid are fed forward in rectilinear paths in different levels from a stack of closed dishes in a hopper at one end of the sterile chamber, the dish being caused to drop down on the bottom of the chamber between slide rails that catch the edge of the lid. In one position of the travelling path the dish is filled with substrate, and in a subsequent position the lid is caused to drop down on the dish. Preferably the distance between the slide rails is adjustable.

ERRATUM

For Class 55—43 see:
Patent No. 3,704,567

3,704,569

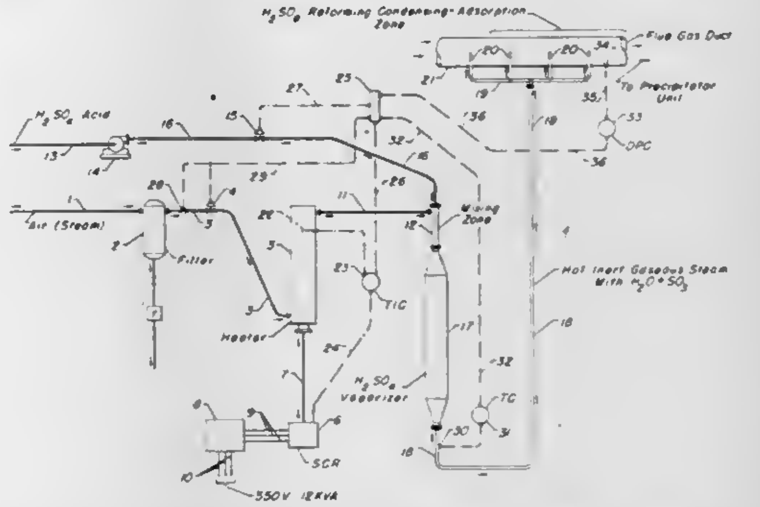
SYSTEM FOR CONDITIONING FLUE GAS WITH H2SO4

Leslie C. Hardison, and Salvatore A. Guerrieri, both of Norwalk, Conn., assignors to Universal Oil Products Company, Des Plains, Ill.

Filed April 2, 1970, Ser. No. 25,044

Int. Cl. B03c *3/01*

U.S. Cl. 55—4 **6 Claims**



In order to preclude resistance of entrained fine particles to collection within electrical precipitator means, there is a conditioning of the particles carried in the flue gas stream by having vaporized and decomposed H_2SO_4 condensed and adsorbed on the particles themselves. Sulfuric acid is mixed and vaporized with a hot gaseous stream at a temperature above 400° F. and then the resulting hot stream with decomposed H_2SO_4 is introduced uniformly into the flue gas stream at a zone ahead of the precipitator unit so that the acid can reform and condense on the particles.

3,704,570

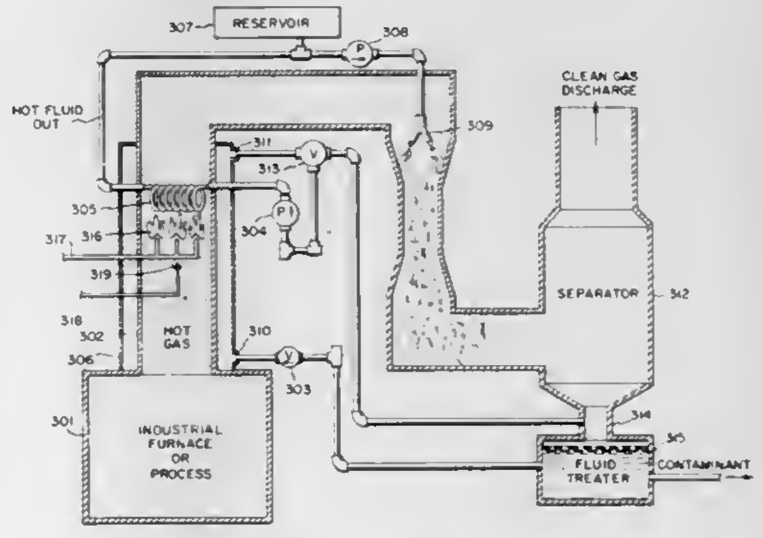
PROCESS AND APPARATUS FOR CLEANING AND PUMPING CONTAMINATED INDUSTRIAL GASES

Hugh E. Gardenier, Tullahoma, Tenn., assignor to Aronetics, Inc., Tullahoma, Tenn.

Continuation-in-part of Ser. No. 842,635, July 17, 1969, Pat. No. 3,613,333. This application June 16, 1970, Ser. No. 46,793The portion of the term of this patent subsequent to Oct. 19, 1988, has been disclaimed.

Int. Cl. B01d *47/10*

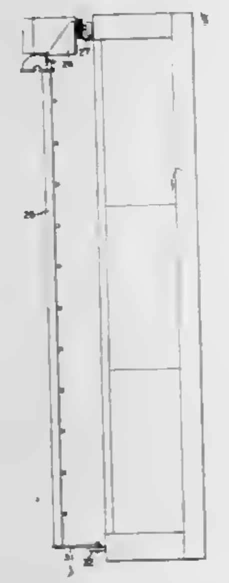
U.S. Cl. 55—84 **18 Claims**



Process and apparatus for removing contaminants from and pumping a gas stream comprising indirectly heat exchanging the gas and a liquid, introducing the liquid under conditions of elevated temperature and pressure in vaporized and atomized form into the gas, mixing same thereby entrapping the contaminants, and separating clean gas from the atomized liquid containing the contaminants. In one embodiment, a water jacket surrounds the hot gas conduit and serves both to cool the hot gases and to pre-heat the cleansing liquid. Also disclosed is an auxiliary mechanism for heating the cleansing liquid before injection into the gas stream. The combustibles in the contaminated gases may be used for such heating.

3,704,571
WASHER MECHANISM FOR ELECTROSTATIC PRECIPITATOR

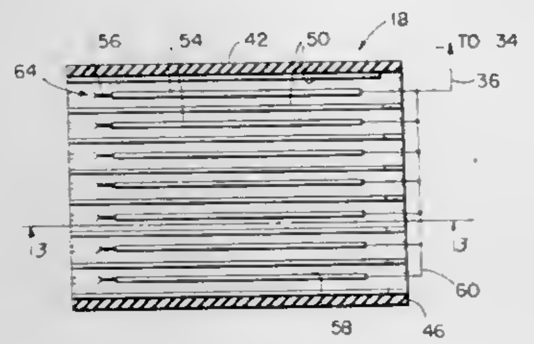
Ivan T. Burney, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 27, 1970, Ser. No. 40,794
Int. Cl. B03c *3/78*
U.S. Cl. 55—118 **6 Claims**



An upright panel of at least one precipitator cell with a plurality of substantially vertical disposed plates is provided with a washer header assembly supported for traversing movement in front of the panel and a rotatable sprocket is journalled on said header assembly with its teeth engaging a sprocket chain supported in front of the panel along the path of the traversing movement of the header assembly so that the header assembly will traverse the panel as the sprocket is rotated.

3,704,572
ELECTROSTATIC PRECIPITATOR SYSTEM

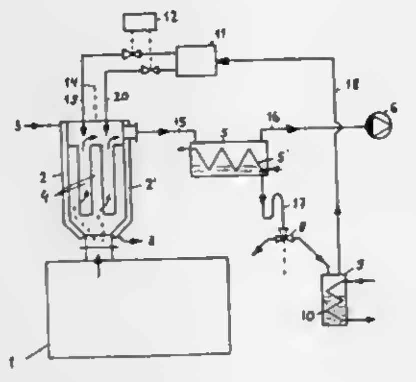
Meredith C. Gourdine, West Orange, and Howard A. Sayers, Clifton, both of N.J., assignors to Gourdine Systems, Inc., Livingston, N.J.
Filed May 15, 1970, Ser. No. 37,714
Int. Cl. B03c *3/01*
U.S. Cl. 55—126 **12 Claims**



An improved electrostatic precipitator device capable of significant size reduction having flat parallel plates consisting of an ionizing corona discharge portion as a unitary structure which is utilized to effectuate precipitation of entrained particles from an air stream onto the surface of a plurality of associated collection members, as an air stream containing entrained particles is cleaned in passing through the precipitator device. The ionizer discharge portion of the unitary structure comprises a plurality of substantially uniformly spaced apart sharp electrical conductive protrusions directed to alternate sides of the unitary structure; thereby forming a uniform ionization region with a parallel portion of the collector extending the full length of the ionizer. The remainder of each of the unitary structure functions as a passive electrode which cooperates with the remaining portion of the collector to form highly concentrated electrostatic fields therebetween for enhanced collection efficiency with minimum re-entrainment of the particles to be collected.

3,704,573
CLEANING APPARATUS FOR THE OPERATION OF FILTER EQUIPMENT

Hans Koller, and Urs Frey-Portner, both of Mutlenz, Switzerland, assignors to Buss AG, Basel, Switzerland
Filed Sept. 8, 1970, Ser. No. 70,162
Claims priority, application Austria, Sept. 9, 1969, A 8540/69
Int. Cl. B01d *46/04*
U.S. Cl. 55—268 **1 Claim**



A filter equipment containing a number of filter units of conventional design, connected directly to process equipment, in which dust laden vapors are evolved under vacuum.

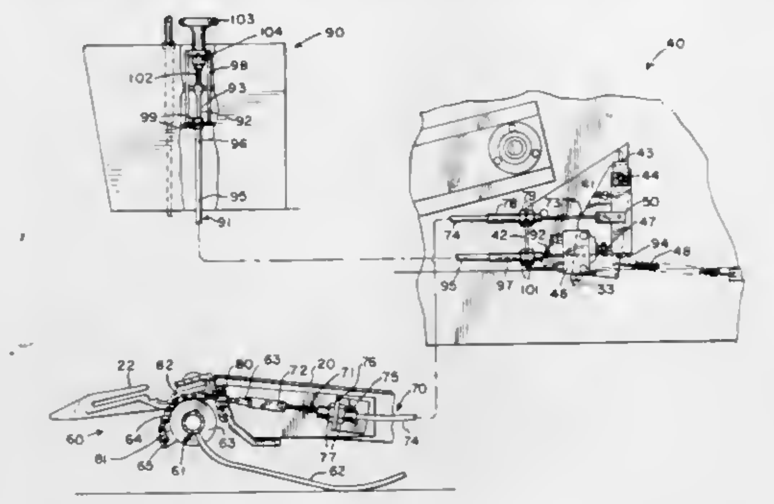
Means are used to back wash, dry and heat the individual filter bags during continuous operation. The backwashing, drying and heating is performed with superheated vapor having the same composition as the vapor evolved in the main process.

After condensation, part of the vapor evolved in the main process may be diverted into an evaporator, superheated in the vapor phase and then used for the backwashing, drying and heating. If lines are too long resulting in vapor near the dew point, the effect of double expansion with partial condensation may be used to bring back the vapor to the superheated phase before backwashing a filter bag.

3,704,574
COMBINE AUTOMATIC HEADER HEIGHT CONTROL

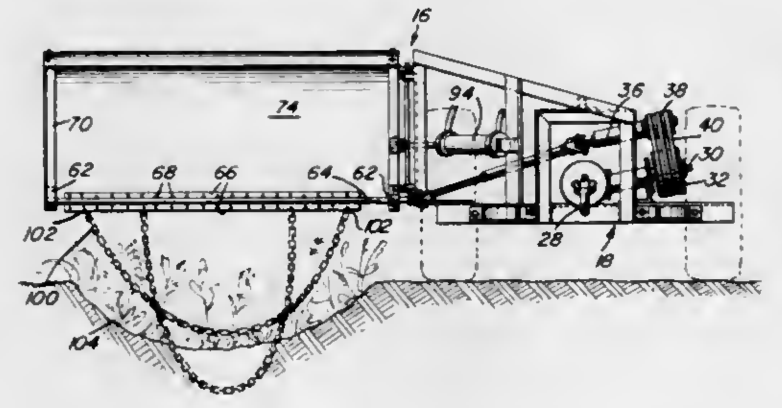
Frank H. Gardner, Colona, Ill., assignor to Internatioanl Harvester Company, Chicago, Ill.
Filed Oct. 4, 1971, Ser. No. 186,133
Int. Cl. A01d *45/18*
U.S. Cl. 56—10.2 **6 Claims**

An automatic header control for a harvester platform that conveys the sensed ground contour ro the valve without distortion and can be adjusted for various heights without introducing distortions. A bar that is oscillated by the ground sensing fingers has a chain that warps and unwraps around the bar. The chain is connected through a flexible cable to a control arm that engages the control valve stem. The control valve is pivotally adjustable about the arm axis to thus provide height adjustment without distortion.



3,704,575
FLAIL-TYPE IRRIGATION DITCH CLEANER

Martin L. Daniel, 2409 Hanson Drive, Missoula, Mont., and George E. Sacks, Carvallis, Mont.
Filed Jan. 26, 1971, Ser. No. 109,828
Int. Cl. A01d *49/00*
U.S. Cl. 56—12.7 **8 Claims**

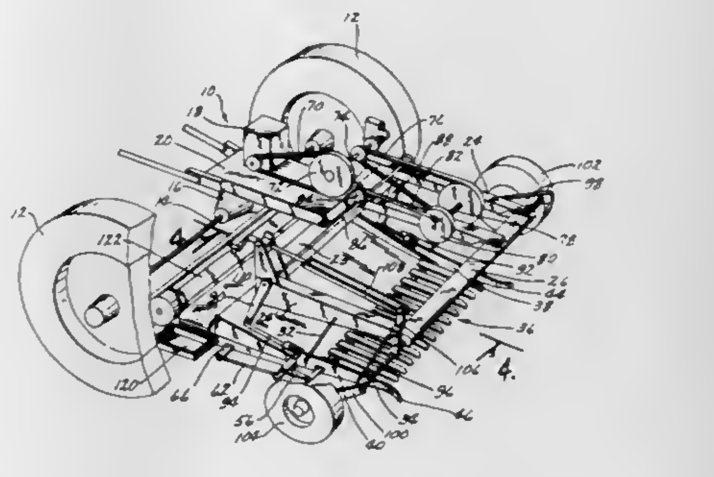


An elongated frame for horizontal positioning transversely of and above a ditch to be cleaned and movement along the ditch. An elongated support member is disposed lengthwise of and journalled from a lower portion of the frame and an elongated flexible flail member is provided with the opposite ends of the flexible flail member and the rotatable support member including coacting structure for removably anchoring the opposite ends of the flail member to selected longitudinally spaced portions of the elongated support member, whereby a flail of generally U-shaped configuration may be swung rapidly about the axis of rotation of the elongated support member from which the flail is supported.

3,704,576
FRUIT AND VEGETABLE HARVESTING DEVICE

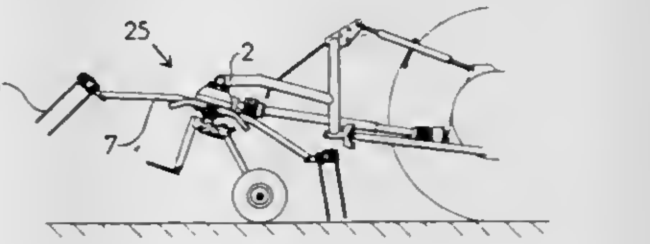
Graeme R. Quick, Ames, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa
Continuation-in-part of Ser. No. 753,553, Aug. 19, 1968, Pat. No. 3,596,456. This application June 9, 1971, Ser. No. 151,472
Int. Cl. A01g *19/00*
U.S. Cl. 56—330 **3 Claims**

A device for harvesting fruit or vegetables including a pickup unit and vibration means for imparting arcuate vibratory motion to the pickup unit for gathering, stripping and conveying the fruit or vegetables to a collecting unit. A sickle bar is positioned below the upper ends of spaced apart teeth provided on the pickup unit for cutting the stems of the plants as the plants move rearwardly through the spaced apart teeth. Cutting action is imparted to the sickle bar by a linkage connecting the oscillating pickup unit, the sickle bar and the frame of the device. An air elevator is provided rearwardly of the spaced apart teeth and sickle bar so that the stems and leafy material which have been separated from the plants can be blow upwardly and rearwardly from the fruit or vegetables as the fruit or vegetables are being conveyed rearwardly to the collection unit.



3,704,577
MECHANISM FOR REGULATING TOOL-CARRIER ARMS ON SPINNER-TYPE AGRICULTURAL MACHINES

Walter Reber, Saverne, France, assignor to Societe Dite: Societe Kuhn Frerest Cie. Societe En Commandite Simple, Saverne, France
Filed Feb. 27, 1970, Ser. No. 14,949
Claims priority, application France, March 26, 1968, 6908370; Jan. 26, 1970, 7002568
Int. Cl. A01d *79/00*
U.S. Cl. 56—370 **4 Claims**



A mechanism for regulating tool-carrier arms on tedders or swathers or other spinner-type agricultural machines comprising one or more rotary members which act as tool-carrier arms to carry tools such as rotating forks or prongs or teeth. The mechanism is characterized in that some or all of the said arms of one and the same rotary member are connected either directly or through one or more interposed parts with a regulable element rotating with the rotary member during working, the whole being arranged in such manner that to a rotational displacement of this element in relation to the arm-carrier hub there corresponds a rotational displacement upon themselves, in relation to their seatings on the arm-carrier hub, of these some or preferably all of the tool-carrier arms of one and the same rotary member.

3,704,578

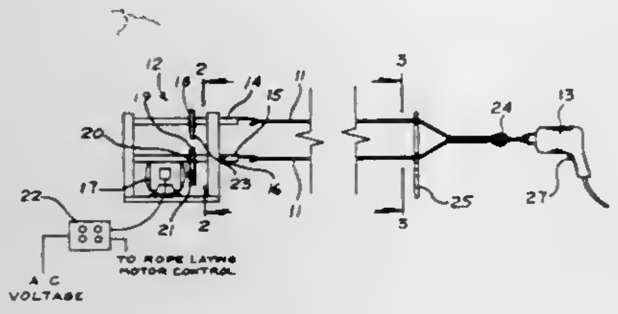
METHOD FOR MAKING LENGTHS OF ROPE

John A. Myers, Cordova, Ill.

Filed July 15, 1971, Ser. No. 162,874

Int. Cl. D07b *3/00*

U.S. Cl. 57—1 R **4 Claims**



Strands are cut to length and suspended between a simple stationary strand-twisting device operated by a stationary electric motor and a strand-laying device comprising a portable motor that may be a usual electric drill or a motor mounted on a track. A paddle-like strand spacer is inserted between the strands near the drill, and after the strands are twisted sufficiently by operation of the stationary motor alone, both the stationary motor and drill are operated simultaneously to lay the strands together at the same speed at which they are being twisted while the strand spacer is moved from the drill toward the strand-twisting device.

3,704,579

PRACTICAL METHOD AND APPARATUS FOR DRIVING AN OPEN-END SPINNING FRAME

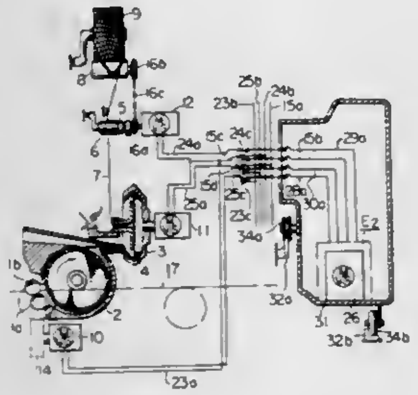
Takuzo Tooka, Aichi-gun; Choji Nozaki, and Kiichi Kono, both of Nagoya, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi-ken and Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Japan

Filed April 16, 1971, Ser. No. 134,726

Claims priority, application Japan, April 18, 1970, 45/33166

Int. Cl. D01h *1/12*

U.S. Cl. 57—34 R **13 Claims**



Method and apparatus capable of controlling the driving speed of the open-end spinning frame utilizing a plurality of spinning units by applying at least two variable frequency electric sources. A first electric source is used for driving all spinning units for carrying out the normal spinning operation, while a second electric source is used for driving a spinning unit of yarn breakages used for carrying out the yarn piecing operation. The latter source is mounted on a carriage capable of being displaced along the spinning frame and can be stopped at a desired working position correctly.

3,704,580

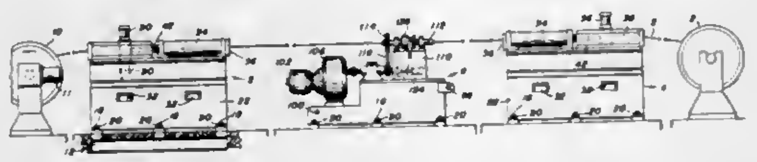
METHOD AND APPARATUS FOR MAKING TWISTED STONESAWING STRANDS AND THE LIKE

Raymond J. Blanchet, North Branford, and William G. Stanton, North Haven, both of Conn., assignors to United States Steel Corporation

Filed July 26, 1971, Ser. No. 166,047

Int. Cl. D01h *7/00*

U.S. Cl. 57—34 AT **18 Claims**



A single strip is twisted about its axis or a plurality of strips are twisted together with the direction of twist in each case being reversed at spaced intervals such as 25 feet, 50 feet or 100 feet. An entry tensioning stand, a twister head stand and an exit tensioning stand are arranged in tandem with strip gripping means being provided on each stand. The gripping means on each tensioning stand is mounted on a longitudinally movable slide which is attached to a pair of pneumatic cylinders for urging the slide away from the twister head stand under a predetermined pressure when the strip is gripped with equal lengths on each side of the twister head. The length on one side will be twisted opposite hand to the length on the other side as the twister head rotates with a predetermined tension being applied to the strip as it is twisted regardless of change of length during the twisting operation. The strip is then released and the strip fed longitudinally until the twisted portion is just past the gripping means on the exit tensioning stand. The twisting operation is then repeated. This continues until all the strip is twisted.

3,704,581

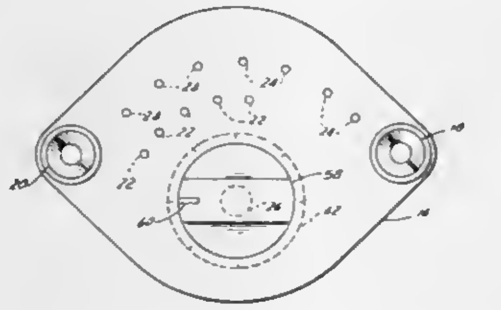
SPRING WOUND TIMER AND CAM MECHANISM

Paul E. Dewhurst, Bristol, Conn., assignor to Kinetic Science Corporation, Meriden, Conn.

Filed May 21, 1971, Ser. No. 145,829

Int. Cl. G04f *3/02*

U.S. Cl. 58—21.13 **3 Claims**



A spring wound timer apparatus is provided including a main spring and a mainshaft with two support plates for positioning a gear train mounted on shafts journaled in the plates, the spacing of the shafts being substantially equidistant from adjacent shafts along a curvilinear line on the plate. In addition, a cam assembly and stop mechanism operates in conjunction with the timer to cooperate with a control means such as a mechanical or electrical switch. The cam assembly includes a pair of cam members with the stop adapted to engage the periphery of the cams permitting gradual start-up of the timing cycle and a quick shut-off of the cycle.

3,704,582

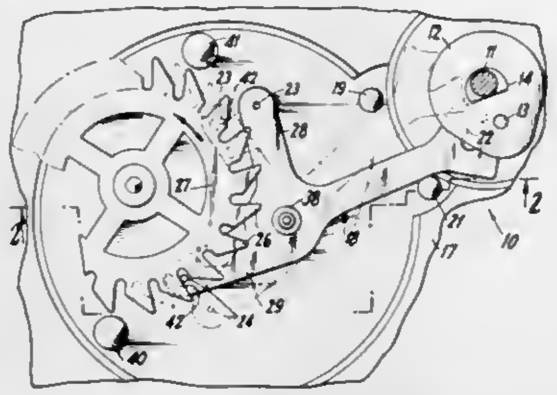
INDEXING MECHANISM FOR HOROLOGICAL INSTRUMENT

Paul Wuthrich, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed Oct. 15, 1970, Ser. No. 80,871

Int. Cl. G04c *3/04*

U.S. Cl. 58—28 D **2 Claims**



A horological instrument such as a watch includes an indexing mechanism or dial train drive for transmitting power from an oscillating balance wheel to an index wheel. The index wheel drives the gear train of a watch. The balance wheel oscillates a lever between two end positions and one or more pins mounted on the lever alternately engage the teeth of the index wheel stepping the index wheel in the desired direction. The index wheel is held in a rest position at the end of each step by indexing magnets which are arranged to exert a predetermined torque on the wheel and to hold the lever in its banking or end positions.

3,704,583

DATE INDICATING MECHANISM FOR WATCHES

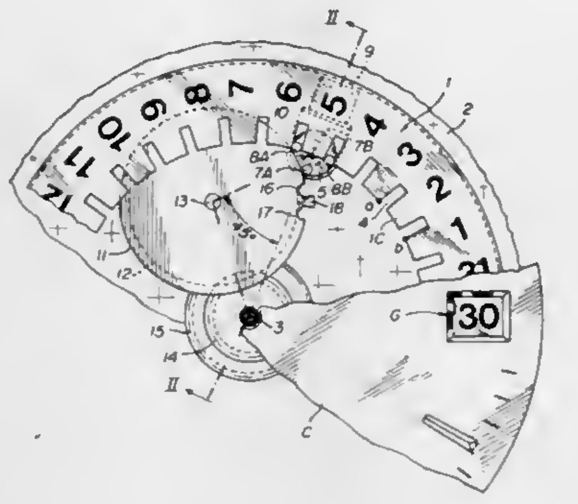
Peter Dome, Brugg bei Biel, Switzerland, assignor to Societe Suisse pour l'Industrie Horlogere SA, Geneve, Switzerland

Filed Jan. 31, 1972, Ser. No. 222,260

Claims priority, application Switzerland, Feb. 5, 1971, 1722/71

Int. Cl. G04b *19/24*

U.S. Cl. 58—58 **2 Claims**



A date indicating mechanism for watches, of the type having a rotatable ring carrying date numbers on one side, equidistantly spaced over the circumference thereof, and means for periodically moving the ring past an inspection window for the date numbers, the improvement comprising drive means for the ring carrying the date numbers, said drive means consisting of a rotatable disk carrying pins meshing with slits provided on one edge of the date number ring and with engagement means on the periphery of a substantially circular cam driven by the gear train of the watch.

3,704,584

WATERPROOF WATCH WITH IMPROVED SEAL CONSTRUCTION

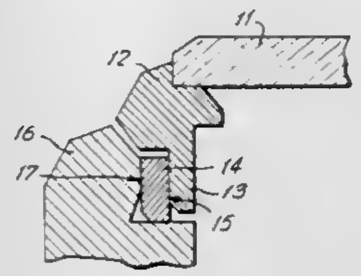
Yoshiaki Fujimori, Suwa, Japan, assignor to Kabushiki Kaisha, Suwa Seikasha, Tokyo, Japan

Filed April 22, 1971, Ser. No. 136,428

Claims priority, application Japan, April 24, 1970, 45/34750; April 24, 1970, 45/34751; April 24, 1970, 45/34752

Int. Cl. G04b *37/08*

U.S. Cl. 58—90 R **9 Claims**



An improved seal construction for a waterproof watch consists of a glass annulus having a tubular portion thin enough to exhibit some flexibility, a flexible seal ring and a case body. The seal ring makes interference fit with both the tubular portion of the glass annulus and the case body.

3,704,585

PROCESS FOR CONTROLLING AND REGULATING PISTON-DRIVEN ENGINES WITH HYDROSTATIC MOTION TRANSDUCERS

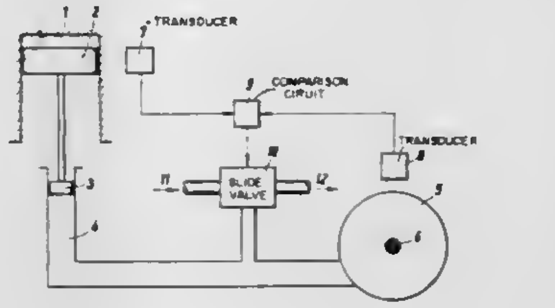
Wolfgang Rabiger, Buckenhofen, Germany, assignor to Grundig E.M.V., Furth/Bay, Germany

Filed Dec. 14, 1970, Ser. No. 97,787

Claims priority, application Germany, Dec. 23, 1969, P 19 64 454.3

Int. Cl. F01b *9/00*

U.S. Cl. 60—1 **15 Claims**



An apparatus and method for controlling a piston engine hydrostatic movement convertor by activating a valve for applying fluid to and for withdrawing fluid from the convertor. The valve is controlled by a correspondence error signal and a dead point error signal. The former signal is derived from a comparison of the position of the piston and the angle of rotation of a driving shaft and represents divergence of the piston and shaft from their required relative positions. The dead point error signal is derived from measuring any discrepancy between a nominal dead point and the actual dead point attained by the piston. At any instant, one of the error signals controls the fluid valve as determined by the engine speed. When the engine speed is below a predetermined rate the correspondence signal regulates, and when the speed is faster the dead point error signal controls. Preferably, the transfer of control from the correspondence error signal to the dead point error signal occurs at a higher speed than that at which transfer is made from the dead point error signal to the correspondence error signal.

3,704,586
STARTING SYSTEM FOR A GAS-TURBINE INSTALLATION

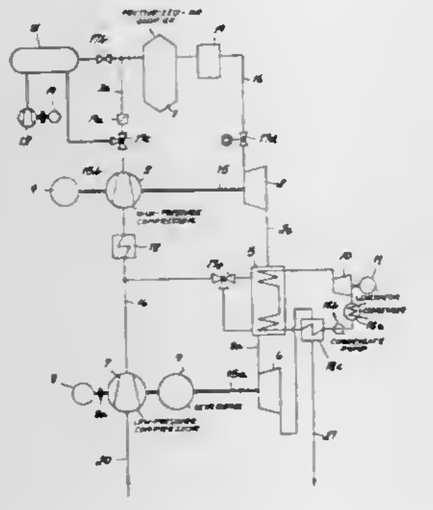
Paul-Heinz Bruns, Mulheim, Germany, assignor to Steinkohlen-Elektrizitat Aktiengesellschaft, Essen, Germany

Filed Jan. 25, 1971, Ser. No. 109,358

Claims priority, application Germany, Feb. 7, 1970, P 20 05 722.1

Int. Cl. F02c *1/04, 5/08, 5/12*

U.S. Cl. 60—39.18 B **7 Claims**



A gas-turbine installation having a pressurized-air hot-gas generator in which a fuel is reacted with the pressurized air, has a high-pressure turbine-driven compressor and a low-pressure turbine-driven compressor in tandem to supply the compressed air for the gasifier, the turbines being operated by the expanding combustible gases from the gasifier. One or both of the turbines may be provided with electrical generators and/or with starting motors and a steam-generating cycle may be provided for operation by the heat of the combustible gases. The starting system of the invention includes a compressed-air reservoir adapted to be charged by one or both of the compressors during normal operation of the system and capable of stirring a volume of air under such pressure that, for starting the system, the gasifier may communicate with the reservoir to generate sufficient hot combustion gases to drive the turbine.

3,704,587
CONTROL SYSTEM FOR A GAS-TURBINE INSTALLATION

Karl Heinz Krieb, Essen, and Fritz Zimmermann, Essen-Steele, both of Germany, assignors to Steinkohlen-Elektrizitats Aktiengesellschaft, Aktiengesellschaft, Essen, Germany

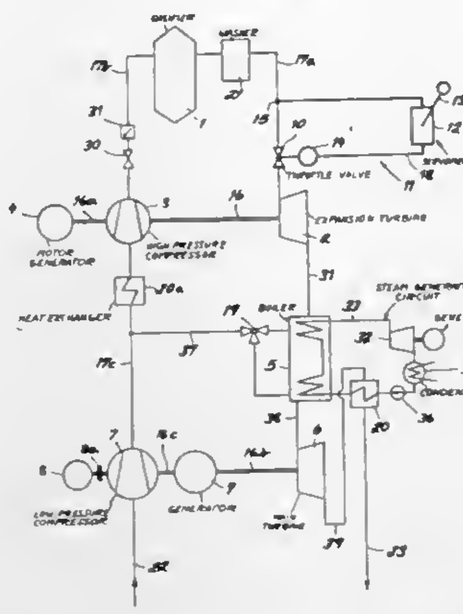
Filed Jan. 25, 1971, Ser. No. 109,359

Claims priority, application Germany, Feb. 7, 1970, P 20 05 723.2

Int. Cl. F02b *43/08*

U.S. Cl. 60—39.03 **5 Claims**

A gas-turbine electricity-generating installation has a pressurized-air fuel (coal) gasifier for producing a high-pressure combustible gas which drives a high-pressure turbocompressor, the low-pressure combustible gases emerging from this turbocompressor being delivered to a boiler for driving a steam-generating circuit. The turbogenerator supplies compressed air to the gasifier and is, in turn, fed with low-pressure compressed air from a low-pressure turbocompressor driven by the exhaust gases emerging from the boiler. The control system comprises a regulating valve between the gasifier and the gas-inlet to the turbine of the high-pressure turbocompressor which is responsive to the output pressure at the gasifier to maintain the same substantially constant.



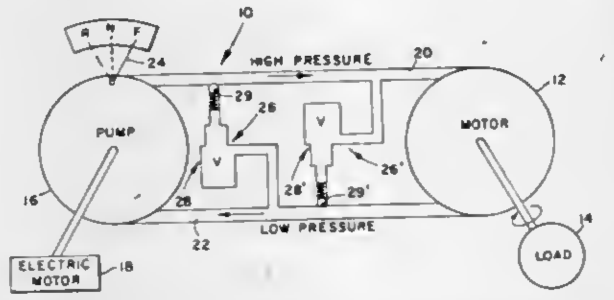
3,704,588
ACCELERATION CONTROL VALVE

Gerald W. Trabble, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed April 1, 1971, Ser. No. 130,361

Int. Cl. F16d *31/00*

U.S. Cl. 60—53 R **9 Claims**



An acceleration control valve for a hydrostatic transmission having a pump, a motor, a high pressure fluid conduit, a low pressure fluid conduit and a fluid by-pass in parallel around the motor from the high to the low pressure conduit. The acceleration control valve controls the fluid flow through the by-pass and thus regulates the application of fluid to the motor. The valve is normally open allowing a portion of fluid from the pump to by-pass the motor. Upon pressurization of the high pressure conduit the control valve gradually closes as fluid flows through the by-pass thus providing a gradually increasing amount of fluid to the motor which results in smooth and gradual acceleration of the motor.

3,704,589
METHOD AND ARRANGEMENT FOR AUTOMATICALLY POSITIONING A PISTON AS A FUNCTION OF ROTOR POSITION IN A PISTON MOTOR

Hans Kubach, and Gerfried Leberl, both of Fuerth/Bayern, Germany, assignors to Grundig E. M. V. Elektro-Mechanische Versuchsanstalt Inh. Max Grundig, Fuerth/Bayern, Germany

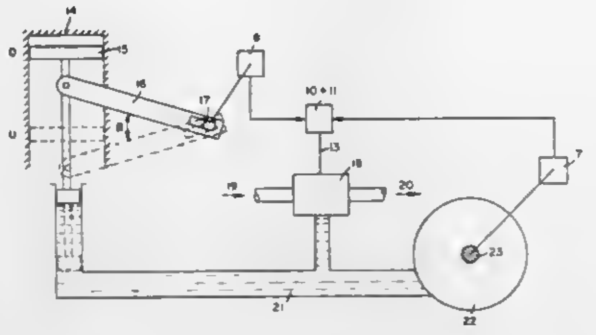
Filed March 20, 1970, Ser. No. 21,418

Claims priority, application Germany, March 22, 1969, P 19 14 669.1

Int. Cl. F16b *7/00*

U.S. Cl. 60—545 R **6 Claims**

Instrument transformers furnish a sinusoidal signal corresponding to the angle of rotation of the crankshaft and a substantially linear signal corresponding to piston position. The difference between the two signals is applied to a phase sensitive detector, whose output activates inlet and outlet valves adding or subtracting hydraulic fluid constituting the linkage between the crankshaft and the piston, depending upon the polarity and magnitude of the output signal from the detector.



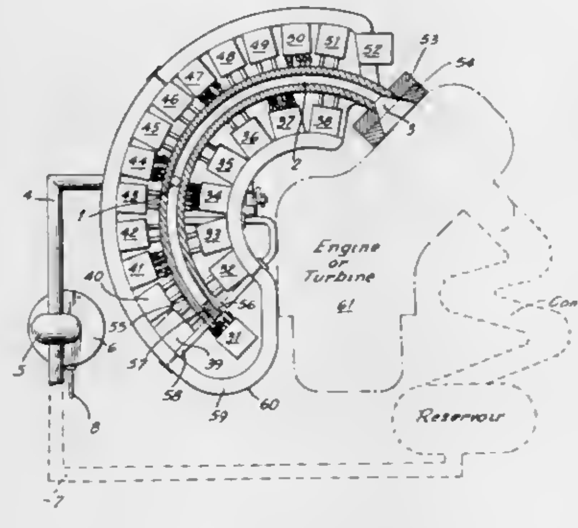
3,704,590
VAPOR GENERATING MANIFOLD AND CONTROL SYSTEM

John O. Van Derbeck, P.O. Box 644, Huntington Beach, Calif.

Filed Nov. 17, 1969, Ser. No. 877,202

Int. Cl. F01k *11/00, 11/02*

U.S. Cl. 60—108 **1 Claim**



A novel vapor generating manifold is employed in combination with a vapor engine. Exhaust from the engine is recycled in a closed Rankine cycle system. The vapor generating manifold includes a narrow arc-shaped passageway with burners on both sides of the passageway. The entire structure is so designed as to constitute a substantially composite structure thus enhancing its desirability. The narrow arc-shaped passageway of the vapor generating manifold allows the manifold to be quickly and efficiently heated to thereby facilitate its vaporizing function.

3,704,591
SYSTEM FOR PURIFYING EXHAUST GAS OF AN INTERNAL COMBUSTION

Yasuo Tatsutomi, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima-ken, Japan

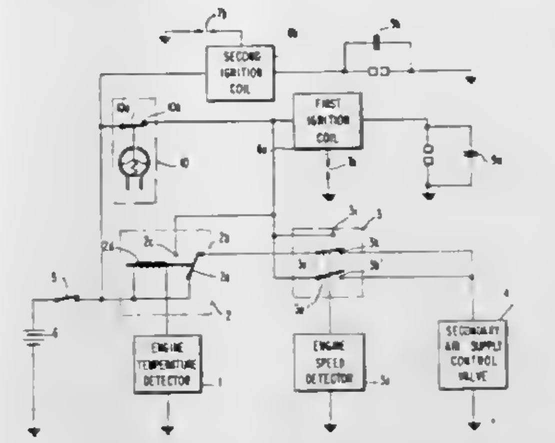
Filed Jan. 14, 1971, Ser. No. 106,423

Claims priority, application Japan, Jan. 14, 1970, 45/4015; April 25, 1970, 45/35553

Int. Cl. F02b *75/10*

U.S. Cl. 60—290 **14 Claims**

A system for purifying an exhaust gas of an internal combustion engine where secondary air is supplied to the exhaust gas system for reburning the exhaust gas includes a first switch switching at a predetermined engine temperature, a second switch switching upon detecting engine speed, for switching ON and OFF, the operation of said secondary air supplying means at both high and low speed set values in response to the switching of said first switch.


SECOND IGNITION COIL
FIRST IGNITION COIL
ENGINE TEMPERATURE DETECTOR
ENGINE SPEED DETECTOR
SECONDARY AIR SUPPLY CONTROL VALVE

3,704,592
POST-COMBUSTION DEVICES FOR INTERNAL COMBUSTION ENGINES

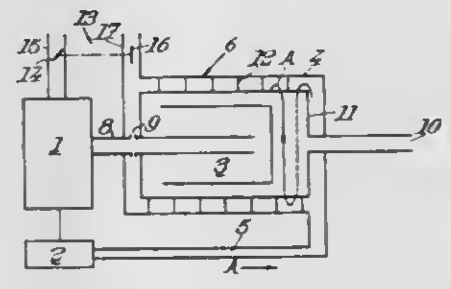
Jean Panhard, Paris, France, assignor to Societe de Construction Mecaniques Panhard & Levassor, Paris, France

Filed July 16, 1970, Ser. No. 55,408

Claims priority, application France, July 17, 1969, 6924407

Int. Cl. F02b *75/10;* **F01n** *3/10*

U.S. Cl. 60—290 **10 Claims**



The device comprises a post-combustion chamber bounded by a casing and connected to the engine exhaust pipe, a blower driven by the engine for sending additional air into the post-combustion chamber and a heat-exchanger for pre-heating the additional air by the exhaust gases from the post-combustion chamber. The pos-combustion chamber and the heat-exchanger are constituted by three co-axial cylinders, the assembly being arranged so that the exhaust gases are introduced into the axis and at the center of the post-combustion chamber, the outer cylinder and the intermediate cylinder defining a peripheral zone in which the additional air circulates. The intermediate cylinder and the inner cylinder define an intermediate zone in which the exhaust gases from the combustion chamber circulate in countercurrent to the additional air. The device is useful for two-stroke, four-stroke and rotary piston engines.

3,704,593
CONSTRUCTING BROKEN ROCK SUPPORTS FOR ROOFS OF CAVITIES STORING LIQUIFIED HYDROCARBON GASES

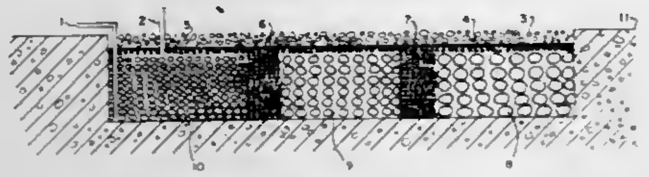
John C. St. Clair, Box 216, R.R. 5, London, Ohio

Filed June 16, 1970, Ser. No. 46,829

Int. Cl. B65g *5/00*

U.S. Cl. 61—.5 **8 Claims**

Liquified natural gas, ethane or propane is stored in a cavity in which the roof is supported on broken rock placed in the lake. Very cheap broken rock containing a large volume of voids,when piled,is provided by building the cavity on a rock formation, breaking the rock formation into small pieces by rippers or giant teeth pulled by giant tractors, sieving the broken rock into fractions with each fraction having rock pieces with a minimum to maximum size ratio of 0.5, and piling the rock fractions without substantial mixing in the cavity. This allows storage cavities to be built at a fraction of the former cost and that also can not be damaged by sabotage and riots like former storage can be.



3,704,594
METHOD OF SUBSIDENCE AND ACID ENTRAINED DRAINAGE CONTROL AND ADMIXTURES THEREFOR

William A. Davis, Kittanning, Pa., assignor to Michael L. Vongrey, Jr., Kittanning, Pa.

Filed Aug. 19, 1969, Ser. No. 851,457

Int. Cl. E02d *3/12*

U.S. Cl. 61—36 **8 Claims**

The back filling of natural and artificial subterranean voids for purposes of surface subsidence control and acid entrained water drainage control coming from such voids with a fluid formed admixture of a cementitious nature which solidifies upon setting in the void, the rate of solidification controlled by the amount of hydraulic cement or silicic acid added to the admixture. In the situation where the grout is employed also for control of acid entrained water drainage, ingredients are added to reduce the acid content to a by-product which is placed in colloidal suspension in a gelatinous material in the admixture due to fermentation of an activating agent with a fermenting agent of vegetable material and eliminate further formation of acid from subterranean potentially formable acid bearing strata to thereby re-establish the water table as well as providing safe palatable water.

Admixtures containing natural elements are provided which form a hydrating supporting mass. When the mass solidifies, it possesses a high strength porous nature.

In the case of admixtures possessing a fermentation action, there is a leavening action causing the mass when placed in a subterranean void, to bloat and be expansive in nature to completely fill the area of the void.

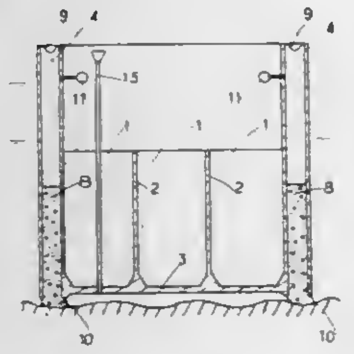
3,704,595
CAISSON FOR SEAWORKS CONSTRUCTION AND TO A METHOD OF USING THE CAISSON

Pierre Launay, Versailles, France, assignor to Compagnie Industrielle de Travaux, Paris, France

Filed July 20, 1970, Ser. No. 56,453

Int. Cl. E02d *23/00;* **E01d** *19/02*

U.S. Cl. 61—50 **4 Claims**



A caisson for use in constructing seaworks which comprises a plurality of compartments for receiving ballast and a plurality of enclosures each of which is sealed at the top and bottom by hermetic closures and including between the seals a retractable floor, means such as a compressor being provided to pressurize each enclosure to extend the lower seal, which is flexible, and ducting being provided to inject a binder into granular material, initially loaded on the floors, when discharged on to the lower seals, upon retraction of the floors, the caisson in use being towed to the site, being ballasted to sink it on to the bottom where it rests through the extended lower seals and the granular material then being discharged on to the lower seals where a binder is added to it.

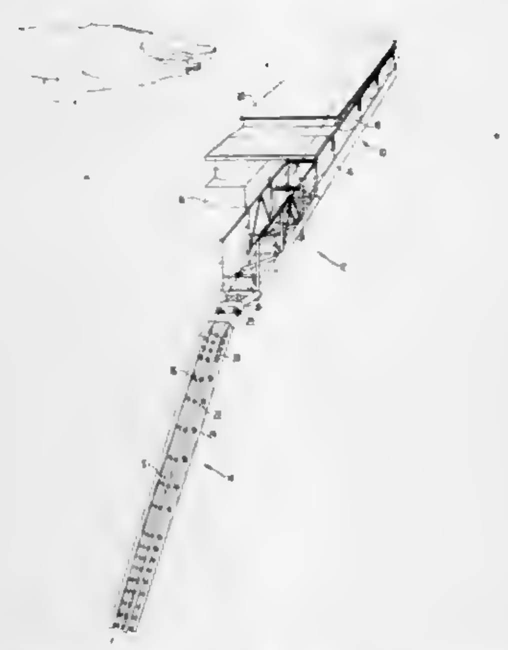
3,704,596
COLUMN STABILIZED STINGER TRANSITION SEGMENT AND PIPELINE SUPPORTING APPARATUS

Samuel H. Lloyd, Los Angeles, Calif., assignor to Santa Fe International Corporation, Los Angeles, Calif.

Filed March 25, 1970, Ser. No. 22,634

Int. Cl. B63b *35/04;* **F16l** *1/00*

U.S. Cl. 61—72.3 **31 Claims**



The stinger segment includes a base structure having a plurality of upstanding stabilizing columns on opposite sides of its pitch and roll axes and carrying pipeline supports which permit translational movement of the pipeline relative to the stinger segment. The stinger segment is pivotably secured behind the pipelaying barge and is ballasted from a low draft condition with the base structure having freeboard to a high draft condition whith the mean waterline located at about one half the effective height of the stabilizing columns when in the pipeline supporting position. The pipeline supports progressively decrease in height above the base structure from the end of the segment nearest the barge toward the opposite end such that a line extending along the supports defines a radius of curvature at least equal to and preferrably much greater than the minimum allowable radius of curvature for the pipeline. The stinger segment is preferrably configured such that the combined natural frequency of the segment, pipeline, and stinger match the natural frequency of the pipelaying barge. A stinger is secured to the aft end of the stinger transition segment to guide and support pipeline aft of the segment and before disposition on the sea floor.

3,704,597
COOLING APPARATUS

Kenneth Edmund Nicholds, Redditch, England, assignor to Hymatic Engineering Company Limited, Redditch, England

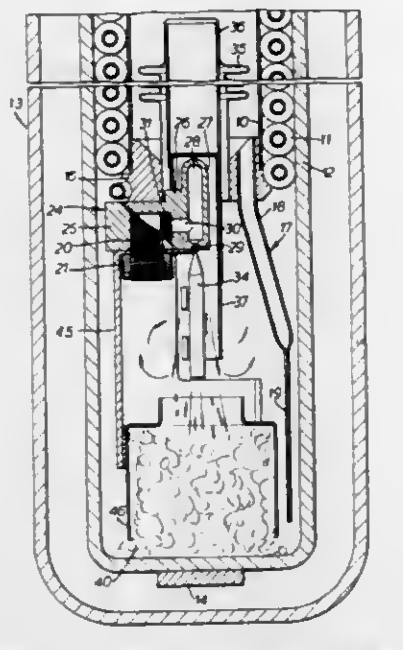
Filed Dec. 7, 1970, Ser. No. 95,723

Claims priority, application Great Britain, Dec. 8, 1969, 59741/69

Int. Cl. F25b *19/00*

U.S. Cl. 62—222 **9 Claims**

Cooling apparatus of the Joule Thomson type includes a load situated below and spaced from the nozzle, a body of absorbent material in heat exchange relationship with the load, and a valve controlling the effective area of the nozzle to vary the flow of refrigerant automatically under the control of a sensor situated in heat exchange relationship with the absorbent material. To achieve the required heat exchange relationship between them the sensor may be in contact with the absorbent material, or separated from it by a metal wall, or even slightly spaced from it, provided that sufficient heat flow can occur from the sensor to the absorbent material to cause the response to depend on the extent to which the absorbent material is saturated with liquid refrigerant.



3,704,598
CRYOGENIC COOLING APPARATUS

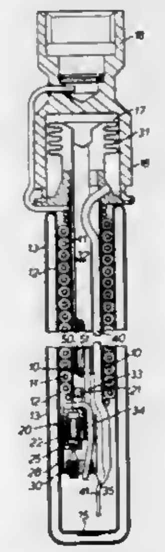
David Neil Campbell, Alcester, and Frank Arnold Turton, Cofton, both of England, assignors to The Hymatic Engineering Company, Redditch, England

Filed March 23, 1970, Ser. No. 21,601

Claims priority, application Great Britain, March 25, 1969, 15,606/69; April 15, 1969, 19,181/69

Int. Cl. F25b *19/00*

U.S. Cl. 62—514 **2 Claims**



Cryogenic cooling apparatus includes a generally tubular heat exchanger affording two paths through one of which refrigerant from a supply under pressure is supplied to a pressure reducing nozzle, whereupon the low pressure refrigerant returns through the other path, a valve member co-operating with the nozzle to vary its effective area for automatically controlling the flow of refrigerant, and a bellows, connected to the valve to actuate it. To provide a compact construction without unduly reducing the size of the bellows the valve is situated outside the heat exchanger beyond its cold end and the bellows is outside the heat exchanger beyond its warm end, and is connected to the valve by a piston rod extending through the heat exchanger.

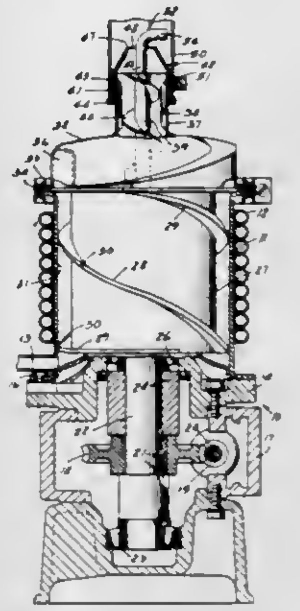
3,704,599
COMPRESSION MEANS FOR FLAKE ICE WATER

James G. Darby, Webb Lake, Wis., and Jack F. Clearman, Stevensville, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Oct. 17, 1969, Ser. No. 13,912

Int. Cl. F25c *1/14*

U.S. Cl. 62—354 **7 Claims**



A method and means of removing liquid from a flake ice product wherein a mass of flake ice product is driven axially in the form of a confined columnar path and at one point in the path the cross-sectional area of the column is temporarily reduced over a discrete axial length to squeeze excess liquid from the product. Such compression can be conveniently effected by a resiliently elastic member having a conical portion necking down to an opening of pre-selected size, the size of the opening and the degree of resilience being selected, and varied if desired, to produce an ice flake product of any required percentage of moisture content.

3,704,600
CRYOGENIC REFRIGERATOR

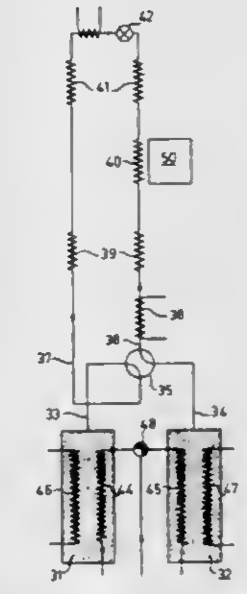
Gijsbert Prast, and Clifford McDonald Hargreaves, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

Filed Oct. 5, 1970, Ser. No. 77,802

Claims priority, application Netherlands, Oct. 15, 1969, 6915564

Int. Cl. F25d *3/08*

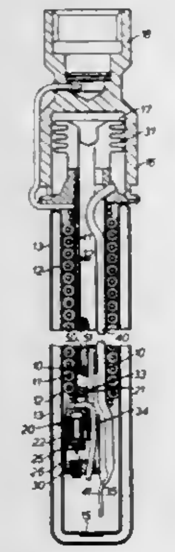
U.S. Cl. 62—457 **11 Claims**



A cryogenic refrigerator including cooling means for H_2 before it is expanded in a throttle valve and flows back to one of two containers which are filled with an alloy of A and B in powder form, in which the ratio A : B can vary from 1 : 3 to 2 : 17, wherein A is Ca or one or more of the rare earths, if desired combined with Th and/or Zr and/or Hf, and wherein B is mainly Ni and/or Co, this alloy having the property of readily absorbing H_2 at low temperature and readily desorbing H_2 at high temperature, which gas is again directed to said throttle.

3,704,601
CRYOGENIC COOLING APPARATUS

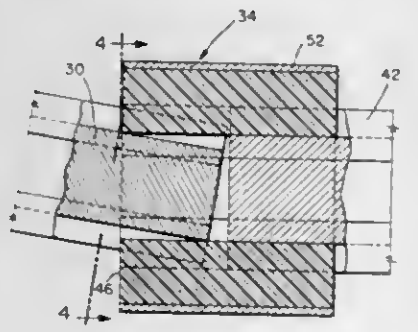
David Neil Campbell, Alcester, and Frank Arnold Turton, Cofton, both of England, assignors to The Hymatic Engineering Company Limited, Redditch, England
Filed March 23, 1970, Ser. No. 21,603
Claims priority, application Great Britain, March 25, 1969, 15,606/69; April 15, 1969, 19,182/69
Int. Cl. F25b *19/00*
U.S. Cl. 62—514 **4 Claims**



Cryogenic cooling apparatus including a heat exchanger affording two paths through one of which refrigerant gas from a supply under pressure is supplied to a pressure reducing nozzle, whereupon the low pressure refrigerant returns through the other path, a valve member controlled by a bellows and co-operating with the nozzle to vary its effective area for automatically controlling the flow of refrigerant. To give "fail open" operation the valve is subject to the vapor pressure of a material which falls below the ambient pressure in the apparatus as its temperature falls and the demand for cooling drops, and arranged so that the resulting suction will then tend to close the valve against the said bias.

3,704,602
REINFORCED CAST NYLON COUPLING ELEMENT

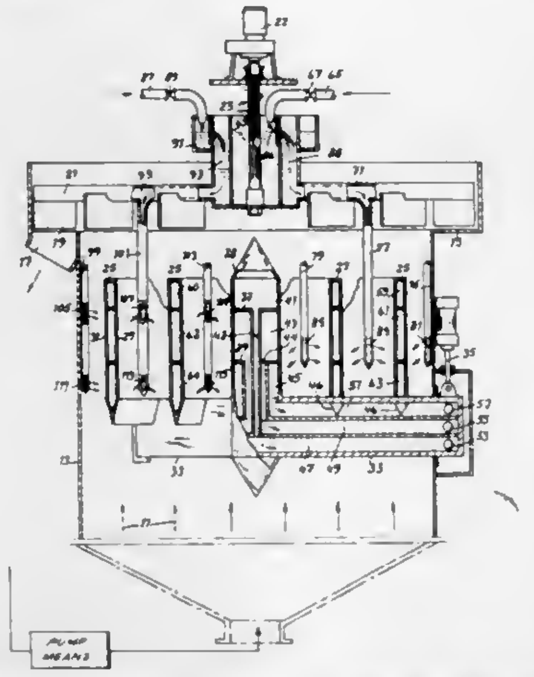
Stanley C. Elnborn, c/o The Budd Company, 2450 Hunting Park Ave., Philadelphia, Pa.
Continuation-in-part of Ser. No. 94,136, Dec. 1, 1970, abandoned. This application May 28, 1971, Ser. No. 148,002
Int. Cl. F16d *3/52*
U.S. Cl. 64—11 R **7 Claims**



A cast nylon coupling element includes a central opening adapted to receive connecting elements of shafts from a pair of movable bodies to be coupled. The nylon body is press fitted into a metal cylindrical member which provides reinforcement about the circumference of the nylon body. A flexible reinforcement is also included within the nylon body.

3,704,603
CELLULOSE BLEACHING PLANT

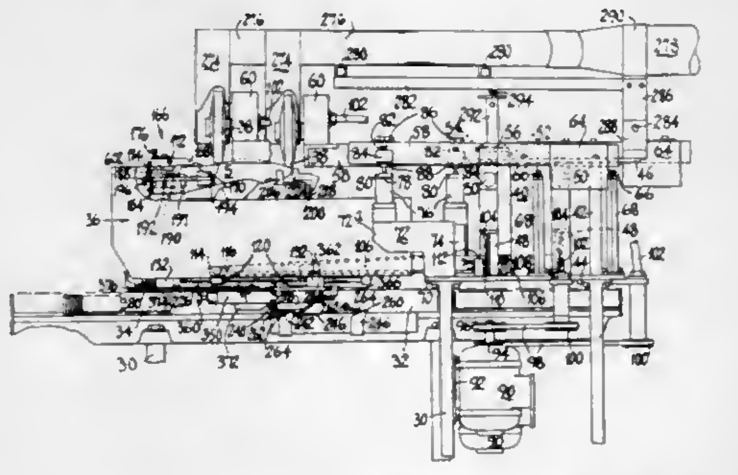
Johan C. F. C. Richter, St. Jean Cap Ferrat, France, assignor to Aktiebolaget Kamyr, Karlstad, Sweden
Continuation of Ser. No. 628,417, April 4, 1967, abandoned. This application Oct. 30, 1970, Ser. No. 85,714
Claims priority, application Sweden, Oct. 27, 1966, 14748/66
Int. Cl. D21d *5/02;* **D21c** *9/18*
U.S. Cl. 68—18 F **6 Claims**



The present invention concerns a cellulose bleaching plant. A container forming part of said plant is provided for continuous axial flow of the pulp to be bleached and is provided with means for exchanging the liquid contents of the pulp. Said means comprise hollow screen bodies and movable spray tubes. Liquid supplied through said tubes and distributed into the pulp displaces the previous liquid contents of the pulp, such as a bleaching solution, which enters the screen bodies and is then discharged. The cavities of the screen bodies are divided into height zones having separate outlets, whereby the discharged liquid is fractionated. The spray tubes supply different liquids in corresponding height zones of the container. Thus a double exchange of liquids is made possible, and the washing liquid that has replaced the bleaching liquid may in its turn be replaced by another chemical treatment liquid.

3,704,604
AUTOMATIC BOTTOM ROUGHING MACHINE

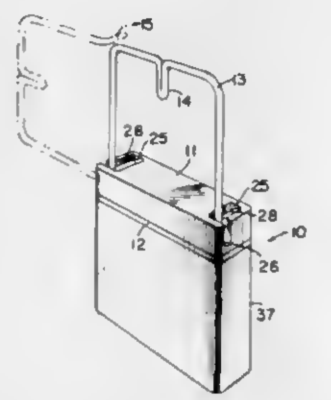
Herbert W. Boot, and Leslie R. Parr, both of Leicester, England, assignors to USM Corporation, Flemington, N.J.
Filed June 17, 1971, Ser. No. 154,029
Claims priority, application Great Britain, June 27, 1970, 31,258/70
Int. Cl. C14b *1/44*
U.S. Cl. 69—6.5 **14 Claims**



An apparatus for operating on shoe bottoms having a pair of rotatable tools, a shoe support, means for moving the shoe support in advancing and returning directions relative to the tools, and means for arresting movement of the shoe support in the returning direction to a predetermined extent.

3,704,605
KEY HOLDER

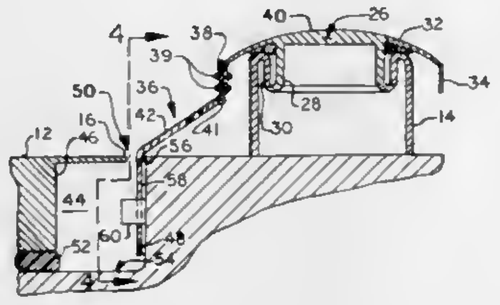
Norbert Leopoldi, 4180 Marine Drive, Chicago, Ill., and Kenneth C. Rolin, Sr., 28 Hillside, Grayslake, Ill.
Filed March 1, 1971, Ser. No. 119,499
Int. Cl. A44b *15/00*
U.S. Cl. 70—456 R **23 Claims**



A key holder and utilitarian article having a spring steel member or U-shaped key retaining loop pivotally and releasably mounted at one or opposite ends in a head member with means in the head member to release either end upon actuation by the loop and locking means to secure either end against removal while the other end is released.

3,704,606
FILLER TUBE LOCKING DEVICE

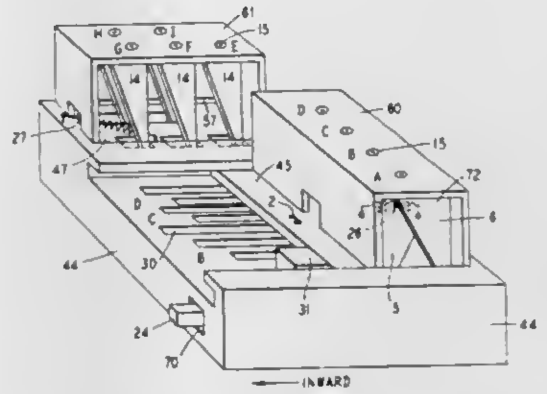
Simon E. Russek, Jr., 17251 Mayerling Street, Los Angeles, Calif.
Filed Nov. 27, 1970, Ser. No. 93,121
Int. Cl. B65d *55/14*
U.S. Cl. 70—164 **11 Claims**



For filler tubes for gasoline tanks and other receptacles located adjacent a motor vehicle door or other lockable closure, removal of a conventional cap, such as a gasoline cap, from the filler tube is prevented by means of a hinged strap. One end of the strap is affixed to the cap while the other end of the strap is adapted to be positioned in the recess between the lip of the door and body frame. When the strap is positioned in the recess and the door is closed, the hinge cannot be removed from the recess and, consequently, the cap cannot be rotated or otherwise removed from the gasoline filler tube. Locking of the door effectively locks the gas cap to the filler tube. One of several lips or latches may be provided on the vehicle frame to engage the strap to further hold the strap in position and to further maintain locking engagement between the cap and the filler tube. Alternately, the hinged strap may be positioned over the cap to perform the same purpose.

3,704,607
PUSHBUTTON COMBINATION LOCK

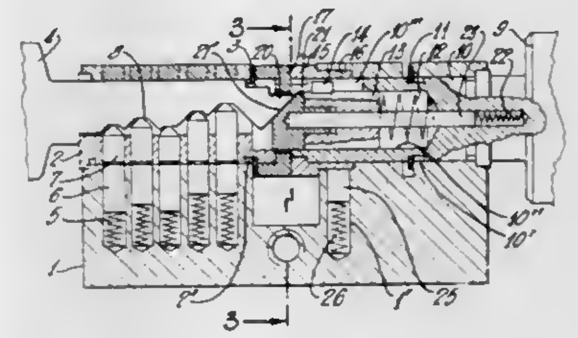
Charles Elias Germanton, 38 Mountain Ave., Summit, N.J.
Filed June 16, 1971, Ser. No. 153,526
Int. Cl. E05b *13/00, 37/16*
U.S. Cl. 70—220 **12 Claims**



In a pushbutton combination lock the deflection of a "zero-energy" control element at a prescribed time permits the outer door knob assembly to engage the inner knob assembly thereby to unlatch the door. A logic ladder, activator and a ratcheting arrangement are provided in conjunction with a dual scaffold assembly: (1) an opening scaffold to effect deflection of the control element when particular buttons in a set of pushbuttons are depressed and released in a "walking" manner and in a predetermined sequence or opening combination, but which disables the activator to prevent deflection of the control element at the prescribed time when any deviation from the strict sequence of the opening combination occurs, and (2) a reactivating scaffold to re-enable the activator and thus reactivate the lock when other pushbuttons are depressed and released in another predetermined sequence or reactivating combination.

3,704,608
LOCKING ARRANGEMENT FOR DEADBOLT LATCH LOCKS, ESPECIALLY FOR HOTEL GUEST ROOM DOORS

Heinz Kloosterziel, Velbert, Germany, assignor to Eaton Yale & Towne GmbH, Velbelt/Rbeinland, Germany
Filed April 29, 1970, Ser. No. 32,930
Claims priority, application Germany, May 7, 1969, P 19 23 172.2
Int. Cl. E05b *35/10*
U.S. Cl. 70—340 **4 Claims**



An inside turn knob is equipped with an axially movable coupling member spring pressed to position coupling the knob to a deadbolt operating cam. A guest key inserted into an outside tumbler cylinder will press the coupling member to release position so that the key when rotating a latchbolt operating cam and the turn knob will not rotate the deadbolt cam. A manager's key is relatively short and will not depress the coupling member, and therefore can rotate the deadbolt cam along with the latchbolt cam.

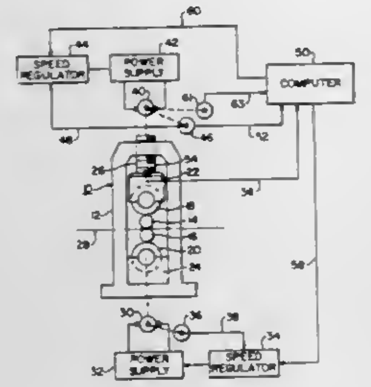
3,704,609
ROLLING MILL GAUGE CONTROL DURING ACCELERATION

John D. Sterret, Jr., Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 25, 1971, Ser. No. 156,907

Int. Cl. B21b *37/12*

U.S. Cl. 72—8 **7 Claims**



Rolling mill control system for controlling the output gauge of strip material being rolled during acceleration of the mill. This is accomplished by utilizing feed-forward computer techniques to anticipate changes in mill variables and to regulate those variables to maintain constant output gauge during acceleration. Feedback techniques are then used to trim-up the control system, to update the predictive model equations and to dynamically control gauge during acceleration.

3,704,610
WIRE-COIL WINDER

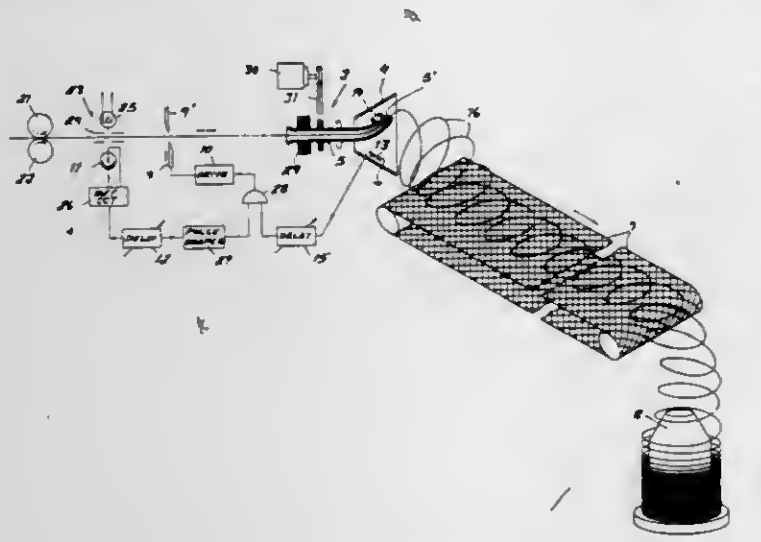
Hans Geipel, Oberhausen-Sterkade; Eckehard Forster, Oberhausen, and Wilfried Heinemann, Dinslaken, all of Germany, assignors to Huttenwerk Oberhausen A.G., Oberhausen, Germany

Filed Aug. 2, 1971, Ser. No. 168,091

Claims priority, application Germany, Aug. 4, 1970, P 20 38 747.7

Int. Cl. B21f *11/00*

U.S. Cl. 72—11 **8 Claims**



Wire coming hot from a rolling mill is carried to a coil stacker on an apertured conveyor on which it cools after being deposited thereon in a series of overlapping loops by a dispenser including a continuously rotating tubular arm which is centered on a horizontal axis. A cutter ahead of the dispenser, responsive to a delayed trigger pulse from a photocell which monitors the entry of the leading end of the wire into an observation zone, removes the irregularly formed leading portion of any fresh length of wire but is inhibited from operating at instants when the arm is so oriented that the tip of the trimmed wire would reach its exit end in a position in which the wire tip could become entangled in the mesh with a grid-type conveyor or fall between parallel conveyor bands. This inhibition is brought about by a signal generator, such as an inductance co-operating with a magnet carried by the rotating arm, whose output either enables the cutter drive in a predetermined arm position or blocks it during the passage of the arm over certain parts of its orbit.

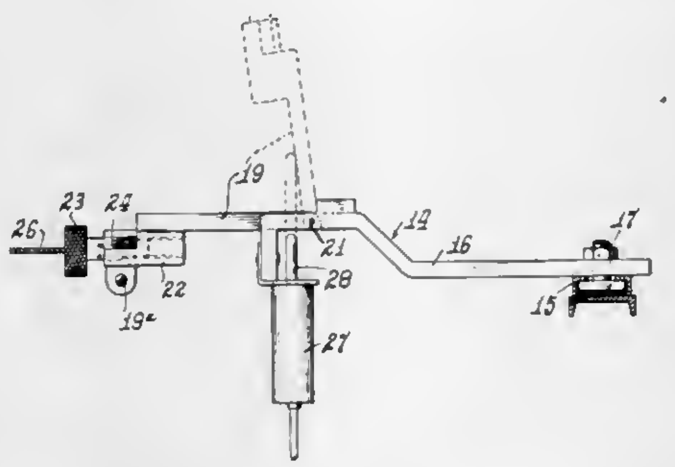
3,704,611
GAUGING SYSTEM FOR PRESS BRAKES

Roger B. Hirsch, 2034 W. Fulton St., Chicago, Ill.

Filed March 5, 1970, Ser. No. 16,669

Int. Cl. B21d *5/00, 11/22*

U.S. Cl. 72—36 **25 Claims**



Gauges for press brakes and a control system having a plurality of adjustable gauge arms, each of which is pneumatically controlled for movement into effective and non-effective positions automatically upon selected sequential operation of the press.

3,704,612
TOOTHED TOOL AND DEVICE FOR CHIPLESS GENERATION OF GEARS

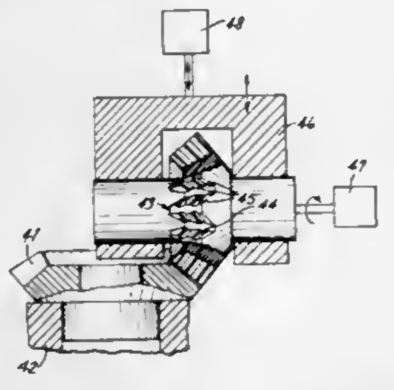
Herbert Loos, Munich, Germany, assignor to Carl Hurth Maschinen -und Zahnradfabrik

Continuation-in-part of Ser. Nos. 813,416, April 4, 1969, abandoned, and Ser. No. 876,779, Nov. 14, 1969, abandoned. This application June 8, 1970, Ser. No. 44,473

Claims priority, application France, April 8, 1968, 68147292; Germany, Nov. 28, 1968, G 68 09 101.0; Jan. 28, 1970, G 70 02 784.8

Int. Cl. B21h *5/00*

U.S. Cl. 72—102 **28 Claims**



Apparatus and tool therefor for forming teeth on the peripheries of gear blanks by rolling. A plurality of teeth are provided on the tool, each thereof having a plurality of spaced projecting areas for applying localized pressures onto the workpiece and arranged in laterally offset relationship for laterally progressively roll-forming each tooth on the periphery of the gear blank, simultaneously with the inwardly radial progression thereof, without the production of chips or shavings. Means are also provided for changing the spacing between the axes of the tool and the gear blank to effect by rolling the formation of teeth on the gear blank.

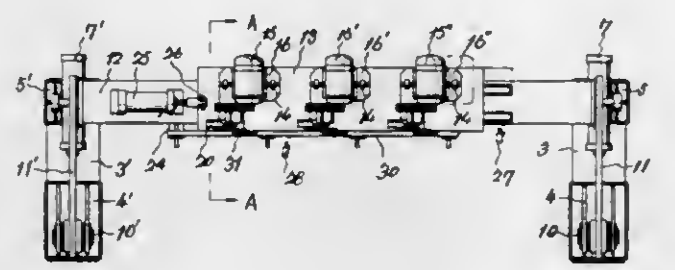
3,704,613
APPARATUS FOR AUTOMATICALLY CUTTING AND REMOVING COIL BAND

Schichiro Morita, Saseho, Japan, assignor to Sasebo Heavy Industries Co., Ltd., Tokyo, Japan

Division of Ser. No. 769,832, Oct. 23, 1968, Pat. No. 3,570,352. This application Aug. 3, 1970, Ser. No. 67,666

Int. Cl. B21f *11/00, 45/00*

U.S. Cl. 72—131 **1 Claim**



A saw cutter which cuts a coil band. The coil stops at a predetermined position. Here the coil is cut by a saw. The cut piece is placed on a belt and guided by a magnet. It travels along the belt to a pulley where it is bent into a circular shape. It is received by a receiving base operated by a cylinder and thereafter dropped for treatment.

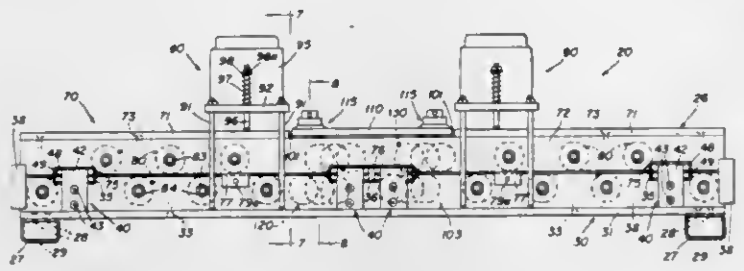
3,704,614
ADJUSTABLE STRIP CONDITIONER

Naaman H. Keyser, Hinsdale, Ill., assignor to Interlake, Inc., Chicago, Ill.

Filed July 27, 1970, Ser. No. 58,275

Int. Cl. B21d *1/02*

U.S. Cl. 72—165 **24 Claims**



A metal strip conditioner includes a guide roll carriage for supporting a metal strip for longitudinal movement along a predetermined planar datum path and having a work section intermediate the ends thereof, a rectangular work platen mounted on the carriage above the work section and having four adjusting screws respectively mounted at the corner sections thereof for independently adjusting the positions thereof with respect to the datum path throughout a range of strip working positions, and a first assembly of edge and center working rolls carried by the platen and adjustable therewith toward and away from a like second assembly of working rolls carried by the work section of the guide carriage, the rolls of the first and second assemblies being so arranged that different combinations of edge and center working of the strip may be achieved by appropriate individual adjustment of the four drive assemblies; auxiliary guide rollers are provided adjacent to the working rolls for maintaining the unworked sections of the strip in the datum path.

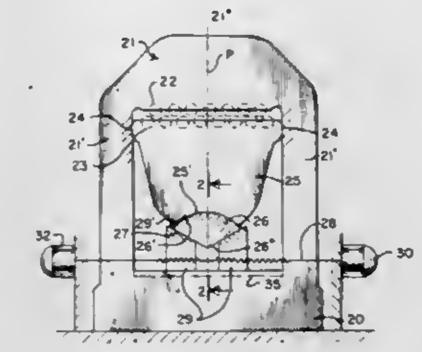
3,704,615
SHEET AND STRIP FLATTENING MACHINE

Curt Munchbach, Pforzheim-Sonnenberg, Germany, assignor to Ungerer, Trma, Germany

Continuation-in-part of Ser. No. 791,979, Jan. 17, 1969, Pat. No. 3,626,736. This application June 15, 1971, Ser. No. 153,327

Int. Cl. B21d *1/02*

U.S. Cl. 72—165 **4 Claims**



A sheet and strip flattening machine, has vertical guideways spaced apart laterally by an upper connecting bridge and lower frame base formed with horizontal guideways. Upper rolls are carried by the upper bridge. Two pairs of wedges are movably disposed in the frame base and are slidable laterally in the horizontal guideways by rotating two screws engaged with the wedges or by moving the screws axially. Two guide members formed with upper cylindrical parts and lower V-shaped are slidably carried by the wedges. A yoke is formed with bottom recesses nested on the guide members. Lower rolls are carried by the yoke. Vertical movement of the yoke and lower rolls is performed by rotating both screws simultaneously. Lateral tilting of the yoke and rolls is done by moving both screws axially. Longitudinal tilting of the yoke and rolls in a vertical plane is done by rotating either one of the screws. The guide members can each be formed of two parts, a cylindrical part and a separate bearing block.

3,704,616
COLD-WORKING PLASTIC BENDING MACHINE

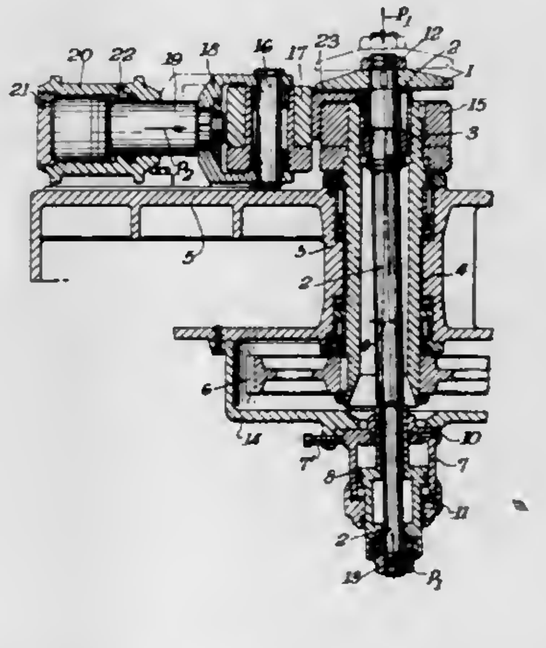
Yasunori Taira, Omiya, Japan, assignor to Tokyo Giken Kogyo Kabushiki Kaisha

Filed July 9, 1971, Ser. No. 161,022

Claims priority, application Japan, July 16, 1970, 45/061749

Int. Cl. B21d *5/14*

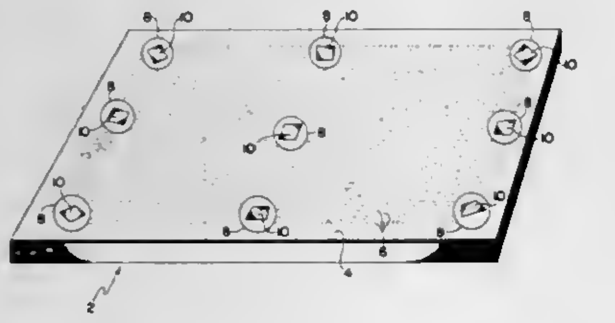
U.S. Cl. 72—167 **4 Claims**



The present invention relates to a cold-working plastic bending machine having a tiltably adjustable press-plate located slightly ahead of the main roller of the machine. A plurality of side rollers is provided, one on each side of the main roller. The force of the press-plate acting on the bend-compression side of a workpiece that passes between the main roller, the press-plate and the side rollers is balanced with the force of the side rollers which bend the workpiece so that the bending work is accomplished without twisting or creasing the workpiece.

3,704,617
METHOD AND APPARATUS FOR FABRICATING IMAGING MEANS

William T. Plummer, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Oct. 22, 1970, Ser. No. 83,029
Int. Cl. B21d *11/04*; **B21j** *13/00*
U.S. Cl. 72—311 **20 Claims**



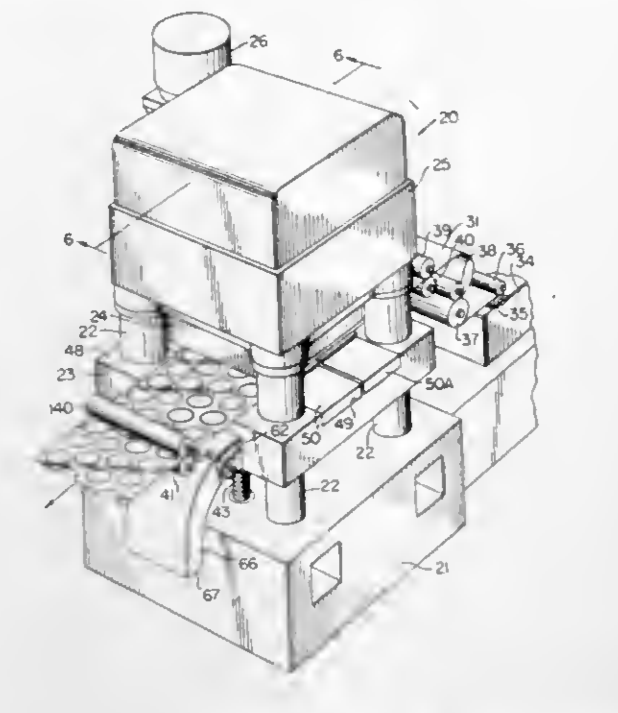
A method and apparatus is provided for fabricating novel imaging apparatus.

The subject invention accomplishes its purpose by employing a stylus which is driven into a base to produce a facet therein which is normal to the longitudinal axis of the stylus. he stylus is secured in predetermined relation with respect to a pair of points and is caused to traverse the surface of said base until a desired portion thereof is sufficiently covered with said facets. One of said pair of predetermined points corresponds to a point source of illumination or other electromagnetic radiation and the other of said pair of predetermined points corresponds to a point to which it is desired to reflect any electromagnetic radiation incident on said faceted base from said point source.

3,704,618
METHOD AND APPARATUS FOR MAKING A DRAWN ARTICLE

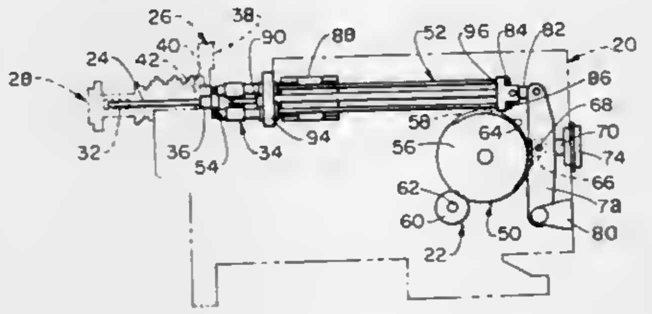
Daniel S. Cvacho, and Harry W. Lee, Jr., both of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.
Filed Oct. 28, 1970, Ser. No. 84,650
Int. Cl. B21d *38/00, 22/00*
U.S. Cl. 72—336 **28 Claims**

A die block, a shearing die, means for causing relative movement between the die block and the shearing die to shear an article from a blank of material when the blank is disposed therebetween, a ram, and means for causing relative movement between the ram and the die block to draw the sheared article into a drawn shape, the die block and shearing die having cooperating drawing surfaces for respectively engaging against opposed sides of the sheared article and from between which the sheared article is adapted to be drawn by the drawing operation of the ram and the die block. The apparatus has means for maintaining a predetermined spacing between the drawing surfaces of the die block and the shearing die during the entire drawing operation of the sheared article therefrom so as to tend to prevent adverse ears at the outer peripheral edge of such drawn article.



3,704,619
REDRAW BLANKHOLDER POSITIONING MECHANISM FOR CUP-SHAPED ARTICLE FORMERS SUCH AS METALLIC CAN BODY FORMERS AND THE LIKE

Elpidifor Paramonoff, Los Angeles, Calif., assignor to Standun, Inc., Compton, Calif.
Filed June 14, 1971, Ser. No. 152,915
Int. Cl. B21d *24/04*
U.S. Cl. 72—349 **29 Claims**

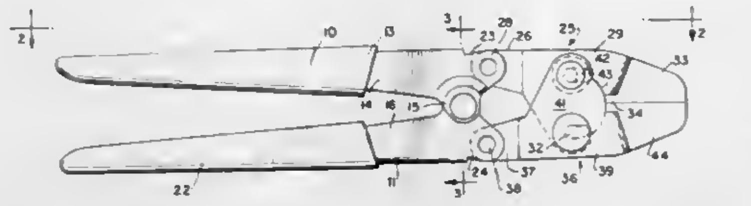


A cup-shaped article former has a hollow cylindrical redraw blankholder which moves from a rearward article feed position axially forwardly into a rearwardly opening cup-shaped article and positions the article against a redraw die ring maintaining a predetermined pressure thereon while a reciprocal ram moves forwardly internally of the blankholder and article engaging the article and carrying it forwardly between the blankholder and die ring in a drawing operation. The blankholder is moved forwardly and rearwardly between rearward article feed and forward article drawing positions and is maintained precisely positioned in the article drawing position by securement of the blankholder to a blankholder mounting frame secured to forward ends of spaced, reciprocal rods, the rods extending rearwardly of the former and being pivotally connected to upper ends of pivotal cam follower arms. The cam follower arms mount cam followers thereon engaged with cam surfaces of rotatable cams, the cam followers being maintained against the cam surfaces under constant pressure of retention air cylinders. A rearwardly compressible and forwardly expansible air cylinder is formed in the blankholder mounting frame for securing the blankholder to the blankholder mounting frame so as to exert a force against the cup-shaped article resisted by the cup-shaped article engagement

against the redraw die ring during movement of the article from the blankholder through the die ring by the ram. A motion limiting mechanism is associated with the blankholder mounting frame air cylinder and the blankholder retaining the blankholder spaced from the die ring as the article leaves the blankholder and finally passes completely through the die ring.

3,704,620
COMPOUND ACTION TOOL

Irving Allen, Westbrook, Conn., assignor to Sargent & Company, New Haven, Conn.
Filed May 25, 1971, Ser. No. 146,633
Int. Cl. B21d *9/08*
U.S. Cl. 72—409 **4 Claims**



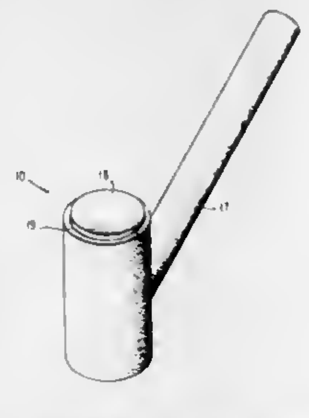
The specification discloses a compound action tool of the pliers type which is commonly employed for crimping purposes. The tool comprises a pair of handles each having a laterally extending ear at one end with the ears overlapping and pivotally connected. An arm is pivoted to the end of each handle and terminates in a jaw. Each arm has a lobe extending laterally towards the other arm. Each arm is formed with an arcuate slot in the region of the lobe with each slot receiving a pin carried by the other lobe. The end edge of each lobe is formed as a curved cam surface which is engaged by a portion of the jaw on the other arm which projects therefrom and overhangs the cam surface.

ERRATUM

For Class 72—477 see:
Patent No. 3,704,622

3,704,621
SAMPLING BOMB AND METHOD OF SAMPLING AND ANALYZING A HEAT OF UNKILLED STEEL

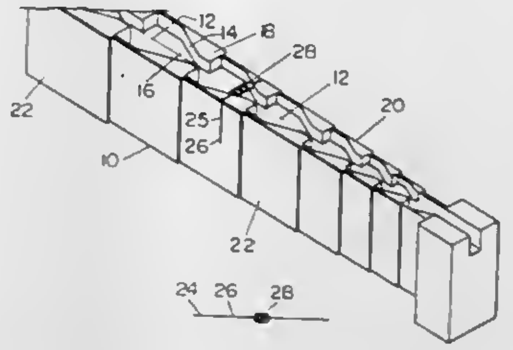
Rex L. Zickefoose, Weirton, W. Va.; Gerald G. Miller, Toronto, Ohio, and James R. Judge, Weirton, W. Va., assignors to National Steel Corporation
Filed Sept. 29, 1970, Ser. No. 76,447
Int. Cl. G01n *1/12*
U.S. Cl. 73—425.4 R **21 Claims**



A novel method of sampling a heat of molten unkilled steel to produce a sound solidified test ingot of magnesium killed steel which is suitable for analysis. An improved sampling bomb is also provided for use in practicing the sampling method of the invention. It is necessary to take and analyze only one sample for all of the common elements normally contained in steel. The prior art method requires that at least two samples be taken, and that at least two analysis be made to obtain comparable results.

3,704,622
ARTICLE FORMER

Theodore H. Cole, P. O. Box 1993, Homes Beach, Fla.
Filed Oct. 13, 1969, Ser. No. 865,769
Int. Cl. B21d *31/00, 43/00*
U.S. Cl. 72—477 **9 Claims**



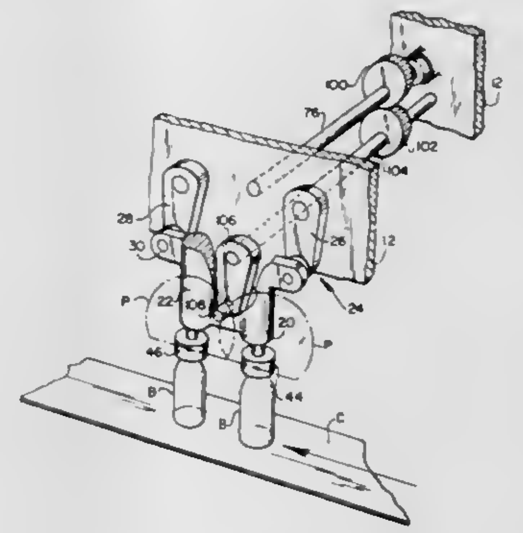
An apparatus for centering and bending articles such as resistors, diodes, capacitors and the like to uniform and precise shapes in a rapid manner is provided.

ERRATA

For Classes 74—473 thru 351—39 see:
Patents Nos. 3,704,982 thru 3,705,003

3,704,623
DRIVE FOR A CONTAINER PROCESSING MACHINE

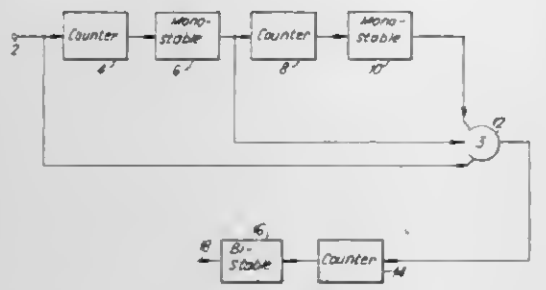
Constantine W. Kulig, Windsor, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Filed July 22, 1971, Ser. No. 164,989
Int. Cl. G01n *3/10*
U.S. Cl. 73—37 **24 Claims**



A drive for moving a container processing apparatus at a substantially uniform speed with a line of containers advancing on a conveyor is disclosed in a machine wherein glass bottles are to be pressure tested and the processing apparatus comprises at least one pressure testing head. The pressure testing heads are cyclically swept along a segment of a moving conveyor on which the bottles to be tested are carried and, in order to substantially synchronize the speed of the pressure testing head with the uniform speed of the bottles on the conveyor, the pressure testing head is mounted on the orbiting link of a parallel crank, four bar linkage which is rotated by means of a rotational drive mechanism having an elliptical gear set. The gear set provides a variable drive ratio and, when driven by means of a constant speed motor, modulates the speed of the orbiting link and the pressure heads so that the heads sweep into engagement and accurately track the bottles during the pressure testing portion of the orbit. The elliptical gears also cause the pressure heads to travel along the return portion of the orbit at a more rapid speed in preparation for the next pressure testing cycle.

3,704,624
VEHICLE TESTING APPARATUS AND TO SAFETY DEVICES THEREFORE

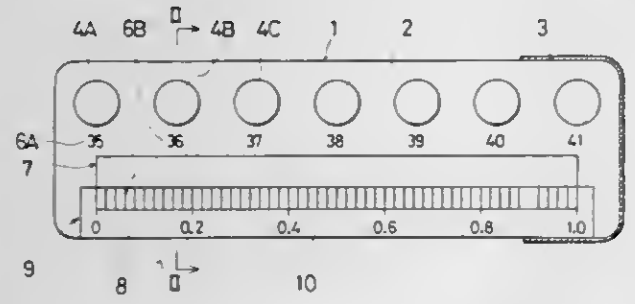
John Anthony Marten, Holt, and Bernard Arthur Gee, Marham, both of England, assignors to Suntester Limited, King's Lynn, Norfolk, England
Filed April 7, 1971, Ser. No. 131,933
Claims priority, application Great Britain, April 10, 1970, 17,247/70
Int. Cl. G01l *5/13*
U.S. Cl. 73—117 11 Claims



The disclosure describes a safety device for a chassis dynamometer in which a signal representative of the speed of rotation of the dynamometer's rollers is processed to give a signal representative of the temperature of the tires of a vehicle being tested on the dynamometer. The signal is dependent on the time integral of S^x where x is approximately 3 and S represents the speed of a dynamometer roller. When the temperature representative signal reaches a predetermined maximum safe value, an alarm is triggered.

3,704,625
THERMOMETER USING LIQUID CRYSTAL COMPOSITIONS

Hiroshi Seto; Mituko Ueda, both of Tokyo, and Humio Segawa, Saitama-ken, all of Japan, assignors to Sankyo Keiryoki Kabishiki Kaisha, Tokyo, Japan
Filed Dec. 28, 1970, Ser. No. 101,532
Int. Cl. G01k *11/16*
U.S. Cl. 73—356 1 Claim

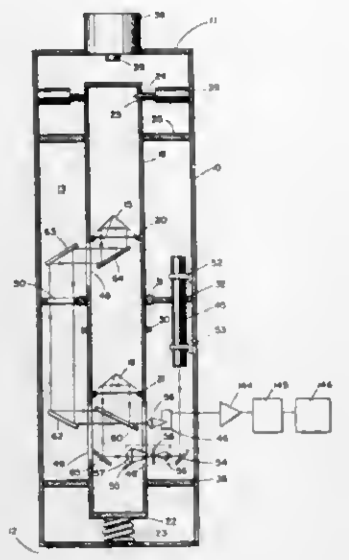


A thermometer comprising a plurality of temperature responsive sections formed of liquid crystal compositions and which change their color in response to a specific range of prime temperature. Each temperature responsive section in its responsive state produces a different color depending upon temperature within the specific range. The color thus produced can be numerically identified by reading a comparable chromatic pattern.

3,704,626
INTERFEROMETRIC METHOD AND APPARATUS FOR MEASURING GRAVITY GRADIENTS

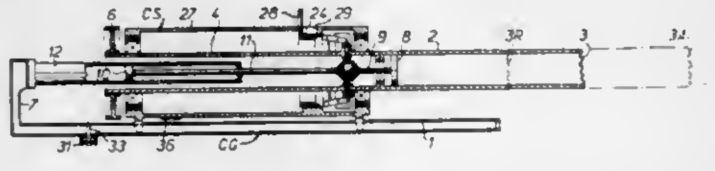
Richard S. Stone, Lexington, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.
Continuation-in-part of Ser. No. 25,153, April 2, 1970, abandoned. This application Aug. 7, 1970, Ser. No. 62,008
Int. Cl. G01v *7/04, 7/12*
U.S. Cl. 73—382 14 Claims

Method and apparatus for measuring gravity gradients directly. Two retroreflectors are caused to experience free flight and the radiation reflected by those retroreflectors during this free flight is directed to a radiation receiver which senses and measures the temporal variations of intensity of the interfering reflected radiation beams. The rate of change in interference frequency over a number of consecutive time periods of equal duration is determined and the rate of change of this signal frequency is used as a direct measurement of a gravity gradient.



3,704,627
SUGAR CAN SAMPLER

Pierre Emile Beaudoux, 23 avenue du Chateau, 76 Dieppe, France
Filed Aug. 30, 1971, Ser. No. 176,188
Claims priority, application France, Sept. 2, 1970, 7031882
Int. Cl. G01n *1/08*
U.S. Cl. 73—423 R 15 Claims

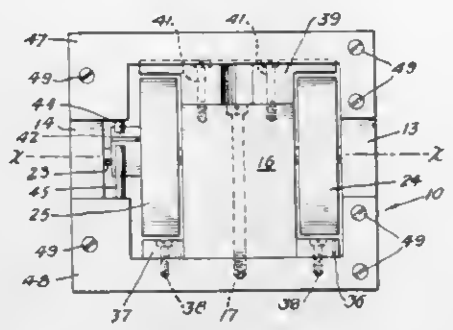


Sugar cane sampler comprising a probe composed of a hollow cylinder with a mouth in the form of a cylindrical saw blade mounted so as to rotate around its axis on a probe chassis and an ejector ram mounted so as to slide in the said cylinder, as well as a guide chassis on which the probe chassis is mounted so as to slide parallel to the axis of the probe and a selective connecting drive to give an advance or reverse movement parallel to the said axis, either to the assembly consisting of the cylinder and ram or to the ram alone, the drive being in the form of a jack, the casing of which is fixed to the guide chassis and the piston of which is directly connected by its rod to the ejector ram.

3,704,628
FLUIDIC ANGULAR ACCELERATION SENSOR

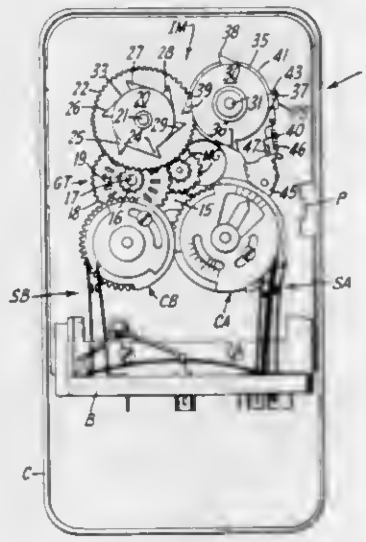
Robert F. Turek, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy
Filed Feb. 24, 1971, Ser. No. 118,264
Int. Cl. G01p *15/02*
U.S. Cl. 73—515 4 Claims

A rotationally balanced air bearing-supported inertial or seismic mass having squeeze-film damping is arranged such that a flapper connected to the mass proportions airflow through parallel orifices legs of a fluidic bridge network under applied angular acceleration to provide a differential pressure output linearly related thereto.



3,704,629
TIME SWITCH WITH INDEXING MEANS FOR PROGRAMMING

Edwin Larry Skarivoda, Manitowoc, Wis., assignor to AMF Incorporated
Filed June 23, 1971, Ser. No. 155,763
Int. Cl. G05g *21/00*
U.S. Cl. 74—3.52 8 Claims

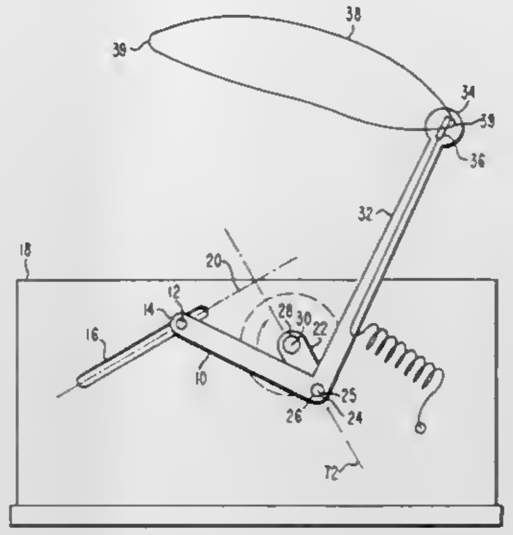


In a time switch having switch actuating cam means which remains quiescent until indexed, indexing means for programming the time switch including a rotatably driven program member and a selector member disposed side by side each having a series of arcuately spaced lobes. Each of the lobes of the program member have a selected axial length and axial position while the lobes of the selector member are on different axially spaced planes which extend through different number of lobes of the program member. The selector member is releasably interlocked to an indexing arm and is rotatable when released to position one of its lobes for engagement by a predetermined number of lobes of the program member.

3,704,630
MECHANISM FOR CARRYING A TRANSDUCER OVER AN ELONGATED PATH

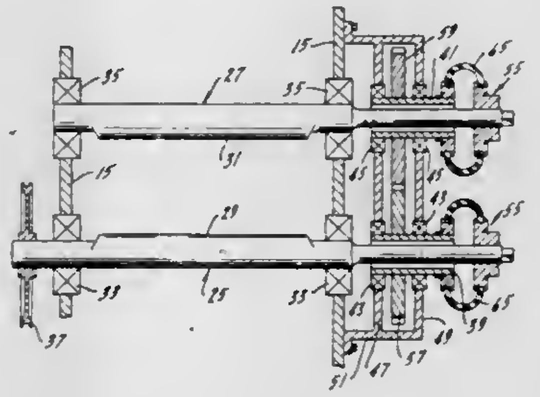
Neal Hepner, Birmingham, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Oct. 2, 1970, Ser. No. 77,450
Int. Cl. F16h *21/18*
U.S. Cl. 74—47 3 Claims

A mechanism for bodily transporting a transducer over a closed, elongated path in which one portion of an arm is slidably coupled to a rotatable member. A transducer carrier attached to the arm is transported over a path defined by the composite motions of the two portions of the arm, thus carrying the transducer in a closed elongated loop.



3,704,631
ADJUSTABLE PHASE TWO SHAFT VIBRATOR

Walter R. Marks, Greenfield, Wis., assignor to Rex Chainbelt, Inc., Milwaukee, Wis.
Filed July 21, 1971, Ser. No. 164,636
Int. Cl. F16b *33/00*
U.S. Cl. 74—61 7 Claims

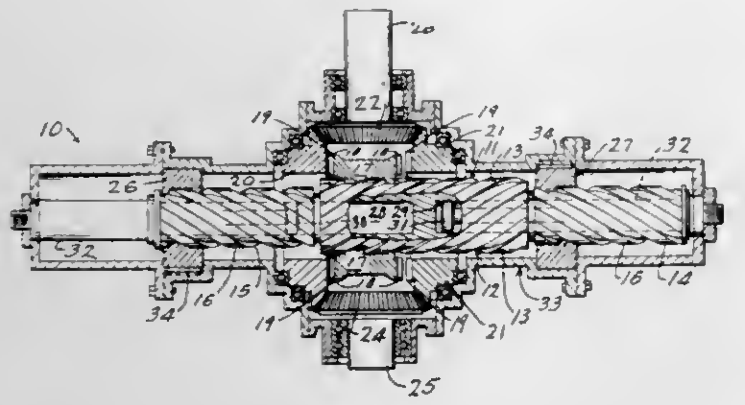


A vibrating mechanism for a two-shaft screen. Eccentric shafts are supported by bearings in the side plates of the screen frame or in mounts above or below the side plates. Each shaft has a coaxial torque tube to which it is connected by a flexible elastic coupling. The torque tubes are interconnected by meshing gears. One of the eccentric shafts has a sheave for a drive belt. The flexible elastic couplings permit the shafts to be rotatably adjusted relative to their torque tubes while the screen is stopped. When the screen is started up again, the forces due to the eccentricity of the two shafts bear a new phase relationship. This results in a new direction for the reciprocating motion of the screen.

3,704,632
REVOLVING STROKE DRIVE

Joseph Orosz, 324 Macheo, Toledo, Ohio
Filed July 2, 1970, Ser. No. 51,963
Int. Cl. F16h *25/12*
U.S. Cl. 74—127 3 Claims

A drive unit for translating reciprocating motion into unidirectional rotary motion is disclosed. The drive unit incorporates an elongate reciprocating cylinder which comprises a center section having a spiral gear on its outer surface. The spiral gear engages an internal spiral sliding clutch element and fixed internal spiral hubs. The internal spiral sliding clutch element alternately engages either of a pair of pinion gears which in turn engage opposing drive gears. An output shaft connected to the drive gears rotates in a single direction in response to each reciprocation of the cylinder.



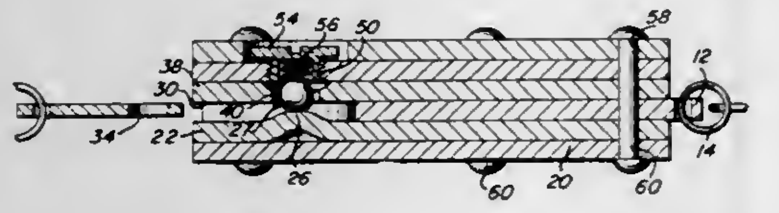
3,704,633
TENSION MEMBER OVERLOAD RELEASE MECHANISM

Keith E. Iverson, Box 334, Hinesburg, Vt.

Filed Jan. 25, 1971, Ser. No. 109,510

Int. Cl. A44b *11/25, 17/00*

U.S. Cl. 24—230 AL **4 Claims**



A keeper component is fabricated from a plurality of juxtaposed metal plate members that have recesses formed therein for receiving a spring loaded spherical member that is adapted to engage an opening in a removable latch member when the latch is connected with the keeper component thereby achieving detent connection. When a preselected minimum tension is applied to the latch, detent action between the spring loaded spherical member and a frustoconical projection within the aperture formed in the latch is terminated whereby the latch becomes released.

3,704,634
INFINITELY VARIABLE CONE PULLEY TRANSMISSION

Rudolf Schrodt, Kronberg, Germany, assignor to Reimers Getriebe A.G., Zug, Switzerland

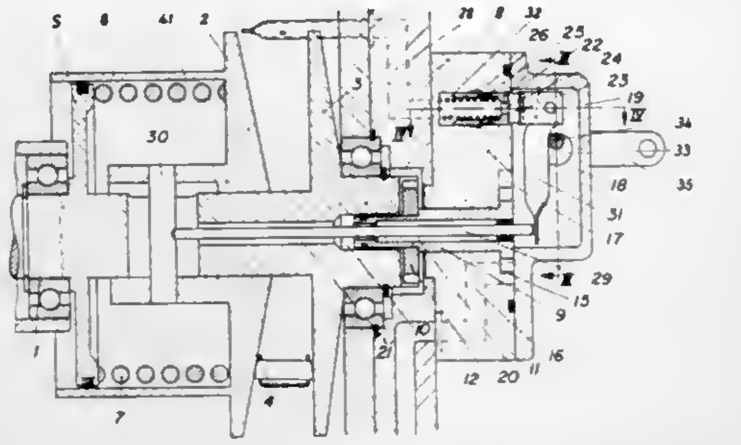
Filed April 21, 1971, Ser. No. 135,988

Claims priority, application Germany, April 24, 1970, P 20 19 848.5

Int. Cl. F16b *55/52*

U.S. Cl. 74—230.17 F **7 Claims**

In an infinitely variable cone pulley transmission the cone pulley pair on one of the two shafts (driving or driven) is pressed together by a helical coil spring and on the other shaft by a hydraulic force. On the hydraulically operated side the axially displaceable cone disc and the transmission shaft form together a cylinder and piston arrangement. A particularly compact dimensioning of the transmission and the control device is achieved by arranging the pressure pump housing immediately adjacent the transmission housing. The pressure pump housing contains in one block a slide valve for regulating the hydraulic pressure, lines for guiding the pressure liquid, first mechanical elements for automatically sensing and controlling the transmission ratio, and second mechanical means for manually overriding the automatically adjusted ratio.



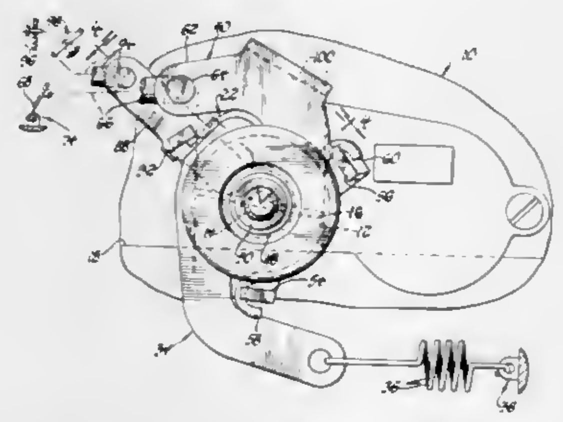
3,704,635
THROTTLE RETURN SPRING REDUNDANCY SYSTEM

Phillip V. Eshelman, 19417 Greenwald, Southfield, Mich.

Filed June 1, 1971, Ser. No. 148,310

Int. Cl. G05g *11/00*

U.S. Cl. 74—482 **8 Claims**



A throttle valve, situated within the induction passage of a fuel or air induction device, is carried by a throttle shaft for fixed rotation therewith; a lever fixedly connected to the throttle shaft is operatively connected to a remotely situated operator's foot-operated throttle control; a first throttle return spring is operatively connected to the first lever for returning the throttle valve to an idle position whenever the foot-operated throttle control is released; a second safety spring is provided for assuring the movement of the throttle valve to the idle position in the event that, for example, either the first throttle return spring or the associated throttle control linkage should fail while the throttle valve is in either a partly or fully opened position; and manually operated lever means is provided for at times operatively engaging the lever fixedly secured to the throttle shaft in order to thereby rotate the throttle valve toward an open position against the resistance of the safety spring.

3,704,636
COMBINED CRANKSHAFT FOR MULTI-CYLINDER PISTON ENGINES, ESPECIALLY INTERNAL COMBUSTION ENGINES

Ferdinand V. Piech, Gabkopf, Germany, assignor to Firma Dr. hoe. f. Porsche K.G., Stuttgart, Germany

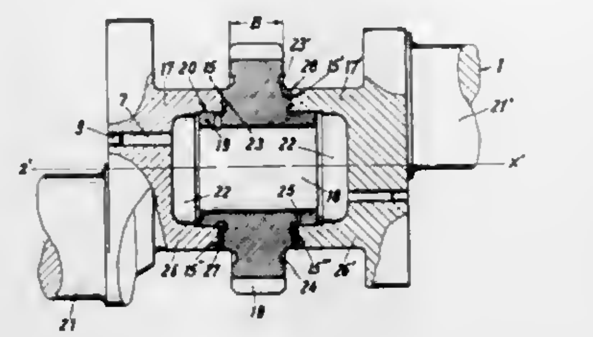
Filed May 4, 1970, Ser. No. 34,130

Int. Cl. F16c *3/10*

U.S. Cl. 74—597 **10 Claims**

Jointed crankshaft for multi-cylinder piston engines, especially internal combustion engines, which crankshaft is split in

the area of the crankpin and joined together through a butt joint by means of electron-beam welding. The crankshaft is split perpendicularly in the plane of one or more shaft journals and is provided at the butt joints of adjacent shaft journals with annular faces facing each other and; through the formation of ventilated hollow space, are joined together. An intermediate layer which serves as an adhesion joint can be interposed between the faces of the shaft journals. The crankshaft can also be provided with a drive gear having a spigot which ensures a satisfactory joint and accurate centering of the pieces to be welded.



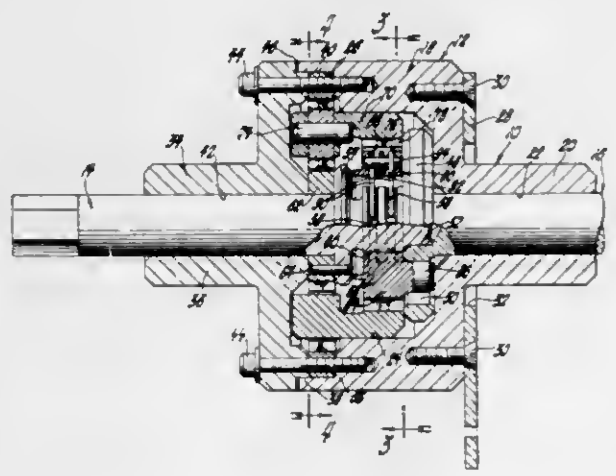
3,704,637
TORQUE RESPONSIVE TRANSMISSION MECHANISM

Russell L. Morden, and Ralph W. Perkins, both of Lansing, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed April 5, 1971, Ser. No. 131,267

Int. Cl. F16h *5/54*

U.S. Cl. 74—751 **3 Claims**



A mechanism for transmitting torque from a rotating input shaft to a rotating output shaft and for automatically increasing the transmission ratio in response to the magnitude of the applied torque, the mechanism including a planetary gear train driven by the input shaft, a pawl member rotatable as a unit with the output shaft and bodily movable relative thereto in a radial direction, a cam on the input shaft and a follower on the output shaft. During conditions of low torque input a spring urges the pawl member to a retracted position coupling the output shaft to the input shaft to establish a direct drive unitary transmission ratio therebetween. When torque exceeding a predetermined magnitude is applied to the input shaft the cam and follower cooperate to force the pawl member to an extended position coupling the output shaft to the planet carrier of the planetary gear train, thus establishing a torque transmission ratio between the shafts which exceeds unity.

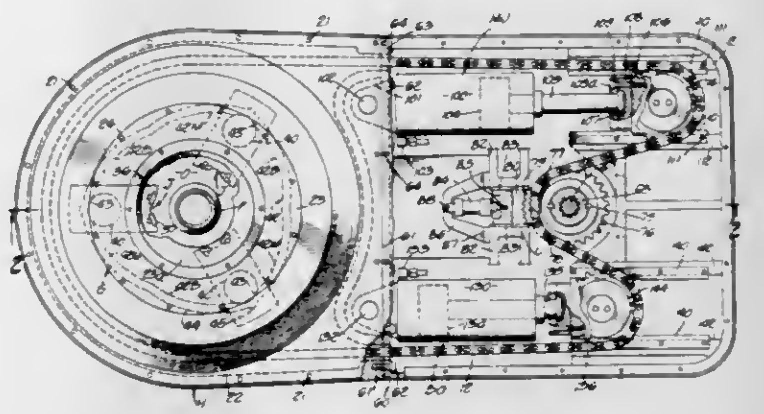
3,704,638
POWER PIPE TONG WITH TORQUE RESPONSIVE BRAKE MEANS

Garth Fancher Nicolson, Huntington Beach, and Carl Alfred Wilms, La Habra, both of Calif., assignors to Byron Jackson Inc., Long Beach, Calif.

Filed April 16, 1971, Ser. No. 134,655

Int. Cl. B25b *17/00*

U.S. Cl. 81—57.18 **10 Claims**



A power pipe tong having pipe gripping jaws actuated to pipe engaging position by rotation of a fluid motor driven ring relative to a jaw carrying ring which is initially held against rotation by a brake, the rings rotating together after the pipe is gripped, and in which the brake is pressure operated to apply braking friction at a value determined by the torque of the fluid motor to apply maximum braking friction when the gripping means experience least resistance and minimum braking friction when the gripping means experience maximum resistance.

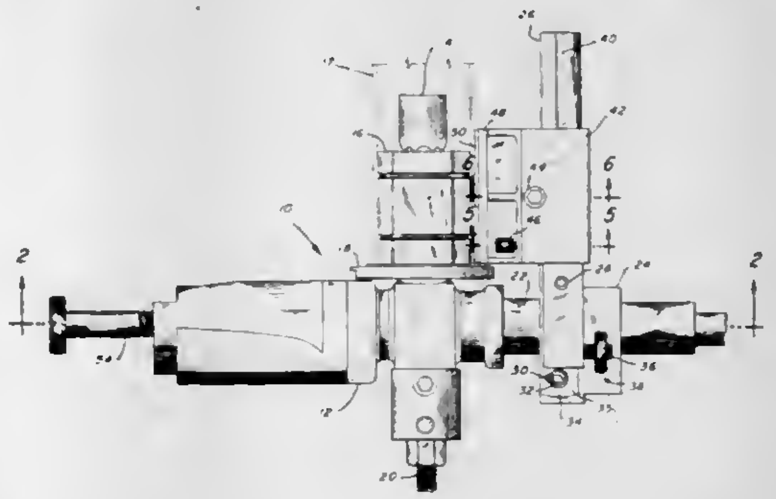
3,704,639
TAPERING TOOL FOR TUBULAR ARTICLES

Rudolph G Foss, Tulsa, Okla., assignor to Unique Industries, Inc., Tulsa, Okla.

Continuation-in-part of Ser. Nos. 63,366, Aug. 13, 1970, and Ser. No. 114,191, Feb. 10, 1971. This application May 17, 1971, Ser. No. 144,045

Int. Cl. B23b *3/26*

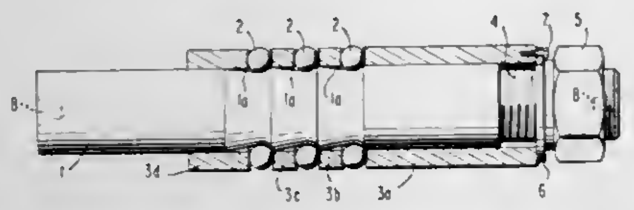
U.S. Cl. 82—4 C **20 Claims**



This invention comprises a tool for cutting an external taper on the end of a tubular article, such as a fiberglass pipe. It comprises a supporting member which rotatably carries an expandable collet mounted on a collet shaft. An arm is slidably positioned in the supporting member substantially perpendicular to said outlet shaft. The arm carries a cutter blade assembly. A cam is cut into the collet shaft with a cam follower on a pump, which supplies fluid under pressure to a cylinder, the piston of which is connected to the arm. pRotation of the cutter blade assembly about the collet shaft causes fluid under pressure to flow into the cylinder, causing the piston and the arm to be displaced, bringing the cutter blade into contact with the pipe held by the collet. The cutter blade assembly which is adapted to carry a plurality of cutting blades in turret fashion, is rotatably positioned on a support bar fastened to said first shaft.

3,704,640
DEVICE FOR MOUNTING AND CENTERING A WORK PIECE FOR INSTANCE IN A MACHINE TOOL

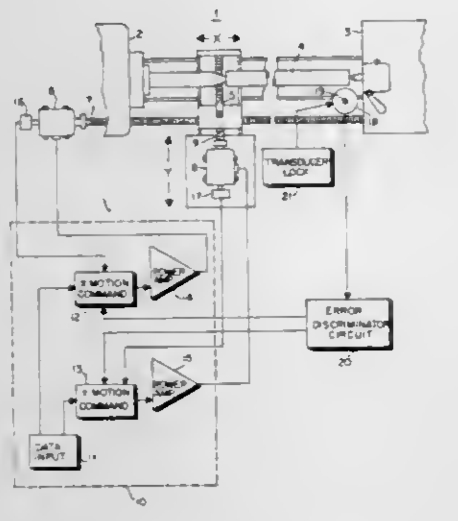
Sven Gunnar Forsstrom, Kalmar, Sweden, assignor to Bergmans Motorindustri AB, Kalmar, Sweden
Filed Feb. 13, 1970, Ser. No. 11,218
Claims priority, application Sweden, Feb. 24, 1969, 2506/69
Int. Cl. B23b *31/40*
U.S. Cl. 82—44 **4 Claims**



A device for mounting and centering a work piece with circular inner and/or outer surfaces e.g. in a machine tool, comprising two or more identical conical surfaces formed on a shaft or sleeve and supporting each a series of balls or similar members, which are radially displaceable to transfer the engagement with the circular surface of the work piece by relative axial displacement between the shaft or sleeve and one or more spacer members co-operating with the balls. The balls are arranged to engage directly with the circular surface of the work piece or to transmit the engaging action by means of at least three entirely separate and radially displaceable transfer members co-operating with the balls and equally distributed about the periphery of the shaft or sleeve.

3,704,641
AUTOMATIC TOOL SETTING SENSOR

John M. Rhoades, Waynesboro, Va., assignor to General Electric Company
Continuation-in-part of Ser. No. 802,973, Feb. 27, 1969, abandoned. This application May 27, 1971, Ser. No. 147,679
Int. Cl. B23b *3/28*
U.S. Cl. 82—14 R **7 Claims**



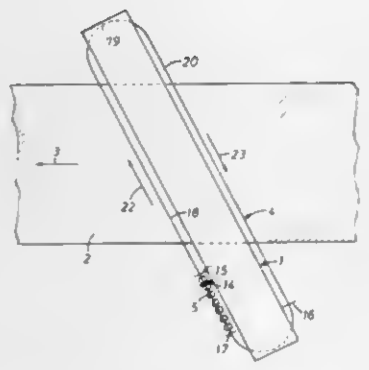
A numerical control system for a machine tool including an electromechanical transducer for producing compensating signals proportional to errors in the setting of a cutting tool in its toolholder relative to a programmed setting. The numerical control is programmed to drive the toolholder to a predetermined position in which the tip of the cutting tool engages a deflectable stylus of the transducer. The stylus is mechanically locked in its deflected position by an electromagnetic brake. Sensing coils within the transducer provide continuous signals indicative of the deflected position of the stylus and thus of any errors in the setting of the cutting tool. This information is used to continually modify input data to compensate for those errors.

ERRATUM

For Class 83—2 see:
Patent No. 3,704,735

3,704,642
APPARATUS FOR INCISING A WEB OF GLASS

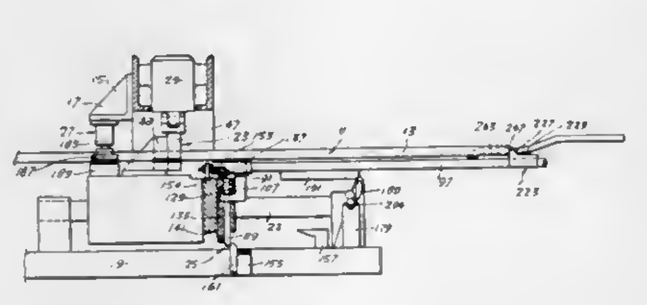
Jacques Max Charles Dryon, Auvelais, Belgium, assignor to Ateliers Heuze, Malevez & Simon Reunis, Societe Anonyme, Auvelais, Belgium
Filed Oct. 16, 1970, Ser. No. 81,376
Claims priority, application Belgium, Dec. 8, 1969, 82479
Int. Cl. B26d *3/08*
U.S. Cl. 83—11 **7 Claims**



An apparatus for incising an advancing glass web passed continuously upon horizontal transporter means. The apparatus comprises a beam extending across the web and defining a closed loop path, upon which a carriage having incising tools is movably supported. An elongated coil, subdivided into different sections independently energizable to generate respective section eddy currents is fixed along the beam. Eddy currents are generated in part of the carriage, and the motion of the carriage derives from the reaction between magnetic fields of the carriage and the coils. The carriage is deviable toward and away from the glass web during its movement around the beam, so that the incising tool is lowered on to the glass web during the incision stroke and lifted therefrom on its return stroke.

3,704,643
FLYING SHEAR

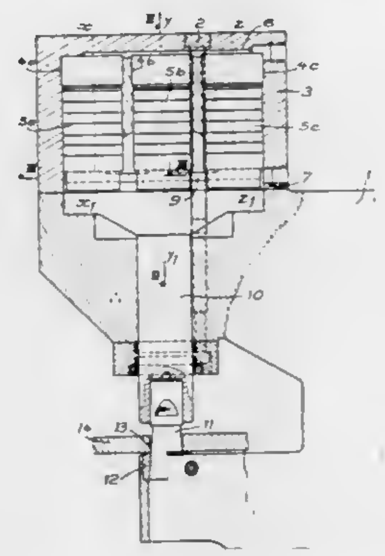
William Cookson, Fareham, England, assignor to Cookson Sheet Metal Developments Limited, Southampton, England
Filed Nov. 20, 1970, Ser. No. 91,373
Claims priority, application Great Britain, Nov. 25, 1969, 57,644/69
Int. Cl. B23d *25/04*
U.S. Cl. 83—294 **12 Claims**



A flying shear suitable for cutting into predetermined lengths a moving supply of material for example metal sheet which may be a formed sheet passing from a roll forming machine. The flying shear comprises a shear blade assembly including shear blades between which the material can pass, means whereby the shear blade assembly is caused by the material to move forward with the material leaving a predetermined length of material in front of the blades, ram means to cause the blades to close together to cut the material, means responsive to the forward movement to cause the ram means to operate to effect the cut, means for opening the blades after the cut and means for retracting the blade assembly for another cut.

3,704,644
PUNCHING MACHINE-TOOLS

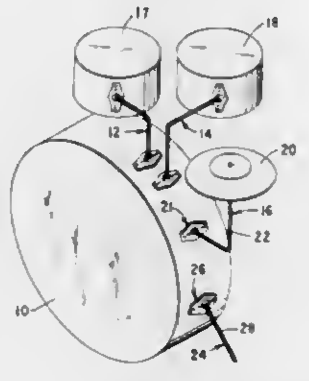
Jean Cloup, 33 Latresne, France
Filed April 21, 1970, Ser. No. 30,508
Int. Cl. B26d *5/12*
U.S. Cl. 83—639 **2 Claims**



This invention relates to an improvement in punching machine tools comprising a frame in which is mounted a slide carrying at one of its ends a punching tool and connected at its other end to hydraulic control means, wherein a plurality of small diameter hydraulic cylinders are mounted on the frame of the machine which has a relatively small front width, in which cylinders pistons unitary with the slide are slidably mounted, said cylinders having their axes located in the same plane extending along the largest dimension of the frame.

3,704,645
ACCESSORY HOLDER FOR MUSICAL INSTRUMENTS OF THE PERCUSSION TYPE

Robert N. Grauso, Bayside, and John J. Morena, Levittown, both of N.Y., assignors to C. F. Martin & Co., Nazareth, Pa.
Filed Sept. 1, 1971, Ser. No. 176,939
Int. Cl. G10d *13/02*
U.S. Cl. 84—421 **8 Claims**

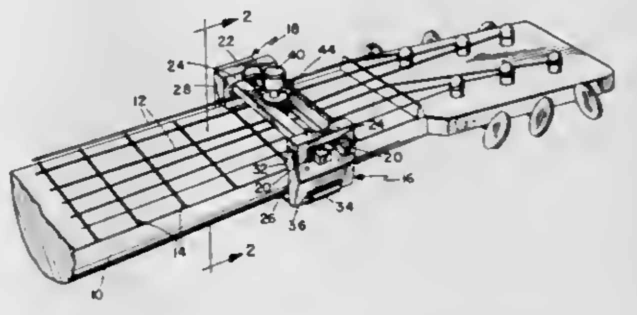


An accessory holder for musical instruments of the percussion type providing means for adjusting an accessory in an infinite number of positions relative to the instrument for the convenience of a musician. The accessory holder is provided with a swivel ball joint on both ends of an angular support rod, one end being adapted to be mounted on an instrument such as a base drum, the other end being adapted to be mounted to an accessory such as a tom-tom, snare drum or cymbal, etc. Tension screws are provided to lock the swivel ball joints and angular support in any selected position.

The aforementioned Abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,704,646
STRING DEPRESSOR AND METHOD OF USING SAME

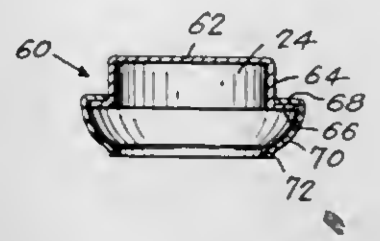
Richard P. Davis, and Philip A. Dunlap, both of San Diego, Calif., assignors to Barbara Hanson, San Diego, Calif., a part interest
Filed July 23, 1970, Ser. No. 57,545
Int. Cl. G10g *7/02*
U.S. Cl. 84—454 **1 Claim**



A mechanical tuning aid for guitar-like stringed instruments enabling an optimum tonality and balanced tuning technique with both hands of the musician free to accomplish peg manipulation, that is, one hand for string tension adjustment with the other hand free for simultaneous strumming. The tuning aid is temporarily fastened transversely on the neck of the instrument and a button is adjustably positioned to depress the strings selectively and to hold the same depressed on the predetermined fret until the next string is tuned in relation thereto.

3,704,647
SEAL

Jean Painaud, Ville de Laval, Quebec, Canada, assignor to Tritton Enterprises Ltd., Montreal, Quebec, Canada
Filed May 20, 1970, Ser. No. 39,123
Int. Cl. A47g *3/00;* **F16b** *15/02*
U.S. Cl. 85—55 **7 Claims**

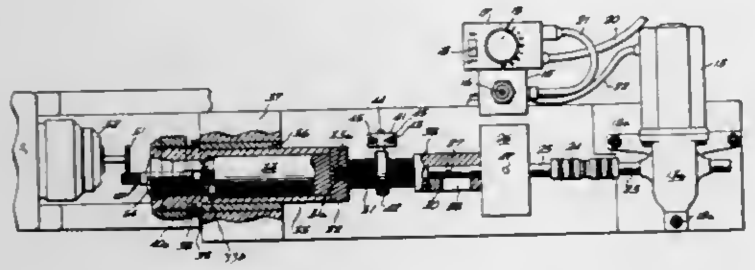


A seal device for sealing the heads of screws, bolts or the like against tampering. The seal device has a cap portion with a cavity, a peripheral flange and a depending deformable skirt. It is preferably of a one-piece construction made of material such as steel or tin, and is adapted to be used with screws, bolts or the like which have an inwardly stepped shoulder at the base of the head to receive the deformed skirt of the seal device. The invention also provides a method of sealing screws or the like using the above type of seal.

3,704,648

THREAD MILLING ATTACHMENT FOR ENGINE LATHES

Walter S. Burfoot, 1734 Billings St., Sarasota, Fla.
Filed July 12, 1971, Ser. No. 161,559
Int. Cl. B23g *1/32*
U.S. Cl. 90—11.62 **8 Claims**

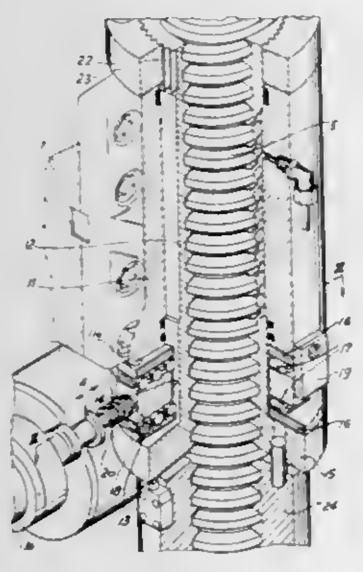


A thread milling attachment for engine lathes, particularly for milling a wide variety of special threads on workpieces, is described. The attachment device is readily attachable to an ordinary lathe by mounting to its cross-slide in substitution for the usual compound-rest, and includes a self-powered drive spindle mechanism operative to screw-turn a workpiece forewardly or rearwardly, selectively, with respect to a milling cutter turned by the associated lathe for milling threads on the workpiece the shape of which is controlled by the shape of the milling cutter and the pitch of which is adjustably controlled by an interchangeable lead-screw portion of the drive spindle mechanism.

3,704,649

DEVICE FOR ADJUSTING THE CROSS-RAIL ON PORTAL TYPE MACHINE TOOLS

Toni Von Den Hoff, and Ewald Weber, both of Coburg, Germany, assignors to Werkzeugmaschinenfabrik Adolf Waldrich Coburg, Coburg, Bayern, Germany
Filed Jan. 27, 1971, Ser. No. 110,019
Claims priority, application Germany, Feb. 6, 1970, P 20 05 555.4
Int. Cl. B23q *23/00*
U.S. Cl. 90—15 **6 Claims**

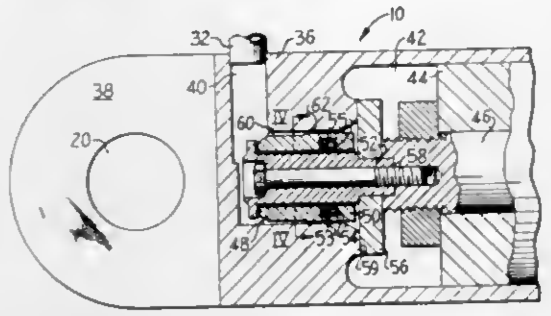


A device for adjusting the cross-rail on a portal type machine tool wherein an adjusting device is provided between an abutment member and a nut and which is movable transversely of the spindle axis by means of an adjusting motor and is provided with a slot extending in its direction of movement for the passage of the elevating screw. It is through this structure that one end of the cross-rail may be vertically adjustable independently of the other end of the cross-rail to maintain same in a generally horizontal relationship parallel to, for example, the plane of the worktable.

3,704,650

HYDRAULIC JACK STROKE CUSHIONING MEANS

Lawrence F. Berg, Lockport, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed March 29, 1971, Ser. No. 128,822
Int. Cl. F15b *15/22*
U.S. Cl. 91—395 **12 Claims**

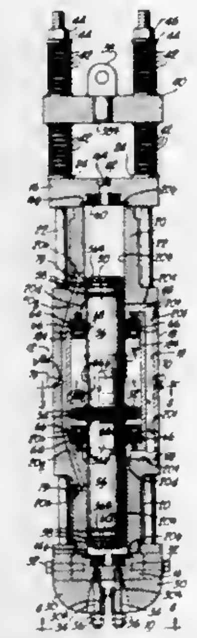


A hydraulic jack is provided with means to cushion the piston and rod assembly at the end of its stroke. The cushioning means comprises a pair of resiliently supported sleeves, one placed on each side of the piston, that cooperate with respective bores in the housing of the jack to serve to progressively restrict the flow of fluid to an exhaust port as the piston nears the end of its stroke. The resilient mounting of the sleeves, comprising annular elastomeric seals, permits limited radial movement thereof with respect to the piston to compensate for any eccentricity of the bores relative to the piston.

3,704,651

FREE PISTON POWER SOURCE

John J. Kupka, Chester Township, Morris City, N.J., assignor to Vulcan Iron Works Inc., Chattanooga, Tenn.
Filed Dec. 10, 1970, Ser. No. 96,755
Int. Cl. F01l *21/02;* **F01b** *11/02*
U.S. Cl. 91—232 **5 Claims**

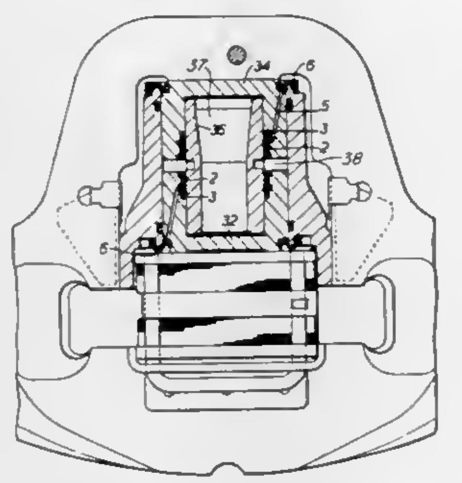


A free piston vibrator power source for applications wherein control of vibration frequency, force, and amplitude is important and useful in underwater applications as a sonic generator. The vibrator includes a cylinder and a fluid piston slidably mounted in the cylinder for vibrating reciprocal movement between opposite ends. Valve means is provided for introducing pressurized activating fluid into the cylinder on opposite sides of said piston in response to the position of said piston between opposite ends of said cylinder and a discharge port is provided for exhausting fluid from opposite sides of the piston in response to the position thereof. Fluid storage chambers are provided at opposite ends of the cylinder and rod-like piston members on opposite sides of the piston are slidable in the chambers which contain compressible fluid at pressures independent of the activating fluid pressure.

3,704,652

HYDRAULIC BRAKES

Hermann H. Hoenick, Immendorf, Germany, assignor to Girling Limited
Filed June 8, 1970, Ser. No. 44,333
Claims priority, application Great Britain, June 9, 1969, 29,078/69
Int. Cl. F01b *7/02*
U.S. Cl. 92—5 **3 Claims**

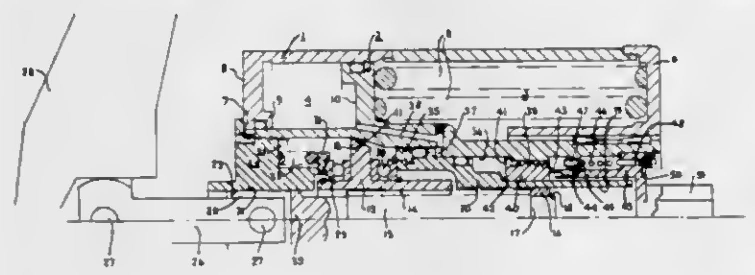


The invention relates to an improved sealing arrangement for an hydraulic brake actuator comprising a pair of pistons having their skirts slidingly and sealingly engaged over a common sleeve. Each sealing arrangement comprises a pair of annular sealing members having a space between them connected to a low pressure region (for example at atmospheric pressure) so that if either seal should fail, fluid will leak into the space and away to the lower pressure region, so as to give a visual indication of seal failure.

3,704,653

SPRING-FORCE APPLYING MEANS

Horatio Leslie Higgins, London, England, assignor to Westinghouse Brake and Signal Company Limited, London, England
Filed March 11, 1971, Ser. No. 123,271
Claims priority, application Great Britain, May 21, 1970, 24,630/70
Int. Cl. F01b *9/00*
U.S. Cl. 92—29 **5 Claims**



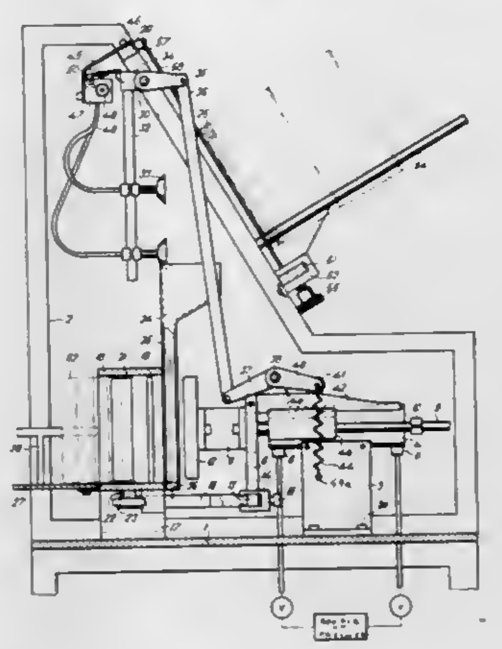
A spring-brake actuator wherein the piston acted upon by the spring is connected to its piston rod via a clutch held disengaged only so long as fluid pressure is effective on the piston to render the spring inoperative to apply the brake.

3,704,654

APPARATUS FOR FORMING BOXES

Oldrich Bayer; Josef Snasel; Jiri Premyslovsky, and Frantisek Smalcl, all of Gottwaldov, Czechoslovakia, assignors to Svit, narodni podnik, Gottwaldov, Czechoslovakia
Filed May 19, 1971, Ser. No. 144,801
Claims priority, application Czechoslovakia, May 26, 1970, 3649/70
Int. Cl. B31b *15/00*
U.S. Cl. 93—51 R **5 Claims**

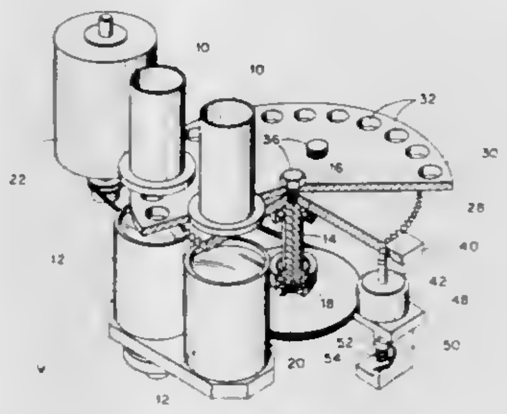
Apparatus for forming boxes or box covers, the apparatus having feeding means and forming means that are both driven by a common driving means, the forming means being operable in a reciprocating, substantially arcuate motion to impart vertical motion to box blanks or box cover blanks prior to operation of the forming means on the blanks.



3,704,655

PHOTOPLOTTER MECHANISM FOR PRECISE APERTURE DISC POSITIONING

Gilbert Fryklund, Winchester, and Richard E. Denis, Beverly, both of Mass., assignors to Computervision Corporation, Burlington, Mass.
Filed May 5, 1971, Ser. No. 140,428
Int. Cl. G03b *29/00*
U.S. Cl. 95—12 **10 Claims**



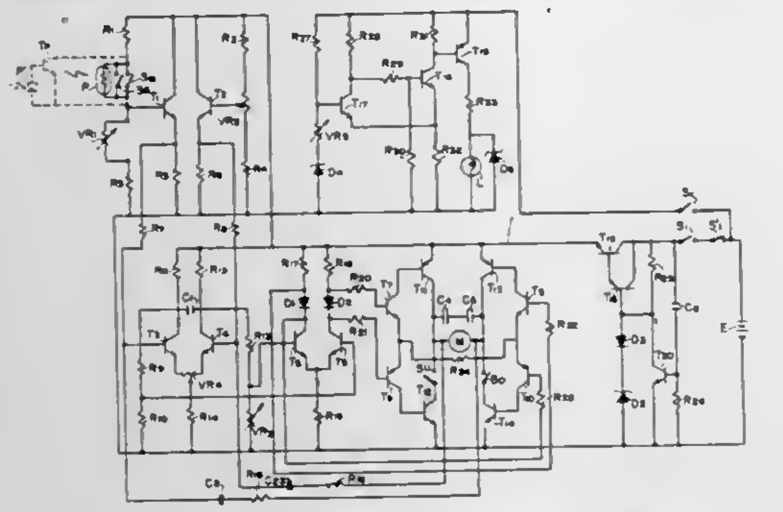
A precise positioning mechanism for positively orienting an aperture disc of a photoplotter. The mechanism inserts an index element into a ring of teeth mounted on or in cooperation with the aperture disc to angularly position the aperture disc so that the optical head axis is concentric with the indexed aperture. Also, an assembly process for mounting the aperture disc on its rotatable shaft to ensure initial radial and angular concentricity of optical head axis and apertures.

3,704,656

EXPOSURE DETECTOR DEVICE AND A CAMERA SYSTEM WITH THE EXPOSURE DETECTOR DEVICE

Mitsutoshi Ogiso, Kawasaki, and Katsuhiko Yamada, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed April 12, 1971, Ser. No. 133,080
Claims priority, application Japan, April 14, 1970, 45/31852
Int. Cl. G03b *19/12*
U.S. Cl. 95—42 **11 Claims**

An exposure detector device for a camera comprising a comparator circuit having at least a photo-sensitive element and a variable resistance element, a detecting means being connected to the comparator circuit, a power source for the comparator circuit and the detecting means, and a switching means for the interruption of the power supply from the power source to the detecting means, and whereby the detecting means is retained at a balanced state of the comparator circuit.



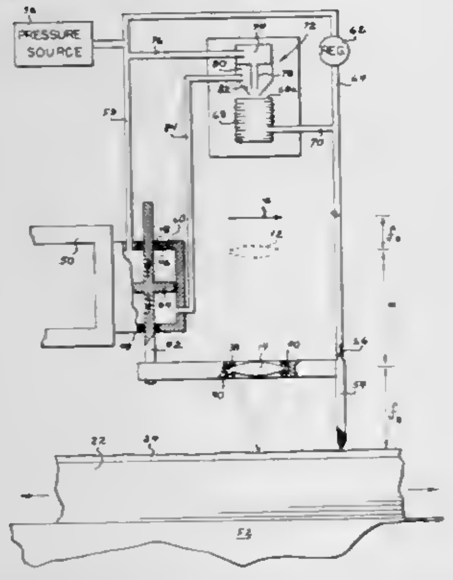
3,704,657
ADAPTIVE OPTICAL FOCUSING SYSTEM

Joseph J. Sliwkowski, Framingham, and Gilbert Fryklund, Winchester, both of Mass., assignors to Computervision Corporation, Burlington, Mass.

Filed May 5, 1971, Ser. No. 140,348

Int. Cl. G03b *3/00*

U.S. Cl. 95—44 R **4 Claims**



An adaptive optical focusing system which utilizes two relatively movable lenses and a servo gauging system to maintain one of the lenses at a fixed distance from a photosensitive medium. An illuminated object or light aperture is located at the focal point of the first lens. The second movable lens is positioned to intercept the collimated light rays from the first lens and to focus the image of the light aperture on the photosensitive medium. A servo gauging system maintains the second lens at a distance from the photosensitive medium which corresponds to the focal length of the second lens.

3,704,658
UNIVERSALLY ADJUSTABLE MOUNT FOR A CAMERA OBJECTIVE LENS

Kyozo Uesugi, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Japan

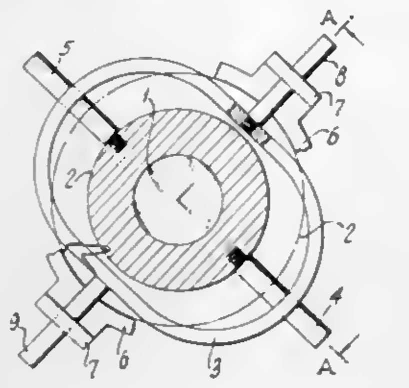
Filed Nov. 13, 1970, Ser. No. 89,322

Claims priority, application Japan, Nov. 27, 1969, 44/95562

Int. Cl. G03b *5/06*

U.S. Cl. 95—50 **7 Claims**

A universally adjustable mount for a camera objective lens includes an axially adjustable barrel provided with a pair of transversely spaced ears having axially aligned first bores. An elongated frame is located between the ears and is provided with oppositely directed pins slideably and rotatably engaging the ear bores and has opposed second bores therein along a transverse axis perpendicular to the axis of the first bores. The objective lens barrel projects through the frame and is provided with opposite outwardly directed radial pins engaging the second bores. A flexible bellows interconnects the two barrels.



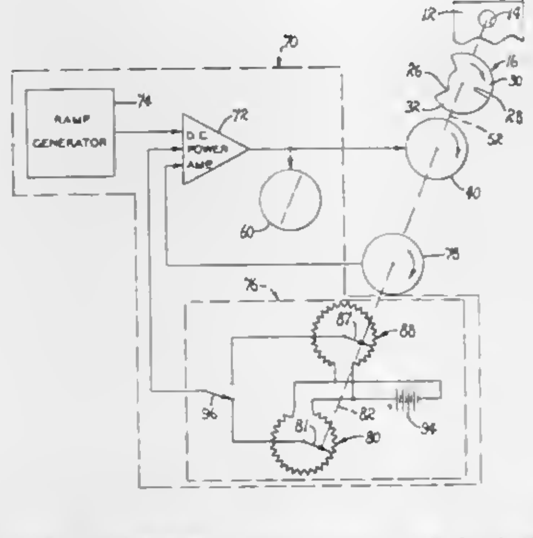
3,704,659
CYCLICALLY OPERABLE OPTICAL SHUTTER

George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Edwin F. Dobies, 5030 Angeles Crest Highway, La Canada, Calif.

Filed Oct. 15, 1970, Ser. No. 81,096

Int. Cl. G03b *9/10*

U.S. Cl. 95—59 **8 Claims**



A cyclically operable, optical shutter particularly suited for use as a focal plane shutter, characterized by an occulting disk having a pair of radiation occulting sectors defining therebetween a pair of diametrically opposed, radiation transmitting sectors driven in rotation by a D.C. motor. A particular feature of the shutter resides in a combination of a servo-control system with the motor for accelerating the disk from a steady state of zero velocity to a preselected steady state of angular velocity, maintaining the steady state during a predetermined period of radiation transmission, and subsequently decelerating the disk to a steady state of zero velocity within a fraction of a single revolution, whereby a pulse of radiation having a preselected width is gated through an associated aperture with a high degree of uniformity and reproducibility.

3,704,660
FILM PROCESSING MACHINE

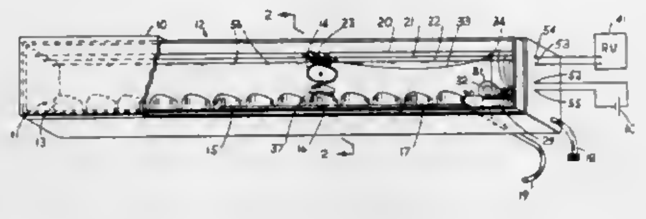
David E. Hill, 611 Perry St., Apt. 2, Davenport, Iowa

Filed Aug. 3, 1971, Ser. No. 168,636

Int. Cl. G03d *3/00*

U.S. Cl. 95—89 D **5 Claims**

A film processing apparatus having a row of film developing tanks and a plurality of wires positioned above the tanks. The wires slidingly support a carriage over the row of developing tanks and also function as conductors to switches associated with the carriage. These switches control a motor for stopping the carriage over a successive tank and for reversing the motor to lower the film to be developed into the tank. The starting of the motor is controlled by a tape recorder that plays back tape on which audio-frequency signals of predetermined durations at predetermined intervals have been recorded.



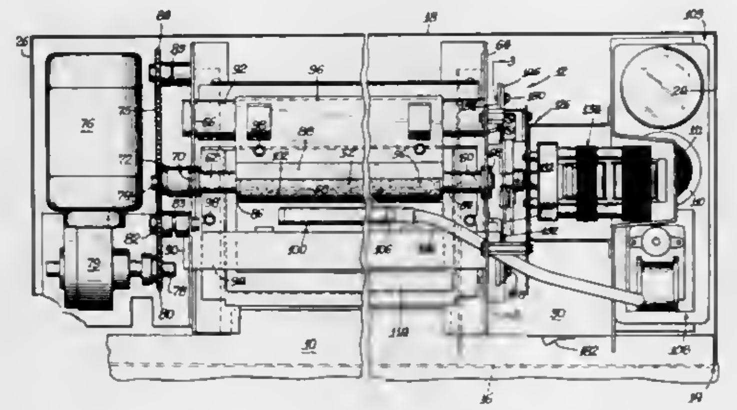
3,704,661
LIQUID DEVELOPING APPARATUS

Robert M. Johnson; Dennis E. Toby, and Robert M. Koch, all of Cleveland, Ohio, assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill., by said Toby and Koch

Filed April 27, 1970, Ser. No. 32,314

Int. Cl. G03d *5/06*

U.S. Cl. 95—89 R **12 Claims**



Apparatus for developing diazo-sensitized copy material by the application thereto of a quantity of developer liquid includes an applicator roller to the surface of which there is supplied developer liquid, a wiper member mounted for engagement with the roller surface to wipe excess developer liquid therefrom and a pressure applying member mounted for engagement with the roller surface to form a developing zone therewith through which sensitized copy material is passed for development. Both the wiper and pressure applying members are movable into and out of engagement with the roller surface, depending upon the operating condition of the apparatus.

3,704,662
LIQUID DEVELOPING APPARATUS

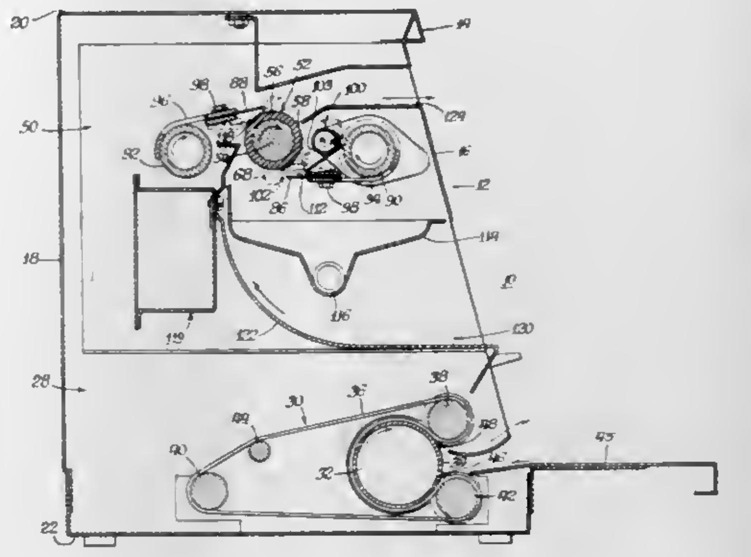
Robert M. Johnson, and Dennis E. Toby, both of Cleveland, Ohio, assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed April 27, 1970, Ser. No. 31,931

Int. Cl. G03d *5/06*

U.S. Cl. 95—94 R 9 Claims

Apparatus for developing diazo-sensitized copy material by the application thereto of a quantity of liquid developer includes a rotatable applicator roller to the surface of which there is supplied developer liquid, and a pair of blade members mounted adjacent the roller for engagement therewith. One of the blade members wipes excess developer liquid from the surface of the roller, and the other blade member forms a developing zone with the roller, whereby diazo material passed therethrough is developed by the application of the developer liquid.



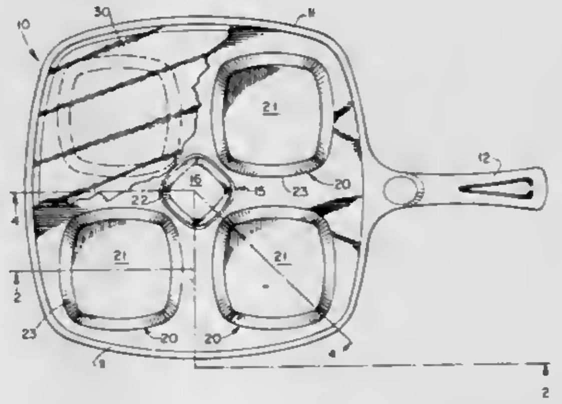
3,704,663
EGG COOKER

Robert W. Shull, Cincinnati, and Ronald Thompson, Shelby, both of Ohio, assignors to General Housewares Corp., Terre Haute, Ind.

Filed Feb. 16, 1971, Ser. No. 115,173

Int. Cl. A47j *37/10*

U.S. Cl. 99—347 **2 Claims**



An egg cooker of the skillet type having a central water compartment for generating steam for basting and a plurality of separate cooking compartments each of fried egg size for receiving shortening and the yolk and white of an egg, and a removable cover which when in place is spaced from the open tops of the water and cooking compartments, whereby steam produced in the water compartment is directed to the upper surface of eggs in the cooking compartments, producing cooked eggs having the appearance and texture of poached eggs and the flavor of fried eggs.

3,704,664
APPARATUS FOR FORMING SWISS ROLLS

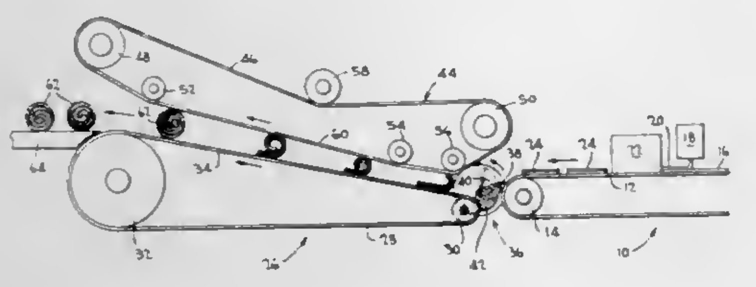
Alvert W. Fisher, Jr., Chattanooga, Tenn., assignor to McKee Baking Company, Collegedale, Tenn.

Filed Aug. 10, 1971, Ser. No. 170,429

Int. Cl. A21c *3/06*

U.S. Cl. 99—450.2 **5 Claims**

Apparatus for making Swiss Rolls by feeding the coated dough sheets forwardly on a lower conveyor, tilting the rear end of the dough sheets upwardly, and contacting the tilted rear end against a forwardly moving upper conveyor. The



upper conveyor moves faster than the lower conveyor, thus curling the dough sheet forwardly to form a Swiss Roll.

ERRATUM

For Class 99—637 see:
Patent No. 3,704,737

3,704,665

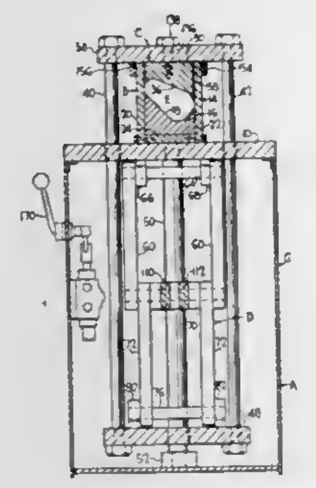
FOOD PRESS AND DIES

Louis A. Bettcher, Amherst, Ohio, assignor to Bettcher Industries, Inc., Birmingham, Ohio

Continuation-in-part of Ser. No. 878,439, Nov. 20, 1969, and a continuation-in-part of Ser. No. 67,482, Aug. 27, 1970. This application April 21, 1971, Ser. No. 135,923

Int. Cl. B30b *7/04*

U.S. Cl. 100—232 **10 Claims**



A press for shaping comestible products, such as meat and the like, in a tubular die aperture or cavity of uniform cross section by a ram, preferably made of a nontoxic or edible plastic, for example, Nylon, reciprocable in the die aperture by a cylinder and piston-type fluid actuator constructed so that no portion of the piston rod that might extend into the die aperture is retracted into the cylinder of the fluid actuator. The die aperture is formed by a channel-shaped stationary die means and a channel-shaped movable die means at least partially receivable, when the die means are closed, in the stationary die means, each die means being preferably shaped or oriented to maximize opposed forming or pressing areas. The movable die means is moved by a toggle link mechanism actuated by a cylinder and piston-type fluid actuator. Travel or movement of the movable die means into the stationary die means is limited to prevent engagement of the die means at the periphery of the die cavities therein. Clearance is provided between the die means for the escape of air entrapped in the die aperture when a product is compressed therein.

3,704,666

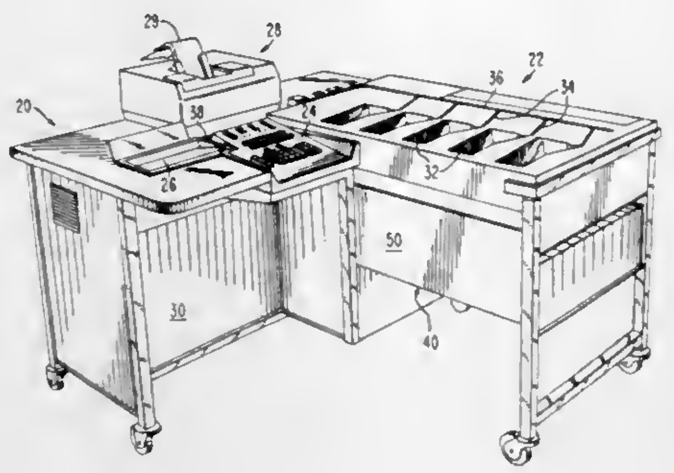
HIGH SPEED MULTIPLE TAPE SERIAL PRINTING MECHANISM

Harry L. Wallace, Garden City, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed May 3, 1971, Ser. No. 139,385

Int. Cl. B41l *19/04*; **B41f** *1/04*

U.S. Cl. 101—90 **10 Claims**



A serial-type printing mechanism and more particularly a multiple tape lister machine normally retractably housed within a unit or console forming part of a document handling system. The printing mechanism comprises a plural number of individual tape printers each containing a continuously rotatable print drum carrying print characters on its periphery and a like number of print hammers, one for each print drum, which are mounted on a common carrier for reciprocal motion in unison across the tapes fed to the printers. Provision is made for supporting a like number of tape supply rolls and tape receiving bins in superposed relation to one another, each tape being guided and fed from the former through an individual one of the printers to an individual one of the bins. In operating condition, the tape lister machine is housed within a compartment of a document sorting unit underneath the sorting pockets thereof, but the machine is reciprocatingly mounted for bodily movement from the compartment to an exposed condition external of the unit for gaining access to the tape supply rolls and receiving bins as well as other parts of the machine.

3,704,667

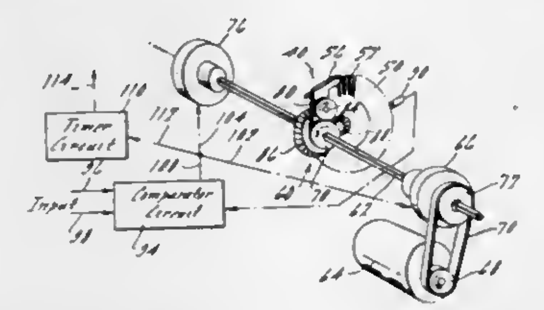
PRINTING UNIT

James R. Moss, Mt. Clemens, Mich., assignor to Nortron, Inc., Ann Arbor, Mich.

Continuation of Ser. No. 808,821, March 20, 1969, abandoned. This application April 14, 1971, Ser. No. 134,070

Int. Cl. B41j *7/44, 23/10*

U.S. Cl. 101—93 C **17 Claims**



A character printing unit having an inertia driven hammer assembly, the unit which including a rotating non-circular shaft controlled by a clutch and a brake, the clutch, when energized coupling a drive motor to the shaft. The shaft is adapted to drive a high speed rotary inertia element through a gear mounted on the shaft, the inertia element driving the hammer to print a character upon braking of the shaft element.

3,704,668

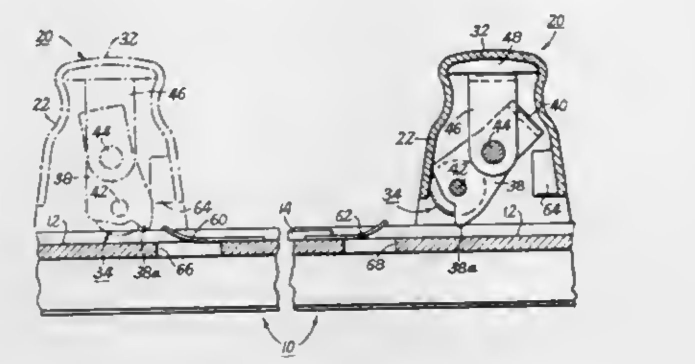
DOCUMENT IMPRINTER FOR CREDIT CARDS OR THE LIKE

Ronald J. St. Onge, Stamford, and Charles I. Sherman, Norwalk, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Oct. 26, 1970, Ser. No. 83,759

Int. Cl. B41f *3/20*

U.S. Cl. 101—269 **4 Claims**



An imprinter for transferring indicia from a credit card or the like to a sales slip or similar document has a reciprocal carriage with a printing roller mounted on a rocking bail. The printing roller can thus assume a printing position when moved in one direction, and a raised non-printing position on the return stroke to prevent overprinting. The rocking of the bail is accomplished by retractive stops positioned on the printing bed. The stops are constructed to actuate the bail when contacted in one direction, and to move or flex to permit the bail to pass over when contacted in the opposite direction.

3,704,669

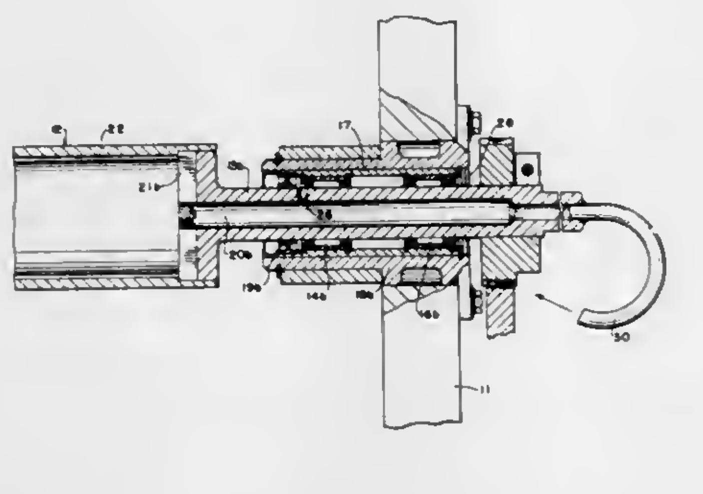
VIBRATING ROLLER WITH MEANS FOR CIRCULATING A COOLING FLUID FOR USE IN BEARING AND DRIVE GEAR LUBRICATION

Chris A. Christoff, Lancaster, Calif., assignor to Stevens Corporation, Fort Worth, Tex.

Filed July 15, 1970, Ser. No. 55,210

Int. Cl. B41f *13/22*; **B30h** *15/34*

U.S. Cl. 101—349 **1 Claim**



There is disclosed a unique vibrating-oscillating roller for use in a rotary press of the offset type wherein the roller has been provided with means for circulating a cooling liquid internally, and thereafter the liquid is used for bearing and drive gear lubrication.

3,704,670

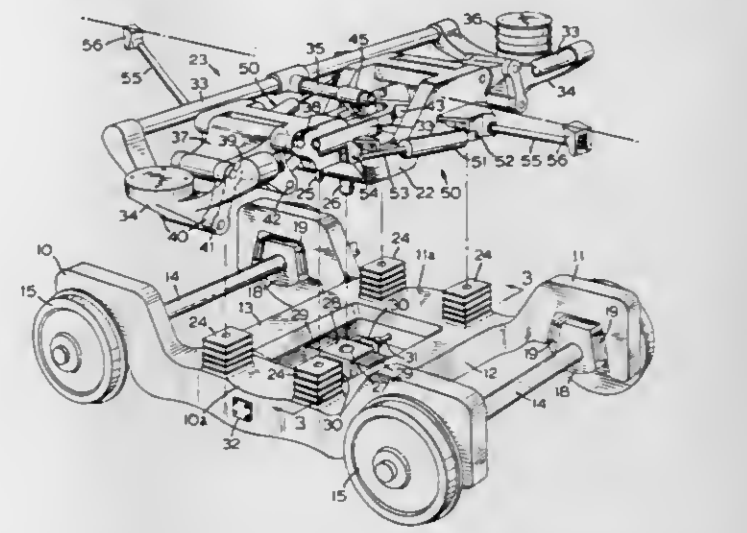
STABILIZING HIGH SPEED RAILWAY TRUCKS

Richard N. Dobson, Burlington, Ontario; Kenneth E. Boyce, Hamilton, Ontario; John A. Gaiser, Stoney Creek, Ontario, and Conrad David Gris, Hamilton, Ontario, all of Canada, assignors to Dominion Foundries & Steel Limited, Hamilton, Ontario, Canada

Continuation-in-part of Ser. No. 790,757, Jan. 13, 1969. This application Jan. 14, 1970, Ser. No. 2,796

Int. Cl. B61f *3/08, 5/20, 5/24*

U.S. Cl. 105—201 **20 Claims**



A railway vehicle has a bolster interposed between the truck and the car body, the bolster comprising upper and lower parts. The upper bolster part mounts the vehicle body for vertical springing movement only; an articulated linkage alternatively connects the two bolster parts or the truck frame and the lower bolster part for lateral arcuate movement about a longitudinal tilting axis under the action of motors; means permitting pivoting of the body on the truck is provided alternatively respectively between the truck frame and the lower bolster part or between the two bolster members. When the pivoting is between the truck frame and the bolster the truck pivot is maintained automatically centered by motor means opposing the centrifugal forces. In a complete system wherein the vehicle body is tilted automatically detectors measure the curvature of the track and the tilting of the truck and control the tilting of the vehicle body.

3,704,671

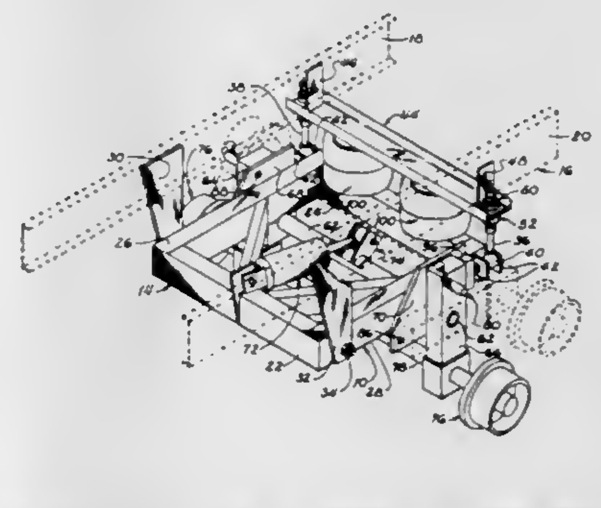
CONVERTIBLE RAIL-HIGHWAY VEHICLE

Victor A. Horne, Jr., and Lawrence D. Bradley, both of Kansas City, Mo., assignors to Horne-Boatright Chemical Company, Inc., Kansas City, Mo.

Filed Oct. 7, 1970, Ser. No. 78,813

Int. Cl. B61d *15/00*; **B61f** *9/00*; **B62d** *62/12*

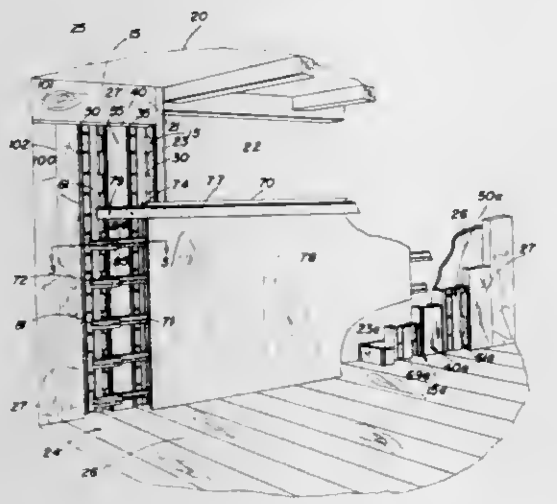
U.S. Cl. 105—215 C **12 Claims**



An attachment for a highway vehicle to support the vehicle on rails. The support includes front and rear rectangular subframes pivoted beneath the vehicle frame for swinging about respective horizontal axes adjacent the leading ends of the sub-frames and extending transversely of the vehicle. A pair of rail wheel and axle assemblies for each sub-frame are swingable by a fluid piston and cylinder assembly to and from vehicle supporting positions. The end of each sub-frame remote from the corresponding horizontal axis is coupled to the vehicle frame by lost motion linkage and a pair of pneumatic bags are interposed between each sub-frame and the vehicle frame to cushion the vehicle when supported on the rail by the rail wheels.

3,704,672
CARGO SECURING APPARATUS AND METHODS

Albert T. Santho, 1920 Brandywine Drive, Upper Arlington, Columbus, Ohio
Continuation-in-part of Ser. No. 708,196, Feb. 26, 1968, abandoned. This application Oct. 1, 1970, Ser. No. 77,180
Int. Cl. B60p *7/08*; **B61d** *45/00*
U.S. Cl. 105—369 A **21 Claims**

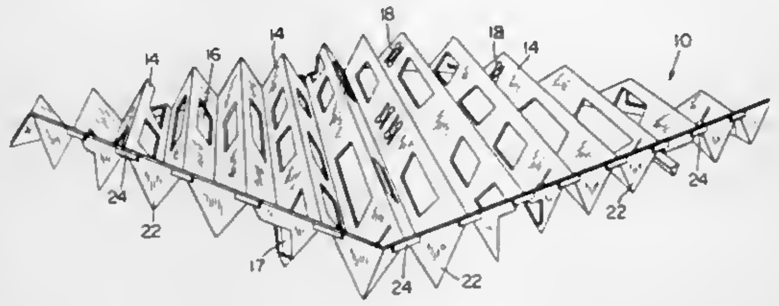


An apparatus for removably securing a cargo barrier across a doorway in a freight car, or alternatively as a bulkhead from side to side of a freight car, which can most easily and cleanly be removed to open the doorway or bulkhead in order to remove the contents of the freight car. Such apparatus comprises one or more connecting straps connected (as hereinafter defined) to the cargo barrier; an anchor bar secured to the freight car structure about which the strap or straps are looped and/or cinched, and a nailable member such as a wooden post or a metal member formed with a nail retaining slot near to the anchor bar and on the side of said anchor bar toward the doorway or the center of the bulkhead. Adjacent opposite portions of the cinching loop are secured to each other by a nail driven through both portions of the strap and into a position of frictional engagement with the wooden post or the nailing slot.

When the apparatus is thus arranged, linear stresses transmitted to the nail from the cargo barrier are divided into substantially equal and opposite component forces and act in shear (and in one sense in double shear) on said nail; each component of force operating to offset the other so as to eliminate substantially all damaging strain and bending forces on the nail that would tend to withdraw the nail from retentive engagement with the slot walls. The straps are formed with equally spaced perforations, the perforations being spaced from each other a distance of which the distance from the anchor bar to the nailing slot in one-half of a multiple. Also, the distance between the anchor bars on each side of the doorway is a multiple of the uniform distance between said perforations. Also, the distances between the nailing slots are multiples of the uniform distance between said perforations.

3,704,673
LIGHT WEIGHT PALLET CONSTRUCTION

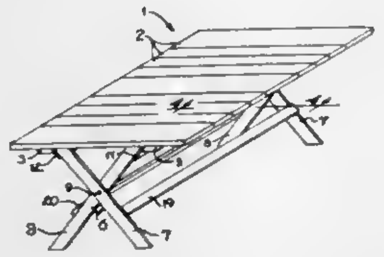
Joseph A. Dreikharz, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy
Filed Jan. 20, 1971, Ser. No. 107,922
Int. Cl. B65d *19/04*
U.S. Cl. 108—53 **4 Claims**



A reversible, compact stacking, fork-lift type pallet consisting of a sheet of rigid material having spaced, parallel, diagonally disposed folds to provide a corrugated structure having four sides. Rows of aligned openings extend through adjacent folds to receive the usual spaced tines of a fork-lift truck from multiple directions. In manufacture a single sheet of material in the shape of a rhomboid parallelogram is perforated and then folded to the required corrugated shape.

3,704,674
FOLD-UP FLAT TOPPED SUPPORTS

Charles J. Johnson, 650 19th Avenue, Lewiston, Idaho
Filed Oct. 4, 1971, Ser. No. 186,189
Int. Cl. A47b *3/02*
U.S. Cl. 108—118 **3 Claims**

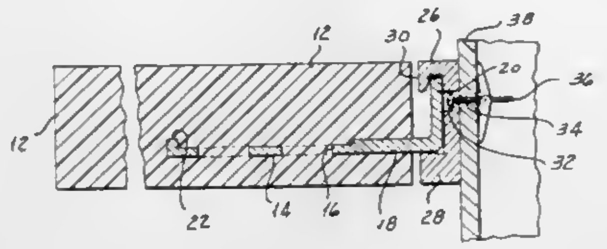


A flat topped support useable as a table and as a seat is made of lumber. A top is made of a plurality of short boards side-by-side and two spaced apart wood strips which extend across the undersides of the boards and is secured to all of them. The edges of the strips that face each other are undercut to form channels or recesses. Two or more pairs of crossed wooden legs support the top. A pivot bolt pivotally secures the legs of each pair together. Outside the legs at the top of the leg pairs a brace board connects the adjacent pairs and seat in the recesses. A locking bar is suspended from the top midway between the strips by a coiled spring and has its ends notched to provide seats for the lower edges of the brace boards. The spring is of such length that it is under tension when the notches of the bar seat on the lower edges of the brace boards. Lower brace boards may be used to hold the spacing between adjacent pairs.

3,704,675
CANTILEVER SHELF ASSEMBLY

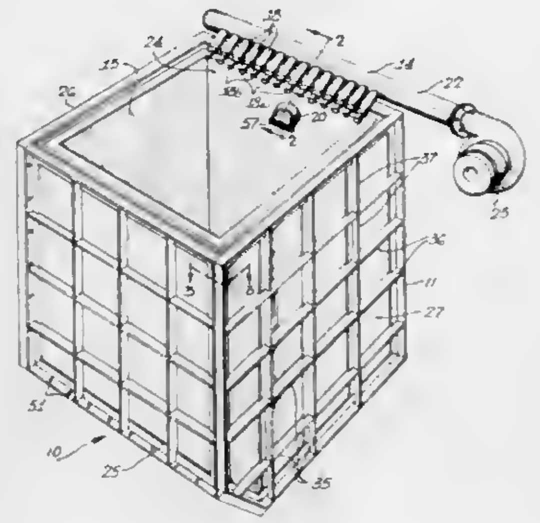
Gerald J. Bellasalma, West Caldwell, N.J., assignor to Plastetics, Inc., Fairfield, N.J.
Filed Jan. 15, 1971, Ser. No. 106,663
Int. Cl. A47b *5/00*
U.S. Cl. 108—152 **4 Claims**

An improved cantilever shelf assembly for mounting on a wall or the like in which the shelf body comprises a reinforcing plate embedded in molded synthetic resin having locking portions extending through openings in the plate and in which the plate has a rearward extension formed with an upstanding flange which is removably received in the channel of an elongated bracket secured to the wall on which the shelf is to be mounted.



3,704,676
SLUDGE INCINERATOR

Walter J. Davies; Barry Hatton, both of Calgary, Alberta; George C. Boyd, Edmonton, Alberta, and Harvey E. W. Hanlan, Bremner, Alberta, all of Canada, assignors to Kanting Oilfield Services Ltd., Calgary, Alberta, Canada
Filed Sept. 13, 1971, Ser. No. 179,742
Int. Cl. F23g *5/00*
U.S. Cl. 110—8 R **15 Claims**

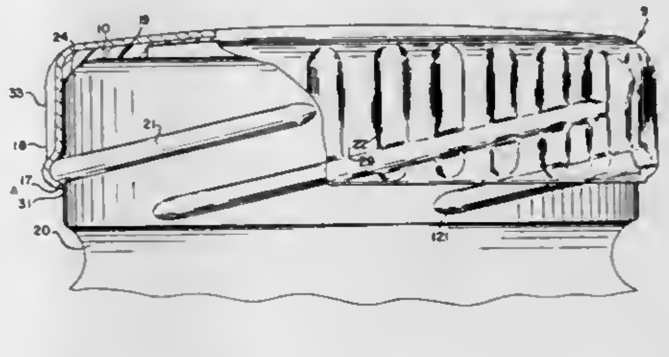


Method and apparatus for disposing of unwanted fluids having combustible constituents, such as petroleum wastes commonly collected in pits in oilfield operations. A screen or sheet of high velocity air is directed across an open-topped chamber of an incinerator, the air forming the sheet being directed downwardly at an angle relative to the horizontal so that it enters a combustion zone beneath the sheet. A mixture of air and waste is sprayed into the combustion zone from the same side as air which is supplied to form the sheet and in a direction substantially parallel to the direction of the travel of air in the sheet.

3,704,677
METHOD FOR MAKING AND APPLYING A BOTTLE CAP

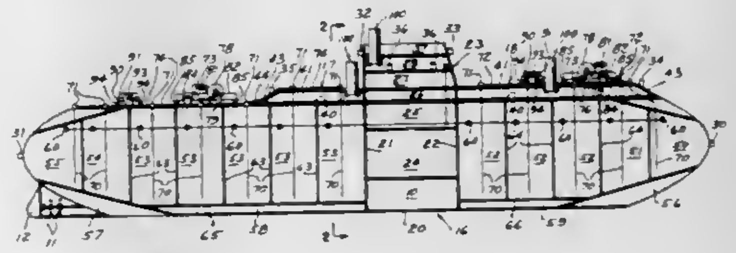
Jens L. Moller, Westmont, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Division of Ser. No. 785,003, Nov. 26, 1968. This application Dec. 18, 1969, Ser. No. 888,116
Int. Cl. B21d *51/00*
U.S. Cl. 113—121 A **4 Claims**

The subject is a bottle cap of the type which is first pushed on, but thereafter may be twisted off and on. A shell is made from a cupped blank having a substantially straight skirt. The skirt is then knurled or fluted, the inside root diameter of the flutes being a close sliding fit on the crests of the bottle finish threads to which the cap is to be applied. When knurling, the rim of the skirt is curled inward slightly to an inside diameter about the same as the inner root diameter of the flutes. After inserting a suitable seal ring or disc, the shell is pushed down over the threaded finish of the bottle into sealing engagement with the lip. While so holding the cap, portions of the skirt are conformed to the thread formations on the bottle finish, thus providing a releasable threaded engagement. As the threads are formed in the skirt, the inwardly turned edge is closely conformed to the finish, in which position the edge is shielded against accidental contact by the fingers, when unscrewing the cap to open the bottle.



3,704,678
SUBMARINE TANKER

Walter A. Kelly, 40-1st Brighton Road, Brooklyn, N.Y.
Filed April 26, 1971, Ser. No. 137,503
Int. Cl. B63g *8/00*; **B63b** *25/08*
U.S. Cl. 114—16 R **10 Claims**



A submarine tanker for petroleum products having a substantially rigid T-shaped frame in longitudinal vertical section and constituted of an inner cylindrical operative center carrying the bridge and crew deck quarters extending fore and aft from the operations and bridge sections. The parts constituting such frame are enclosed in pressure resistant steel. Extending fore and aft from the operations center are two series of cargo tanks made of ordinary ship plate. Enclosing the bow and stern of the vessel are ballast tanks. The lower portions of the two series of cargo tanks are also formed to provide two bottom, longitudinally extending ballast tanks. The exterior portions of the vessel may also be enclosed in a layer or layers of a material known as "tough glass." The cargo tanks are loaded and unloaded from the top of the vessel by a system of conduits which include flexible hose wound on reels secured to the top of the vessel and secured to floats provided with pumps. Means are provided to open holes in pack ice overlying the vessel to permit the aforesaid floats to rise to the surface of the sea. Escape bells are carried by the vessel in the event that the vessel must be abandoned and such bells are capable of functioning to affect this result even when the vessel is submerged under an ice pack.

3,704,679

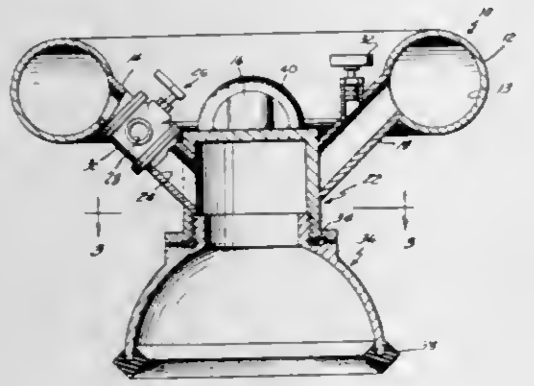
UNDERWATER CONNECTING DEVICE

Harvey H. Haynes, 1748 Dewayne Ave., Camarillo, Calif.; Lawrence F. Kahn, 915 Sea Horse Court, Ventura, Calif., and Rodger A. Hoofnagle, P.O. Box 51921, Lafayette, La.

Filed Nov. 5, 1970, Ser. No. 87,040

Int. Cl. B63c *7/00*

U.S. Cl. 114—51 **5 Claims**



A unitary device for making connection to an underwater object to facilitate lifting or moving the latter. The assembly includes a suction cup selectively communicating with a reservoir of air at or below atmospheric pressure (or a pressure less than ambient pressure), and valve means for interconnecting these components after the cup has been placed on the object to be moved, thereby lowering the pressure within the cup and causing the latter to firmly grip the object. The invention device is entirely self-contained and requires no external equipment for its operation.

3,704,680

MOUNTING FOR SHIP'S ANCHOR

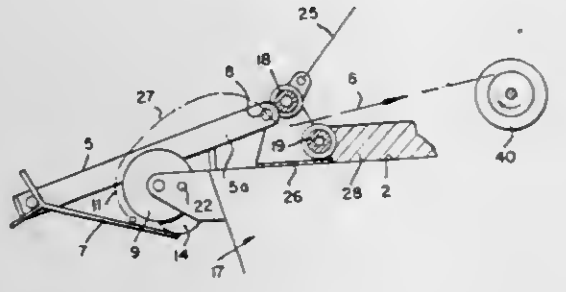
Edmund Uher, Zug, Switzerland, assignor to Uher Patent AG, Zug, Switzerland

Filed Nov. 9, 1970, Ser. No. 87,881

Claims priority, application Germany, Nov. 7, 1969, P 19 55 986.5; Aug. 6, 1970, P 20 39 083.4

Int. Cl. B63b *21/22*

U.S. Cl. 114—210 **10 Claims**



A ship's anchor, suspended from a cable or chain which passes around a guide roller at the bow of a ship, is provided near the top of its shank with a short transverse bar, parallel to the plane of its flukes, coming to rest on two large-diameter cheeks of the guide roller when the anchor is hoisted. Additional bearing elements for the anchor shank may be provided on deck, inwardly of the guide roller, to afford three-point support for the hoisted anchor; one of these elements, engaging the free end of the retracted shank, may be spring-loaded to thrust the anchor overboard when the chain or cable is slackened.

3,704,681

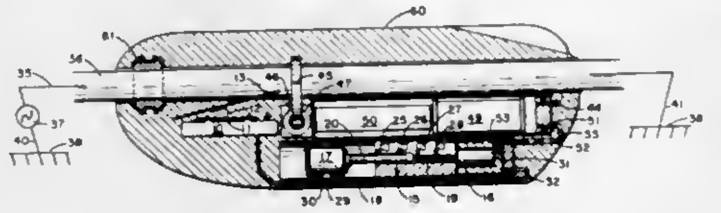
VARIABLE DEPTH, REMOTELY SELECTIVE SEISMIC CABLE DEPTH CONTROLLER

Hollis O. Campbell; John W. Fetrow, and Kim L. Mitchell, all of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed June 30, 1971, Ser. No. 158,175

Int. Cl. B63b *21/00;* **B63g** *8/14*

U.S. Cl. 114—235 B **4 Claims**



A remotely selective cable depth controller comprising a movable air piston positioned by an electrical motor, said position controlling the volume of the air enclosure which determines the depth of the controller. The motor is driven by a solid state amplifier of low stand-by power consumption and is operated by command signals which activate a tuned reed switch in combination with a series of memory switches.

3,704,682

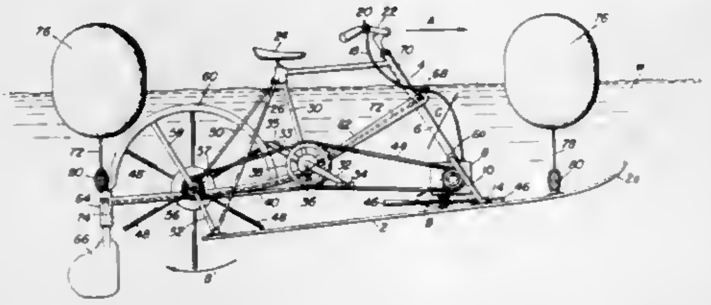
PEDAL OPERATED WATER SPORT VEHICLE

Francesco Piccitto, 55 Home Street, Somerset, N.J.

Filed June 7, 1971, Ser. No. 150,699

Int. Cl. B63h *16/12*

U.S. Cl. 115—26.3 **2 Claims**



An aquatic vehicle having a frame on which a rider sits mounted on a pair of water skis, a horizontally rotating propeller to impart upward motion, a vertically rotating propeller to impart forward motion and a clutch mechanism to disengage the horizontally rotating propeller after the combined propeller motions have caused the skis to begin planing on the water surface.

3,704,683

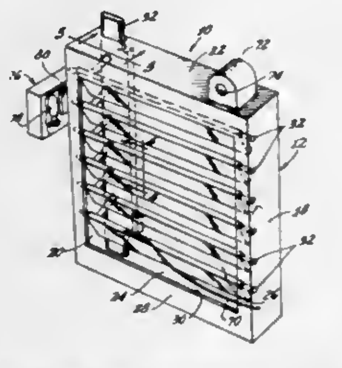
VISUAL COMMUNICATION APPARATUS

E. John Summersby, 4580 W. 170th St., Lawndale, Calif.

Filed Sept. 14, 1970, Ser. No. 71,674

Int. Cl. G08b *9/00*

U.S. Cl. 116—20 **7 Claims**



A visual communication apparatus of primarily synthetic resin material and including a plurality of pivotable mirrored surfaces operated by a single actuator to cause the mirrored surfaces to pivot from a usual misaligned position to an aligned position whereby light may be reflected. A spring biases the mirrored surfaces to the misaligned position. A light source and a sight may be included as convenient accessories.

3,704,684

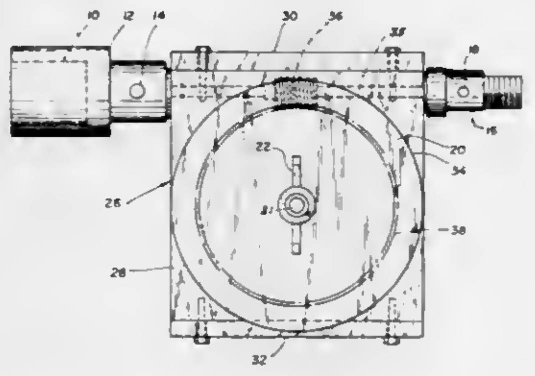
ATTACHMENT FOR MEASURING COORDINATES IN A MILLING MACHINE

Burton D. Brown, 23 Woodland Road, Wyomissing Hills, Pa.

Filed Aug. 18, 1971, Ser. No. 172,681

Int. Cl. B23q *17/00*

U.S. Cl. 116—115.5 **2 Claims**



This invention relates to an attachment which can be secured to a milling machine for measuring X-Y coordinates by removing the handle which is connected to a coordinate screw and attaching the handle on the other end of the attachment. Thus as the handle at its new location is rotated, it will not only drive the coordinate screw but will also drive a scale wheel which accurately indicates the extent of rotation of the coordinate screw.

3,704,685

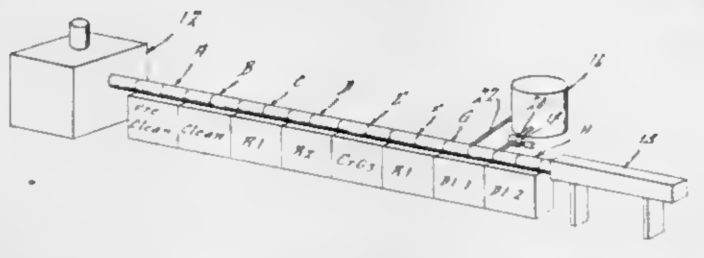
PROCESSING APPARATUS

John W. Neumann, Birmingham; Chester G. Clark, Grosse Pointe Woods, and Louis J. Minbiole, Jr., Detroit, all of Mich., assignors to Oxy Metal Finishing Corporation, Warren, Mich.

Filed Jan. 11, 1971, Ser. No. 105,368

Int. Cl. B05c *11/00*

U.S. Cl. 118—6 **15 Claims**



An apparatus and method for processing elongated cup-shaped workpieces through one or a plurality of modular processing units, each of which incorporates a plurality of fluid streams oriented to impinge against the surfaces of the workpieces, thereby effecting a conveyance of the workpieces through the apparatus and a concurrent treatment of the interior and exterior surfaces thereof.

3,704,686

TONER PUMP

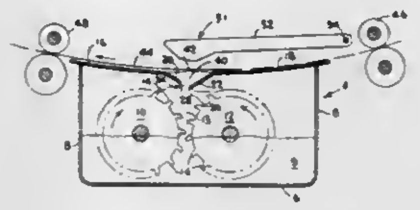
Ernst Schrempp, Norwalk, and Christian A. Beck, Ridgefield, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed May 11, 1971, Ser. No. 142,295

Int. Cl. B05c *3/12*

U.S. Cl. 118—429 **11 Claims**

A controlled standing wave of developer is formed above a pair of spaced baffle plates by a pair of axially elongated counter-rotating gears supported below the baffle plates in a tank of developer. An evaporation sealer is pivotably positioned to sealably fit over the pair of baffle plates when the spur gears stop rotating to prevent evaporation of the developer.



3,704,687

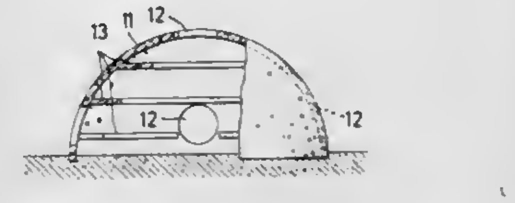
FISH FARMING NEST

Ryotaro Nobmura, No. 19-19, 3-chome, Senriyama Nishi, Suita-shi, Osaka-fu, Japan

Filed Dec. 21, 1970, Ser. No. 99,808

Int. Cl. A01k *61/00*

U.S. Cl. 119—3 **3 Claims**



An artificial fish farming nest. The nest is formed in the shape of a dome and has a plurality of holes through the wall of said dome. The dome is submerged so that its edge is placed on the bottom of the sea, thereby giving buoyancy to the fish farming nest itself and thus preventing it from being buried in the bottom of the sea within a short space of time.

3,704,688

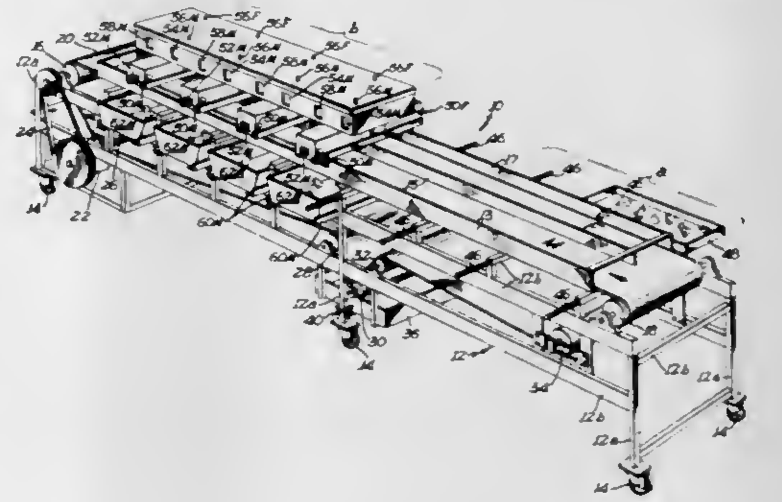
METHOD AND APPARATUS FOR HANDLING FOWL

Jerry M. Wilson, Jasper, Ala., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed July 27, 1970, Ser. No. 58,240

Int. Cl. A01k *45/00*

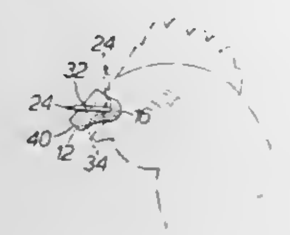
U.S. Cl. 119—22 **6 Claims**



Newly hatched baby chicks are sexed and simultaneously transferred from a hatchery tray at a first station to either the male or the female channel of a conveyor which transfers them to counting and debeaking devices located at a second station. The baby chicks are picked up at the second station, debeaked and simultaneously counted, e.g., by touching a counter with the hand as the chicks are being debeaked. They are then placed in boxes.

3,704,689
DEFLECTABLE POULTRY BEAK APPLIANCE

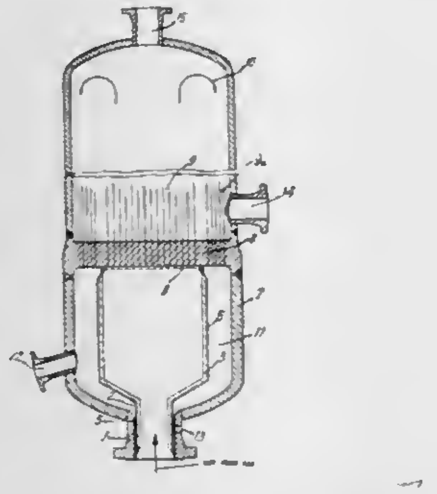
Milton G. Harwood, and Louis J. Harwood, both of P.O. Box 38, Farmingdale, N.J.
Filed Jan. 29, 1970, Ser. No. 6,727
Int. Cl. A01k *37/00*
U.S. Cl. 119—97 R **7 Claims**



A poultry beak appliance, such as a shield or blinder made of semi-rigid plastic material having extensions on both sides of the poultry beak for securing the appliance to the beak, said extensions provided with readily flexed end-portions for enabling the extensions to be deflected to release the head of the poultry when accidentally caught in a wire screen.

3,704,690
HIGH PRESSURE HEAT EXCHANGER FOR AMMONIA GAS SYNTHESIS PLANTS

Paul Mevenkamp, Lichtendorf, Germany, assignor to Friedrich Uhde GmbH, Dortmund, Germany
Filed Jan. 21, 1971, Ser. No. 108,512
Claims priority, application Germany, Feb. 19, 1970, P 20 07 528.9
Int. Cl. F28f *9/02*; **F22b** *1/15*
U.S. Cl. 122—7 R **2 Claims**

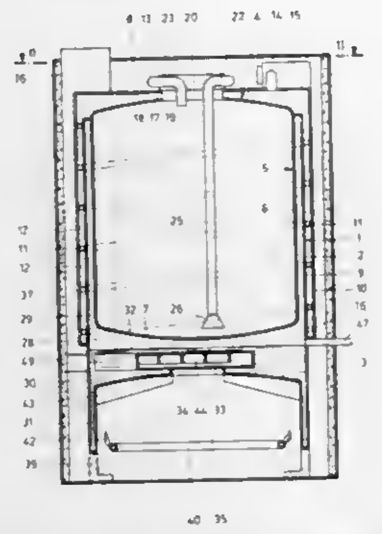


A high pressure heat exchanger particularly useful for ammonia gas synthesis plants in which the hot recycle gas passes through an insulated guide tube and hood and then through a tubesheet having nitriding-resistant central heat exchanger tubes. The gas then reverses its flow to pass through peripheral tubes into the space between the shell and guide hood from which it passes from the exchanger. In the upper part, water is admitted into heat exchanger relation with the gas and the steam resulting passes from the exchanger. Cool outside air is delivered to the space between the guide hood and shell.

3,704,691
FUEL-FIRED BOILER FOR PRODUCTION OF DOMESTIC HOT WATER AND FOR HEATING

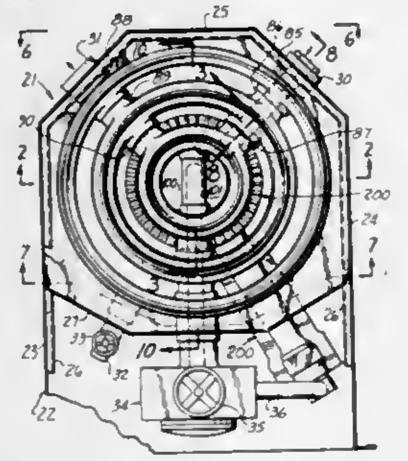
Willi Brandl, Schurbongert 12, 8057 Zurich, Switzerland
Filed Jan. 25, 1971, Ser. No. 109,300
Claims priority, application Switzerland, March 25, 1970, 4560/70
Int. Cl. F22b *33/02*
U.S. Cl. 122—33 **10 Claims**

A boiler has in inner cylindrical vessel through which water is passed for use as a domestic hot water. Surrounding this vessel is a heating chamber containing water and having a downwardly open cup-shaped portion receiving a burner having substantially tangentially directed fuel-expelling orifices. Surrounding the heating chamber is a cylindrical compartment subdivided by a helical member into a helical flow path for the water circulated through a heating system. A flue is provided having a vertical portion extending outside the compartment up through the insulated boiler housing and a horizontal portion passing through the chamber and opening centrally above the burner in the cup shaped lower portion of the chamber. This flue is provided with heat-absorbing ribs, as is the cup-shaped chamber portion, to pick up heat from the burner.



3,704,692
WATER HEATER

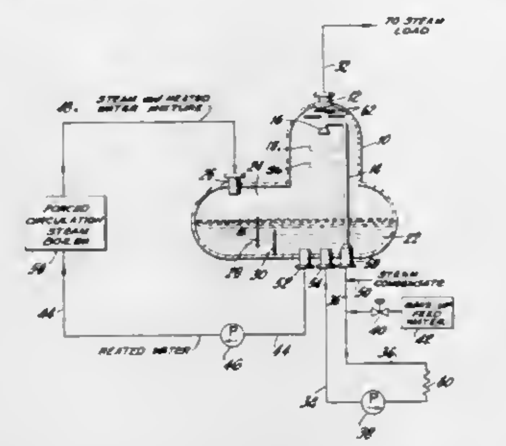
Robert L. Hughes, and John E. Rouse, both of West Covina, Calif., assignors to Vaskov Industries, Inc., Glendora, Calif.
Filed May 17, 1971, Ser. No. 143,899
Int. Cl. F22b *7/00*
U.S. Cl. 122—161 **20 Claims**



A water heater for heating water as it is being delivered, commonly called an "instantaneous water heater". The heater includes a plurality of concentric tanks which are at least partially axially overlapping and which are spaced from one another to pass hot gases in heat transfer relationship with their sidewalls. The sidewalls of the tanks are generally cylindrical. The tanks are interconnected so as to permit the flow of water to and from each of them. An inlet manifold discharges into each tank, preferably along an axis which is skew to the central axis whereby to give the water, as it flows through the tank, both a circumferential and an axial component, thus aiding in keeping the tank clean and preventing thermal "stacking" of the water. the tanks are preferably formed from concentric half-shells which are welded together at their end seams, and which have telescopic necks projecting from their sidewalls that are welded together to form a structural joinder and a fluid interconnection. A burner is placed beneath the group of tanks with deflector jets which aid in confining the rising products of combustion to a relatively narrow cross-section, so as to inject a maximum BTU input into a relatively small heater cross-section.

3,704,693
COMBINED STEAM AND HIGH TEMPERATURE WATER GENERATING SYSTEM

Erwin Hansen, New York, N.Y., assignor to The International Boiler Works Co., East Stroudsburg, Pa.
Filed Jan. 14, 1971, Ser. No. 106,472
Int. Cl. F22d *7/00*
U.S. Cl. 122—406 R **9 Claims**

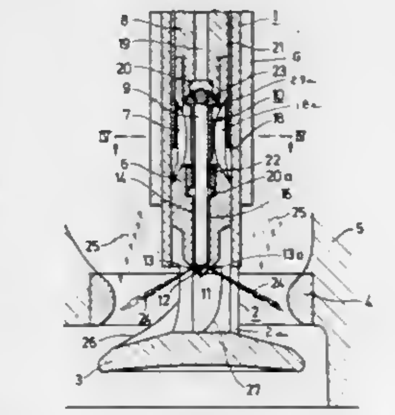

TO STEAM LOAD
STEAM and HEATED WATER MIXTURE
FORCED CIRCULATION STEAM BOILER
STEAM CONDENSATE
MAKE UP FEED WATER
HEATED WATER

A combined steam-high temperature water generating system includes a heated water generating vessel for delivering both steam and high temperature water to delivery circuits therefor. A portion of the heated water is continuously supplied to one or several forced circulation steam boilers which evaporate part, and only part of the throughput water flow. The return flow from the boiler or boilers to the vessel thus comprises a steam-high temperature water mixture.

The system accommodates varying relative consumption demands for steam vis.-a-vis. high temperature water. Also, a chemical balance is maintained between the steam and heated water subsystem components by reason of the continuous water recirculation between the boiler or boilers and vessel. Further, the multifunctional use of the common heated water generating vessel renders the system amenable to ready fabrication.

3,704,694
INTERNAL COMBUSTION ENGINE WITH AN AIR INLET VALVE AND A FUEL INJECTION VALVE

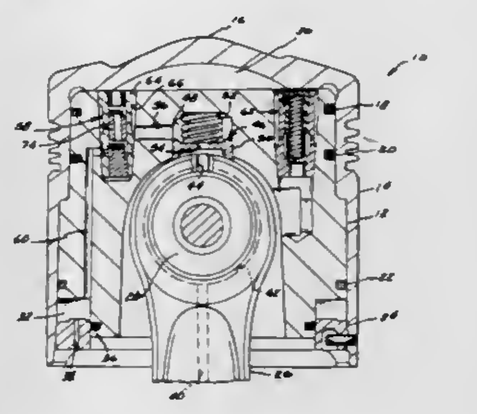
Heinz Gliewski, and Jurgen Wolf, both of Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany
Filed Jan. 6, 1971, Ser. No. 104,319
Claims priority, application Germany, Jan. 15, 1970, P 20 01 626.6
Int. Cl. F02b *3/00*
U.S. Cl. 123—32 VN **16 Claims**



An air inlet valve and a fuel injection valve cooperate with a common combustion chamber of an internal combustion engine cylinder to supply a mixture of air and fuel thereinto in properly timed relation. The air inlet valve comprises a valve body covering with a valve seat for controlling inlet of air into the combustion chamber and having a hollow valve stem, the fuel injection valve being disposed for operative movement in said stem to inject fuel into the combustion chamber when the inlet valve is opened.

3,704,695
VALVE CONSTRUCTION FOR VARIABLE COMPRESSION RATIO PISTON

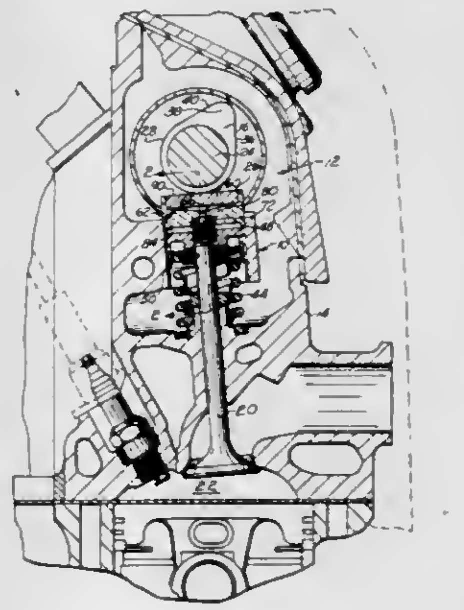
Val Cronstedt, Williamsport, Pa., assignor to Teledyne Industries, Inc., Los Angeles, Calif.
Filed July 2, 1970, Ser. No. 51,934
Int. Cl. F02b *75/04*
U.S. Cl. 123—78 B **1 Claim**



A two-part variable compression ratio piston provided with an upper and lower chamber, supply valve means connected with the lubrication system of the engine for supplying oil to the chambers in a manner which permits the parts, by inertia forces and the forces generated by combustion chamber pressures, to move relative to each other at a controlled rate to increase the compression ratio of the engine until a predetermined constant maximum combustion chamber pressure has been achieved, a discharge valve assembly for discharging some of the oil from the upper chamber to the engine crankcase when the pressure in the upper chamber exceeds a predetermined maximum value and a restricted discharge orifice connected to the lower chamber for discharging a controlled quantity of oil therefrom. The supply valve and discharge valve assembly are each preferably formed with a conically shaped exterior surface that mates with a similarly shaped hole within the inner piston member for retaining the valves therein. The supply valve is formed with a separate seat spool which is inserted into a bore formed through the supply valve body and welded in place.

3,704,696
HYDRAULIC VALVE LIFTER

Roy F. Abell, Jr., Saginaw, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed March 8, 1971, Ser. No. 121,648
Int. Cl. F01l *1/04*
U.S. Cl. 123—90.33 **10 Claims**



A hydraulic valve lifter for use in a direct acting overhead camshaft valve gear of an internal combustion engine includes a body member, a plunger member located at least partially within the body member, and a face member located at least partially within the body member and having a cam engageable surface thereon. A fluid reservoir is located between the face member and the body member and a pressure chamber is disposed between the plunger member and the body member for taking up lash in the valve gear. A leakage passageway is provided between the face member and the body member and provides for the flow of lubricating fluid from the reservoir to the cam engaging surface of the face member to thereby provide for lubrication of the cam engaging surface and the cam. The leakage passageway also provides for air leakage from the lifter to prevent air lockup of the lifter.

3,704,697

INSTALLATION FOR THE ADVANCE OF THE IGNITION POINT

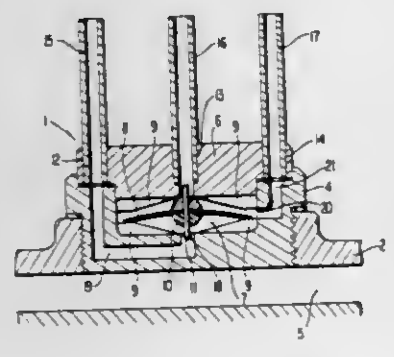
Werner Weymann, Aichschiess, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 30, 1969, Ser. No. 872,713

Claims priority, application Germany, Oct. 30, 1968, P 18 06 000.9

Int. Cl. F02p *5/04;* **F02n** *17/00*

U.S. Cl. 123—117 A **24 Claims**



An installation for advancing the ignition instant in internal combustion engines, in which the control actuator for the ignition-distributor normally controlled by the suction pipe vacuum and itself controlling the ignition distributor, for the purpose of advancing the ignition point during the drive of the vehicle with a cold engine, can be selectively connected with a vacuum reservoir or tank with is present in the vehicle.

3,704,698

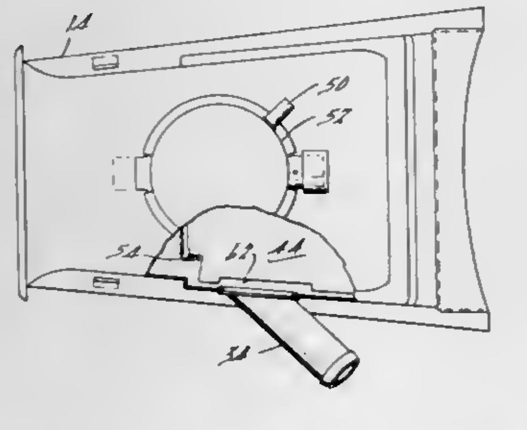
NOTCHED DOOR VALVE FOR CONTROL OF CARBURETOR AIR AND CRANKCASE VAPORS

Jorma O. Sarto, Orchard Lake, and Gary D. Dawson, Rochester, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Dec. 24, 1970, Ser. No. 101,228

Int. Cl. B01d *39/10;* **F02m** *23/14;* **F02l** *9/02*

U.S. Cl. 123—119 B **5 Claims**



An air cleaner snorkel having an inlet for heated air in addition to the usual ambient air inlet at its open end and also including an inlet for vapors from the crankcase. A door-like valve controls the flow of ambient and heated air through the snorkel into the air cleaner. The door is notched to assure the presence of at least a small amount of ambient air flow through the snorkel when the door is closed or partially so with respect to the ambient air inlet thereby directing vapors from the crankcase into the air cleaner and preventing their escape out of the ambient air inlet to the atmosphere.

3,704,699

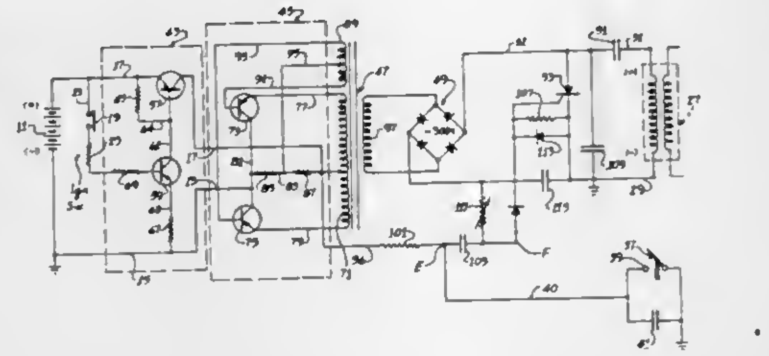
CAPACITOR DISCHARGE IGNITION SYSTEM WITH REVOLUTION LIMITER

Homer E. Howard, Costa Mesa, Calif., assignor to Howard Associates, Inc., Costa Mesa, Calif.

Continuation-in-part of Ser. No. 806,998, March 13, 1969. This application June 24, 1970, Ser. No. 49,262

Int. Cl. F02p *3/06;* **F02d** *11/10*

U.S. Cl. 123—148 E **3 Claims**



A capacitor discharge ignition system coupled to a source of electrical energy for discharging pulses of electrical energy into the transformer of a vehicle ignition system at a rate variable with engine speed. The capacitor discharge ignition system includes a revolution limiter which is responsive to the engine exceeding a predetermined speed for reducing the rate at which pulses of electrical energy are discharged into the transformer by the capacitor discharge system. With a reduced number of pulses being supplied to the transformer, the engine is rendered substantially incapable of exceeding the preselected speed.

3,704,700

IGNITION ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES HAVING AN ALTERNATING CURRENT GENERATOR

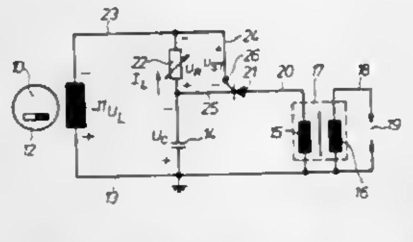
Jurgen Wesemeyer, Stuttgart-Vaihingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 15, 1971, Ser. No. 106,674

Claims priority, application Germany, Jan. 20, 1970, P 20 02 310.3

Int. Cl. F02p *3/06*

U.S. Cl. 123—148 E **16 Claims**



Shunted across the charging winding of the alternating current generator is an impedance and a spark discharge capacitor connected in series. A thyristor is connected to permit discharge of the capacitor through the primary winding of the spark core when the thyristor is conductive, the control electrode of the latter being connected to the impedance so that the triggering voltage is the voltage drop across the impedance.

3,704,701

IGNITION ARRANGEMENTS FOR INTERNAL COMBUSTION ENGINES

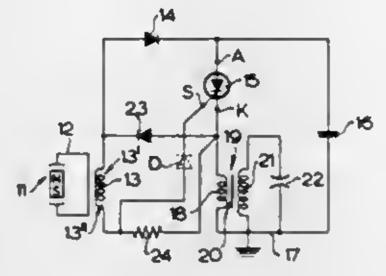
Gunter Struber, Fleischmannstr. 40, and Peter Schmaldienst, Diehlstr. 1, both of 85 Nuernberg, Germany

Filed Dec. 21, 1970, Ser. No. 100,079

Claims priority, application Germany, Dec. 19, 1969, P 19 63 671.6

Int. Cl. F02p *3/06*

U.S. Cl. 123—148 E **10 Claims**



The alternating current from the engine magneto charges the ignition capacitor on one half-wave and triggers the thyristor to discharge the capacitor on the next half-wave. The discharge current induces in the secondary of the spark coil a high voltage pulse that causes the spark plug to arc.

3,704,702

START-UP FUEL INJECTION SYSTEM

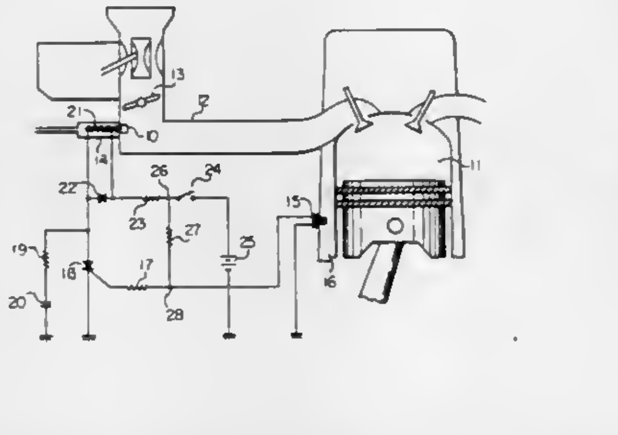
Shigeo Aono, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Oct. 19, 1970, Ser. No. 81,873

Claims priority, application Japan, Oct. 22, 1969, 44/84432

Int. Cl. F02n *17/00*

U.S. Cl. 123—179 G **3 Claims**



A start-up fuel injection system for an internal combustion engine providing an enriched air-fuel mixture during start-up and warming-up by a solenoid valve controlled injector system. The solenoid valve is energized in dependence on a signal produced by a combination of actions of a thyristor and a thermistor or a combination of similar basic elements.

3,704,703

COOKING OVEN

Tadayoshi Takase, Nishikamo-gun, and Sueo Mizuno, Higashikasugai-gun, both of Japan, assignors to Kabushiki Kaisha Rinnai Seisakusho, Nogoya-shi, Japan

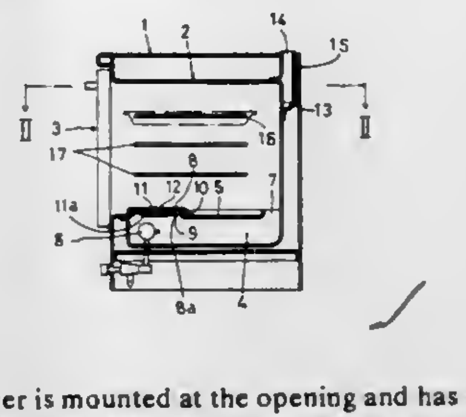
Filed March 29, 1971, Ser. No. 128,849

Claims priority, application Japan, Oct. 5, 1970, 45/98156

Int. Cl. F24c *3/00*

U.S. Cl. 126—39 C **5 Claims**

An oven has a heating chamber with a front door providing access thereto and beneath a separating plate at the bottom of the heating chamber is a burner chamber containing a burner. The separating plate has an opening above the burner and a detachable cover is mounted at the opening and has a window of heat-resistant plate glass to permit viewing of the burner and its condition of operation.



3,704,704

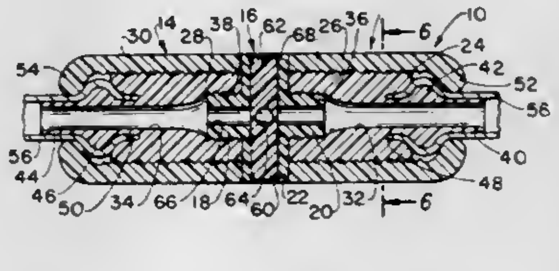
BIRTH CONTROL VALVE

Ramon L. Gonzales, 6242 Willow Crest Avenue, Apt. No. A, North Hollywood, Calif.

Filed Oct. 12, 1970, Ser. No. 79,738

Int. Cl. A61b *19/00*

U.S. Cl. 128—1 R **9 Claims**



In combination with a tube within a mammal which when opened is necessary to effect reproduction and when closed effects sterilization, a valve to be located within the tube which can be selectively opened and closed.

3,704,705

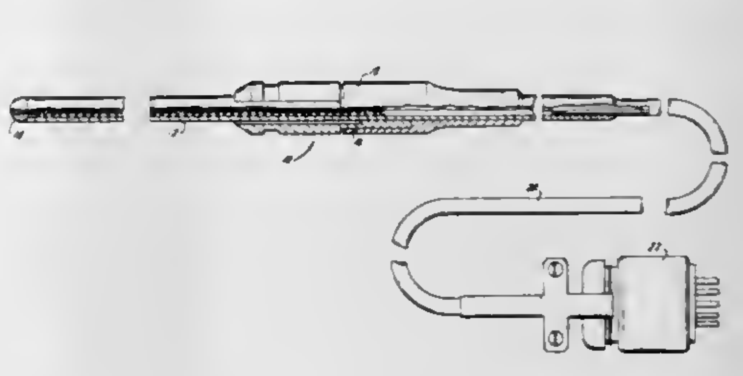
PROBE FOR ELECTRONIC MEDICAL DEVICE

Edgar O. Eckhart, Livingston, N.J., assignor to Becton Dickinson & Company, East Rutherford, N.J.

Filed Dec. 9, 1970, Ser. No. 96,413

Int. Cl. A61b *5/00*

U.S. Cl. 128—2 H **4 Claims**



A flexible electronic medical probe is provided incorporating a spring inside a plastic sleeve. This construction provides the probe with good axial strength yet enables it to bend easily under lateral stress. The probe is stiff enough to enter a body orifice or affix a cot but will collapse before the force transmitted through the probe reaches the point where the probe tip can cause trauma to a patient.

3,704,706

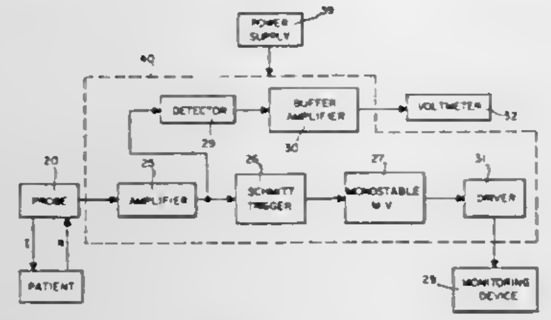
HEART RATE AND RESPIRATORY MONITOR

Bonita Falkner Herczfeld; Peter R. Herczfeld, both of Philadelphia, Pa., and Richard D. Klafter, Willingboro, N.J., assignors to Drexel University, Philadelphia, Pa.

Filed Oct. 23, 1969, Ser. No. 868,823

Int. Cl. A61b *5/02*

U.S. Cl. 128—2 R **2 Claims**



Apparatus for detection of pulse repetition rate and oxygenation of blood flow, comprising a solid state probe having a narrow bandwidth light source housed to direct light upon a patient's finger and a photodetector housed for receiving reflected light from such finger, the output of the detector being connected to electronic circuitry for detecting pulse repetition rate of blood flow and for detecting signal level representative of the degree of oxygenation of the patient's blood. The use of a low power narrow bandwidth light source with a red emission characteristic permits precise detection of the degree of oxygenation of the blood.

3,704,707

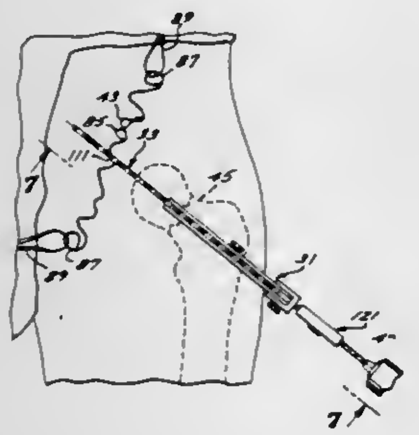
ORTHOPEDIC DRILL GUIDE APPARATUS

William X. Halloran, 440 Fair Drive, Costa Mesa, Calif.

Filed April 6, 1971, Ser. No. 131,645

Int. Cl. A61f *5/04*

U.S. Cl. 128—92 EB **14 Claims**



Orthopedic drill guide apparatus for use in drilling a bore in a fractured bone such as a trochanter for receipt of a pin. The apparatus includes a portable pistol device having aiming means mounted on the top thereof for alignment with an X-ray image-producing target placed over such fractured trochanter. Drill guide means is mounted on the pistol device below the aiming means and transverse indicator means is provided on such pistol device. Thus, the target may be placed over the fractured trochanter, an X-ray taken thereof and such X-ray examined to determine the point on such target which aligns with the desired orientation for the bore to be drilled. The aiming means is then aimed at the selected point on the target and the pistol device maneuvered to align the drill means below the aiming means as indicated by the indicator means so the drill may be inserted in such guide means for drilling the bore in the trochanter at the desired location.

3,704,708

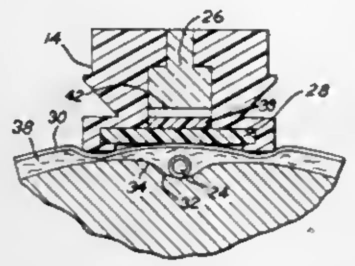
BLOOD PRESSURE MEASURING MECHANISM

Arthur S. Iberall, Radnor, Pa., assignor to General Technical Services, Inc.

Continuation-in-part of Ser. No. 658,487, Aug. 4, 1967, abandoned. This application May 4, 1970, Ser. No. 34,341

Int. Cl. A61b *5/02*

U.S. Cl. 128—205 E **2 Claims**



An apparatus for observing and measuring the complete range of arterial blood pressures. A small casing is provided having a cavity. The cavity is sealed at one end by a flexible membrane and at the other by a pressure responsive transducer. The casing has a ridge portion for positioning over an arterial duct complimentary to the duct. As pressure changes in the duct, the voltage output of the transducer varies representative of the duct pressure.

3,704,709

DISPOSABLE BODY DRAINAGE RECEIVER

James L. Sorenson; Gordon S. Reynolds, and Karl A. Pannier, Jr., all of Salt Lake City, Utah, assignors to LeVoy's, Inc., Salt Lake City, Utah

Filed Sept. 9, 1970, Ser. No. 70,755

Int. Cl. A61m *1/00*

U.S. Cl. 128—277 **5 Claims**

A body drainage receiver in the form of a disposable liner for a canister to receive drainage from the body of a patient, where drainage is indicated as the result of severe wounding, surgery performed, or other reasons, the liner being disposable either with or without its accumulated drainage after a single usage, the canister and cover therefor being reusable with a new liner, the cover of the canister being connected to a vacuum or suction system to stimulate drainage from the patient.

3,704,710

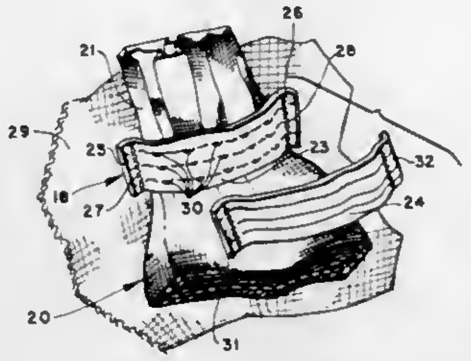
SANITARY PAD HOLDER

Eugene Clarence Fifer, 212 W. Linden Ave., Burbank, Calif.

Filed Nov. 12, 1970, Ser. No. 88,686

Int. Cl. A61f *13/16*

U.S. Cl. 128—288 **5 Claims**



A holding arrangement is installed by stitching or the like into the fabric of underpants for firmly holding in place a sanitary pad with oppositely extending tabs. Holding elements are positioned along the centerline of the underpants at locations forwardly and rearwardly of the crotch portion and each has a pair of superposed locking bands. When each tab is drawn upwardly beneath its associated holding element and pulled downwardly between the locking bands it becomes positively locked in place so that the pad may be maintained securely in place.

3,704,711

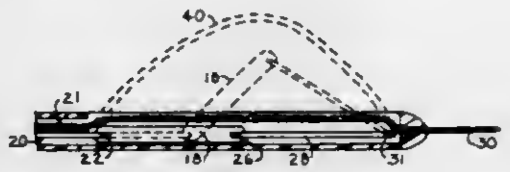
CATHETER

Sang C. Park, 87-30 Justice Ave., Elmhurst, N.Y.

Filed June 30, 1971, Ser. No. 158,449

Int. Cl. A61b *17/32*; **A61m** *25/00, 29/00*

U.S. Cl. 128—305 **4 Claims**



A catheter for the creation of an atrial septal defect without thoracotomy. The catheter comprises a main flexible tubular housing and a branch tubular housing. A flexible guide wire extends through the main housing and is secured at the distal end thereof and extends outwardly of the distal end. The guide wire can be deformed into a dome shape protruding from a slit opening in the distal end of the main housing by advancing the guide wire from the proximal end of the main housing. A tiny surgical blade disposed in the slit opening of the main housing is elevated to a desired angle by advancing a flexible control wire pivoted to the blade and extending through the main housing. The branch tubular housing communicates with the main housing and is adapted for connecting a syringe or pressure gauge. A pair of rubber stoppers are provided on the main housing.

3,704,712

DILATOR DEVICE

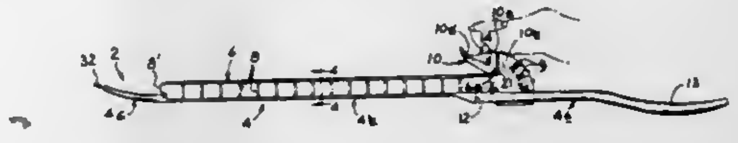
Jerry D. Giesy, Portland, Oreg.; Gordon E. Smith, Madison, Wis., and Jack M. Schneider, Denver, Colo., assignors to Medidyne Corporation, Chicago, Ill.

Filed April 10, 1970, Ser. No. 27,362

Int. Cl. A61m *29/00*

U.S. Cl. 128—345 **21 Claims**

A dilator device comprising a first elongated member having a handle-forming portion at one end thereof and a dilating portion in front of said handle-forming portion which dilating portion has a greatly elongated cross-section, and a second elongated member confronting and extending generally parallel to said dilating portion of said first member and having a greatly elongated cross-section similar in shape and orientation to that of the dilating portion of said first member. Links interconnect the second elongated member and the dilating portion of the first member so the longitudinal shifting of the second elongated member will move the second member from a position immediately contiguous to the dilating portion of said first member to a position where it is spaced a relatively large distance therefrom. Operating means are connected to the rear end portion of the second member which means is engageable by the thumb of the hand grasping said handle-forming portion to shift the second member longitudinally.



3,704,713

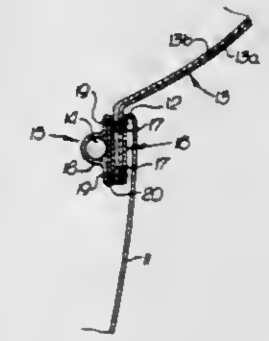
CONCEALED WIRE STRUCTURE FOR AN OUTER GARMENT

Lois H. Hopper, 6055 Fulcher Ave., North Hollywood, Calif., assignor to Munsingwear, Inc., Minneapolis, Minn.

Filed Feb. 1, 1971, Ser. No. 111,302

Int. Cl. A41c *1/14*

U.S. Cl. 128—476 **6 Claims**



A bra cup reinforcement wire structure for a woman's swim suit or other outer garment. A pair of flanges are formed interior of the garment by stitching together the adjoining body member and respective bra cupfabric edges in outer surface facing relationship. A wire receiving sheath for each cup is sewn to the respective flange, thereby concealing each sheath and stiffener wire from exterior view.

3,704,714

2-ISOPROPYL-5-METHYL-2-HEXENAL, 2-ISOP-ROPYL-5-METHYLHEXANAL,3-HYDROXY-2-ISOPROPYL-5-METHYLHEXANAL, AND DERIVATIVES THEREOF AS TOBACCO FLAVORANTS

Andrew G. Kallianos; Albert H. Warfield, and Melvyn I. Simpson, all of Durham, N.C., assignors to Liggett & Myers Incorporated, New York, N.Y.

Continuation-in-part of Ser. Nos. 806,682, March 12, 1969, abandoned, and Ser. No. 57,414, June 19, 1970, abandoned, and Ser. No. 73,194, Sept. 17, 1970, abandoned. This application June 16, 1971, Ser. No. 153,900

Int. Cl. A24b *15/00*

U.S. Cl. 131—17 R 8 Claims

The base-catalyzed self-condensation of isovaleraldehyde yields a mixture of threo- and erythro-2-isopropyl-5-methyl-3-hydroxyhexanal. The reaction conditions can be so chosen as to favor predominance of one isomer over the other. Upon vacuum distillation of the mixture, one of the isomers preferentially dehydrates yielding 2-isopropyl-5-methyl-2-hexenal as a distillate and unchanged 3-hydroxy-2-isopropyl-5-methylhexanal as the residue. These aldehydes are the parent members of a class of compounds composed of 2-isopropyl-5-methylhexanal, 3-hydroxy-2-isopropyl-5-methylhexanal, 2-isopropyl-5-methyl-2-hexenal, and the alcohol and carboxylic acid derivatives of these aldehydes, the ester and ether derivatives of the alcohols and acids, as well as certain other alcohol and ketone derivatives. These compounds are useful as tobacco additives to modify the taste of the tobacco, and/or as intermediates for the preparation of tobacco additives.

3,704,715
APPARATUS FOR THE PRODUCTION OF A SHEET OF TOBACCO

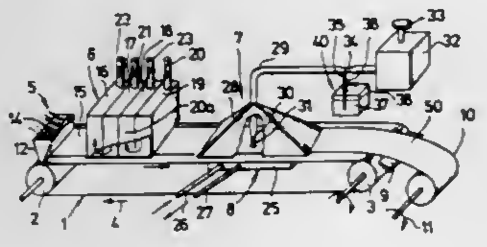
Paul Buchmann, Basel, Switzerland, and Monique Beringer, St. Louis, France, assignors to Tamag Basel AG, Basel, Switzerland

Filed Sept. 24, 1970, Ser. No. 74,989

Claims priority, application Germany, Nov. 10, 1969, P 19 56 402.4

Int. Cl. A24b *03/14*

U.S. Cl. 131—140 C **3 Claims**



Apparatus for the production of sheet tobacco is disclosed which comprises a conveyor, means for spraying a mixture of powdered tobacco, water and bonding agent on the conveyor and means for removing the sheet after formation from the conveyor. The spraying means is constituted of a steam source, conduit and nozzle with an injection means for introducing an additive into the steam conduit. Cooling means are provided in the apparatus on the opposite side of the conveyor from the spray means.

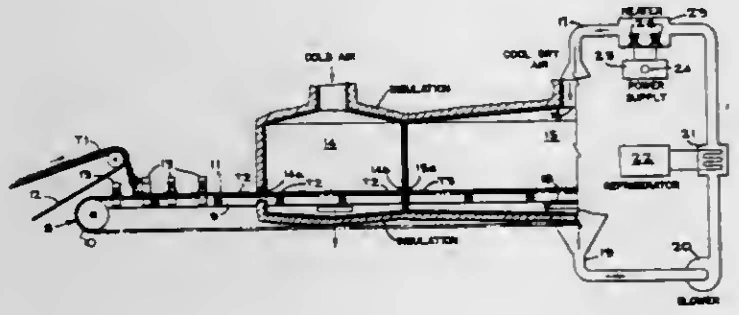
3,704,716
METHOD FOR CONTINUOUS PREPARATION OF TOBACCO

John A. Abbott, Menlo Park, and Clyde Donald Watson, San Jose, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Dec. 15, 1969, Ser. No. 884,850

Int. Cl. A24b *03/18*

U.S. Cl. 131—140 P **10 Claims**



A method for the continuous processing of tobacco to expand the tobacco, thereby reducing the tar and nicotine content of a given size cigarette, is disclosed. In carrying out the process, the tobacco preferably in shredded form, is moistened with water to a point at which its volume is approximately twice the initial volume, conveyed on a continuously moving conveyor into a freeze chamber and then into a freeze drying chamber wherein air at substantially atmospheric pressure and at about 30° F is passed over the tobacco shreds to effect drying. The drying is carried out to a point at which 90 percent of the moisture is removed. For moistening the tobacco initially, a technique employing floating the tobacco on water and subsequently lifting the tobacco therefrom by a screen may be employed. Further, the final drying may be accomplished in two stages utilizing two drying chambers.

3,704,717
HAIR-SLIDE

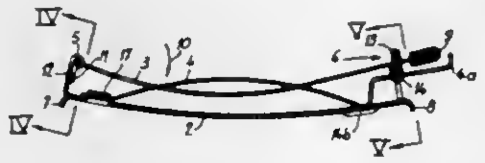
Gilles Morand, Rue Dunand, and Marc Giraudon, HLM Domagoe, both of Ceyzeriat, France

Filed March 12, 1971, Ser. No. 123,784

Claims priority, application France, March 13, 1970, 7011355

Int. Cl. A45d *8/00*

U.S. Cl. 132—46 A **7 Claims**



This hair-slide of the type comprising a bridge possibly provided with decorative means on its outer face, a snap-fastener and a spring strip disposed between the bridge and snap fastener, is provided at the end of said bridge which is opposite to the bridge end pivoted to said snap-fastener with fixed hooking means adapted to be resiliently engaged by the free end of said snap-fastener in the closed position thereof, a resiliently movable locking member normally retained in its locking position and adapted to engage the aforesaid end of said fastener in the zone of said hook means, so as to lock said snap-fastener in its closed position. (Figure 3).

3,704,718
SAFETY DEVICE FOR VALVES OF TANK WAGON BOTTOMS

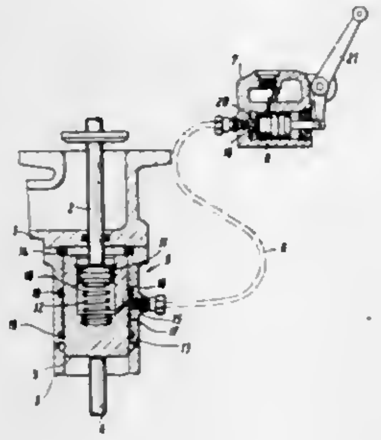
Kurt Rudel, Bremen, Germany, assignor to Gustave F. Gerdts K.G., Breman, Germany

Filed Aug. 5, 1970, Ser. No. 61,139

Claims priority, application Germany, Oct. 13, 1969, P 19 51 465.9

Int. Cl. F16k *17/36*

U.S. Cl. 137—39 **8 Claims**



A safety device is provided for valves in tank bottoms, particularly in tank wagons. The device closes the valve automatically when there is a disturbance endangering the filling or the emptying procedure of the tank, particularly an improper shifting of the tank wagon. The device is particularly characterized by the provision of a hydraulic coupling element consisting of a piston and cylinder and located between the valve closing member and the valve actuating member. When the element is coupled its entire stroke producing volume is filled with a pressure medium. The element is connected with a reserve container and this connection is operated by a valve which in case of disturbance permits an escape of the pressure medium from the cylinder into the reserve container.

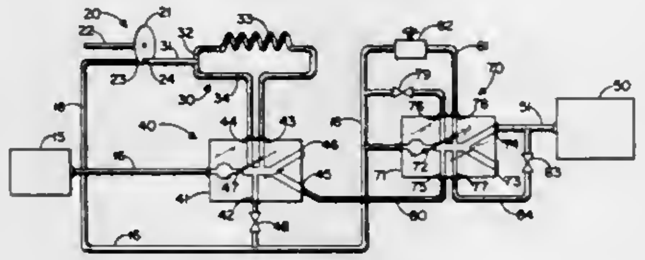
3,704,719
FREQUENCY RESPONSIVE FLUID SWITCH

Gary E. Trull, Fridley, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 18, 1970, Ser. No. 47,536

Int. Cl. F15c *1/12, 3/00*

U.S. Cl. 137—81.5 **3 Claims**



A frequency responsive fluid switching circuit including a fluidic AND gate and a delay line, for producing an output signal when the period of an applied fluid pulse train substantially equals the time delay of the delay line.

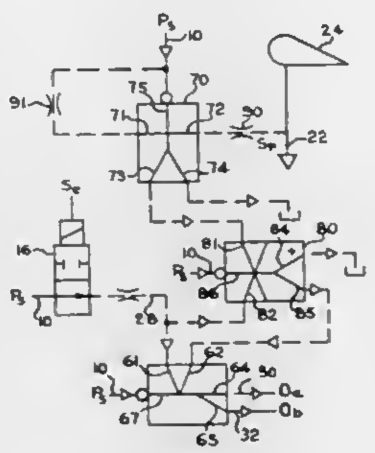
3,704,720
FLUIDIC DEICER VALVE

Frederick A. Kaiser, Clinton, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Dec. 28, 1970, Ser. No. 101,886

Int. Cl. F15c *1/12;* **B64d** *15/04*

U.S. Cl. 137—81.5 **4 Claims**



A pneumatically controlled deicer valve is provided for inflating the distensible elements adapted to prevent the accumulation of ice upon wings and other air-foils and surfaces of aircraft. Unregulated engine bleed air is supplied directly to the valve and on command of a timer fed directly into the deicing boot. A fluidic circuit in the valve causes the boot to be evacuated immediately after the boot has attained a predetermined value of pressure. An ejector which is part of the valve further reduces the pressure in the deicing boot until it is below ambient.

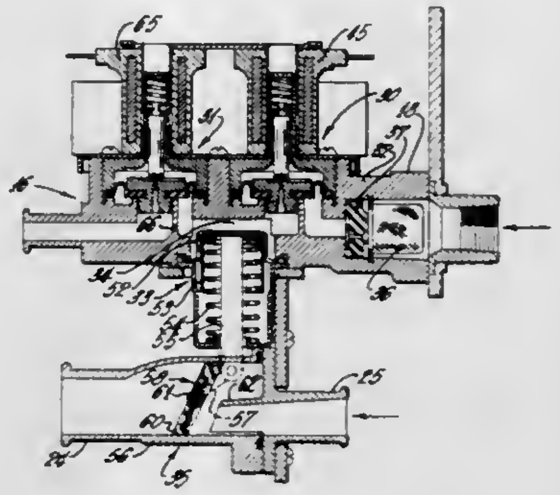
3,704,721
FLUID CONTROL SYSTEM

Ambrose J. Schmitz, Hoffman Estates; William R. McCarty, Skokie, and Howard L. Erickson, Bensenville, all of Ill., assignors to Eaton Corporation, Cleveland, Ohio

Filed Oct. 1, 1970, Ser. No. 77,157

Int. Cl. F16k *31/42*

U.S. Cl. 137—102 **10 Claims**



A fluid control system for dishwashers, clothes washers, and the like. A series type fill valve has a hydraulic actuator located between the two valve operators and controlling a drain valve through a mechanical linkage. A flow control device at the inlet to the first valve maintains the pressure at the actuator at a level too low for activation during a fill cycle when both solenoid operated valves are open. Draining is effected by opening of the first valve only, which pressurizes the linear actuator to open the drain valve. Means are provided for bleeding off pressure at the actuator when both solenoid operated valves are closed to prevent inadvertent opening of the drain valve.

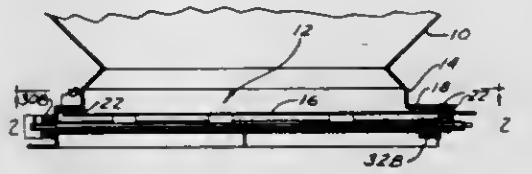
3,704,722
CAM AND DOOR ASSEMBLY

Clarence B. Coleman, Oakland, Calif., assignor to Fabricated Metals Inc.

Filed July 12, 1971, Ser. No. 161,548

Int. Cl. F16k *25/00*

U.S. Cl. 137—242 **5 Claims**

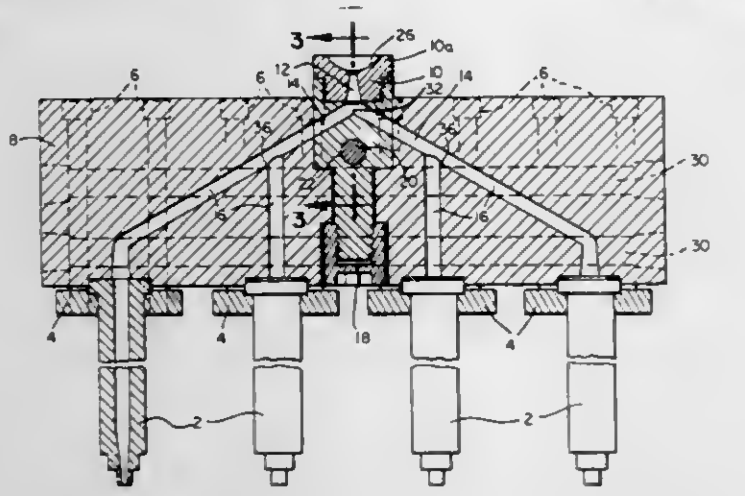


An improved closure assembly for bulk material containers of the type having a discharge opening defined by a frame shaped to receive a closure plate wherein an annular surface of the frame is provided with a seal. The end of the frame wherein the closure plate is inserted and withdrawn has associated with it a bracket which carries a sealing gasket facing the bottom side of the plate. A pair of elongate cam carrying members are rotatably mounted parallel to opposite sides of the opening frame and are maneuverable to at least two positions which in the one instance urges the closure plate into sealed contact with the gasket disposed on the frame annular surface; and in another position relieves the plate from the latter engagement while maintaining wiping contact between the sealing gasket on the aforementioned bracket and that portion of the annular seal where the closure plate is withdrawn.

3,704,723
PVC MANIFOLD

Theodore C. Wheaton, III, Ocean City, and Daniel J. Mikus, Vineland, both of N.J., assignors to Wheaton Industries, Millville, N.J.

Filed Aug. 16, 1971, Ser. No. 175,118
Int. Cl. B01f *15/02*
U.S. Cl. 137—341 **6 Claims**

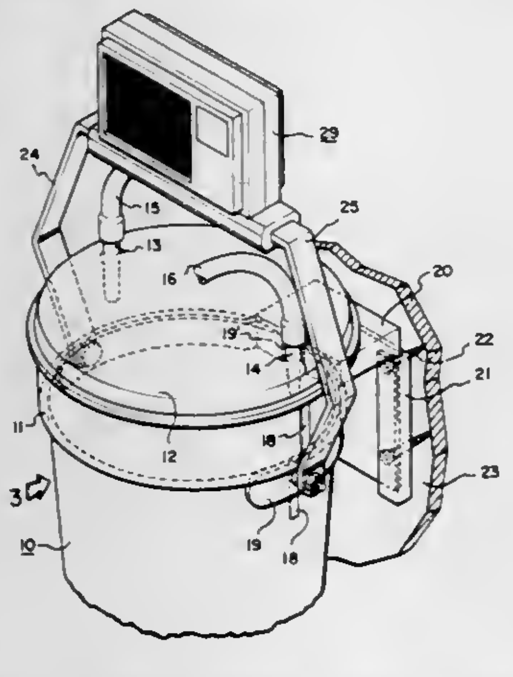


Manifold for dividing molten PVC stream into a plurality of branch streams wherein the trunk passageway is divided into a plurality of diverging branch passageways none of which makes an angle of less than 110° with the trunk passageway and any adjacent two of which converge with one another at a sharp stream splitting wall intersection of 140° or less. In the preferred form of the present invention four parallel one-fourth to one-half inch secondary branch passageways are provided by dividing a first trunk passageway into two branch passageways symmetrical with respect to the trunk passageway converging with one another in an angle of about 140°, each of which is subsequently divided into secondary branches one of which makes an angle of 110° with the first branch and the other of which is coaxial with the first branch for a short distance and then is angled to parallel the other secondary branch.

3,704,724
FLUID LEVEL SENSING/CONTROL SYSTEMS

Legrand K. Holbrook, 2509 Village Circle, Salt Lake City, Utah, and David S. Ostler, 4160 Monarch Way, Salt Lake City, Utah

Filed Feb. 24, 1970, Ser. No. 13,585
Int. Cl. G05d *9/12*
U.S. Cl. 137—392 **15 Claims**

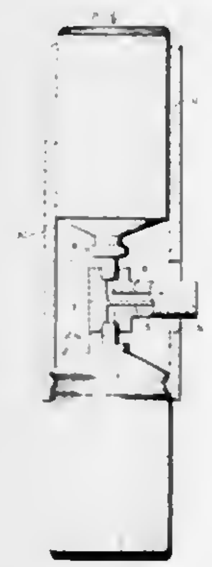


The present invention comprises a fluid level sensing and/or control system whereby the rise of a given, electrical-parameter affecting fluid to a given level within a container, can be sensed and/or utilized advantageously to actuate a given object. Where such object is an indicator unit, then the same may have an input responsive to fluid level rise at a given level, to alter the electrical characteristic of such input. In one form of the invention, electrically conductive means communicate with the interior of the container of the system, at a predetermined level or area thereof, such that when the fluid level rises at this level, the fluid itself may complete or otherwise affect an associated circuit, through such electrically conductive means, to the indicator employed. The indicator may be miniaturized to provide a signal generator responsive to fluid level rise for generating an audible or other signal.

3,704,725
HIGH PRESSURE PROPELLANT DISPENSING VALVE

Jean Marand, Saint Benoit, France, assignor to Ciba-Geigy Corporation, Greenburgh, N.Y.

Filed Jan. 5, 1971, Ser. No. 104,060
Int. Cl. B65d *83/00*
U.S. Cl. 137—550 **5 Claims**



A body member has an inner flange, an outer flange and a central opening therethrough. A hollow valve stem has a longitudinal channel terminating in radial openings and is positioned within the central opening. An inner flange of a retaining ring seals a flexible annular gasket against the inner flange of the body member. The inner periphery of the gasket obturates the radial openings. An outer flange of the retaining ring is positioned against the outer flange of the body member. The body member and the retaining ring are held together between a flange opening and a crimped portion of a propellant cartridge.

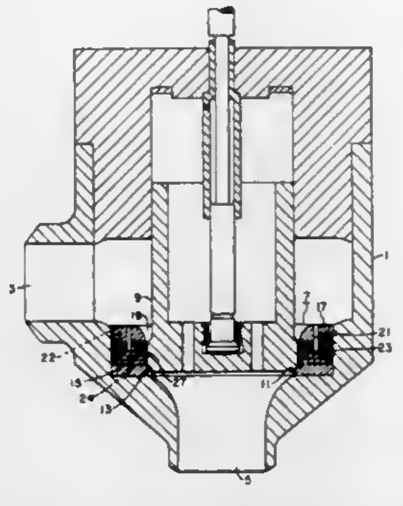
3,704,726
NOISE SUPPRESSING SEAT FOR A THROTTLING VALVE

Ivor J. Lewis, Aston, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 2, 1971, Ser. No. 111,812
Int. Cl. F15d *1/00;* **F16k** *47/14*
U.S. Cl. 137–625.3 10 Claims

A noise suppressing throttling plug valve having a seat ring with a plurality of right-angled ducts extending therethrough, upstream of a valve seat. As the plug rises, an increasing number of ducts are uncovered providing an increase in fluid flow through the valve. Successively uncovered ducts provide shorter fluid paths to provide a flow rate that increases as the distance the plug moves from the seat increases. The ducts cause the fluid to be broken up into discrete jets, which reduce

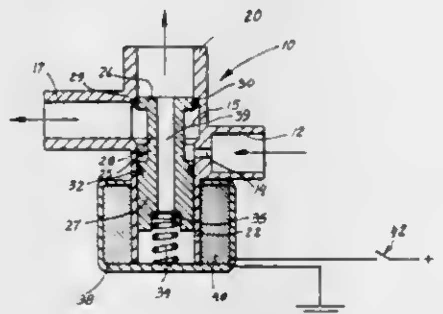
the noise caused by high velocity fluid flowing over the seat. As the valve plug moves away from the seat, the flow through the ducts diminishes, so that as the valve plug approaches its fully open position, the flow through the ducts is minimal, thus providing a valve with a low intensity noise level when throttling and a low pressure drop when fully open.



3,704,727
FLUID CONTROL VALVE

Carmell Adahan, 1626 Bonita Ave., Apt. No. 6, Berkeley, Calif.

Filed June 1, 1971, Ser. No. 148,588
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.65 **8 Claims**



A fluid control valve for relieving line pressure. A shuttle valve having a longitudinal bore is reciprocably mounted in a housing. The housing is provided with a line pressure inlet having a metering orifice, a central chamber, a line pressure outlet and an exhaust outlet having a valve seat. The shuttle valve is normally biased to seal the exhaust outlet from the central chamber. An externally mounted solenoid coil provides a means for unseating the shuttle valve and venting the control chamber via the exhaust outlet.

3,704,728
MIXING VALVE FOR FLUIDS

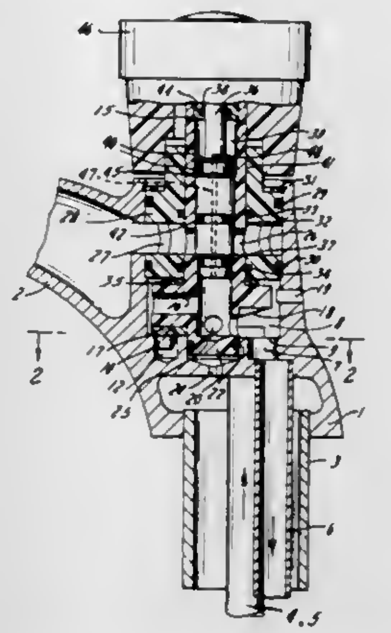
Egon Huneke, Hemer, Germany, assignor to Friedrich Grohe Armaturenfabrik, Hemer/Brepl, Germany

Filed Dec. 10, 1970, Ser. No. 97,473

Claims priority, application Germany, Dec. 11, 1969, P 19 62 026.9

Int. Cl. F16k *11/14*
U.S. Cl. 137—636.1 **14 Claims**

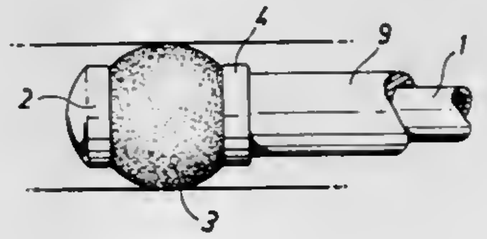
A valve housing has an internal mixing chamber and an elongated passage rising from the mixing chamber. At least two fluid conduits open at the bottom wall of the mixing chamber and communicate with the latter so as to discharge fluid under pressure thereinto. A valve arrangement includes a member of arcuately segmental shape which is provided at its opposite ends with valve members accommodated in the open ends of the conduits and capable of being deflected from the closed position in which they stop fluid flow, to open positions in which they are located farther in the mixing chamber and permit the fluid flow into the same. A valve control element is mounted in the passage and is turnable as well as axially displaceable therein, having a lower end face constructed as a cam face and capable of engaging the valve members in a sense moving them to closed position, or retracting therefrom in a sense permitting the valve members to be displaced by the pressure of fluid in the conduits to positions in which they are spaced at different distances from the openings of the conduits and permit the fluid flow out of the conduits into the mixing chamber at different rates.



3,704,729
PLUMBING DEVICE

Thomas Alfred Tomlinson, 348 Manor Road East, Toronto 298, Ontario, Canada

Continuation-in-part of Ser. No. 19,167, March 13, 1970, abandoned. This application Dec. 21, 1971, Ser. No. 210,438
Int. Cl. F16l *55/10*
U.S. Cl. 138—90 **12 Claims**



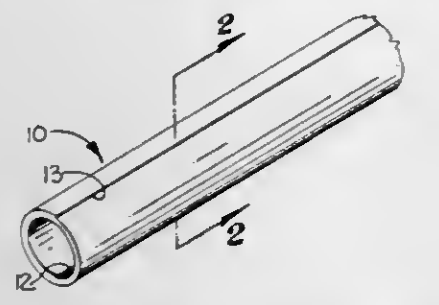
A plumbing device for plugging a pipe includes a radially expansible rubber sleeve disposed about one end of an axial shaft or tube. An annular flange is provided on the end of the shaft while an elongated metal cylinder is disposed coaxially about the shaft on the opposite side of the sleeve to transmit axial compressive movement to the rubber sleeve from a screw jack mechanism releasably secured on the shaft in proximity to its other end.

3,704,730
CONVOLUTE TUBE AND METHOD FOR MAKING SAME

Werner Witzig, Hartsville, S.C., assignor to Sunoco Products Company, Hartsville, S.C.

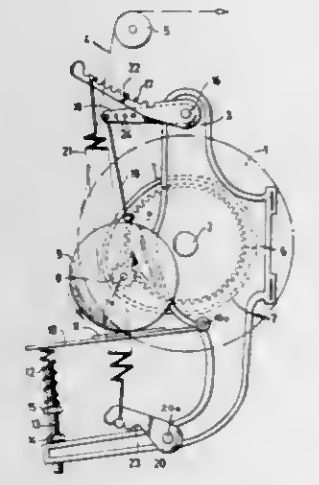
Filed June 23, 1969, Ser. No. 835,393
Int. Cl. F16l *9/14, 9/16*
U.S. Cl. 138—144 **5 Claims**

An elongate, convolutely wound, adhesively secured tube and method for making same from elongate sheet material and being characterized by eliminating the necessity of having a high moisture content in the adhesive for holding the wound tube together following winding, wherein the method includes applying relatively slow acting, low moisture adhesive to a major portion of a first surface of the sheet material, applying relatively fast acting adhesive to a minor portion of the first surface substantially adjacent a first longitudinal edge thereof and a convolutely winding the sheet material transversely of the length thereof into a convolute tube with the first longitudinal edge forming an outside trailing edge and the fast acting adhesive acting to immediately secure the trailing edge to the outer surface of the convolute tube to retain the convolute tube in the wound condition during activation of the slow acting, low moisture adhesive.



3,704,731
WARPBEAM BRAKE DEVICE

Karl Wernli, Rothrist, Switzerland, assignor to Wernli AG Verbandstaff-Fabrik-Weberei, Rothrist, Switzerland
Filed Feb. 26, 1971, Ser. No. 119,304
Claims priority, application Switzerland, March 2, 1970, 3006/70
Int. Cl. D03d *49/08, 49/10*
U.S. Cl. 139—109 **10 Claims**

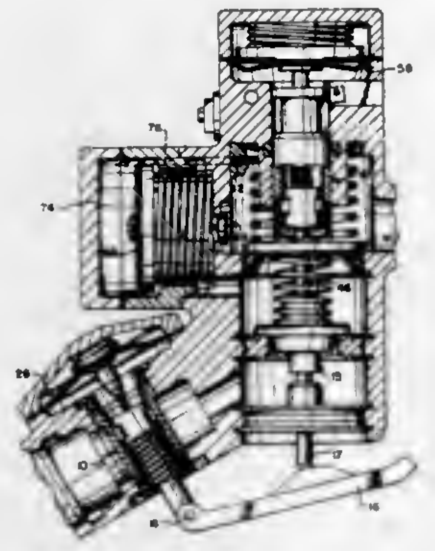


At normal warp thread tension, a transmission gear turned by the warpbeam, rotates a brake disc which is in contact with a brake surface due to the action of a spring. When the warp thread tension increases, the transmission gear turns a carrier, on which the brake disc is mounted, so that the brake disc moves away from the brake surface against the action of the spring so that the warp thread tension is reduced, and the carrier with the brake disc is moved by the spring to press the brake disc against the brake surface.

3,704,732
DISPENSING NOZZLE

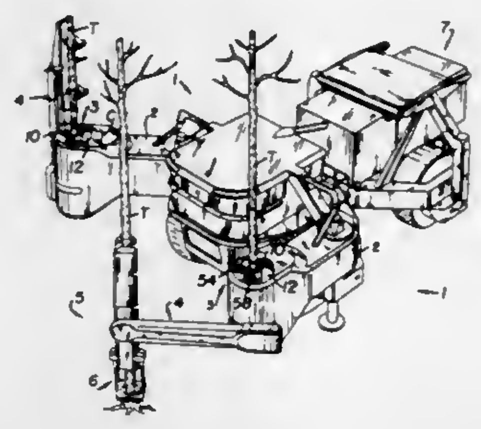
Edward A. Mayer, Newburgh, N.Y., assignor to Texaco Inc., New York, N.Y.
Filed June 1, 1971, Ser. No. 148,366
Int. Cl. B65b *3/26*
U.S. Cl. 141—128 **4 Claims**

An adjunctive device for automatic filling and topping-off dispensing nozzle to introduce a time lag or delay between the initial tank filling and topping-off operations by causing a uni-directional delay in the passage of a fluid thru a flow conduit which will, in turn, cause a uni-directional delay in pressure equalization thru said conduit, the invention comprising a spindle in the conduit having a diameter substantially less than that of the conduit but having a series of frusto conical surfaces axially aligned with the conduit and inclined in one axial direction so as to facilitate flow in that direction but presenting radial surfaces which impede flow in the opposite direction.



3,704,733
DEBARKING AND DEBRANCHING APPARATUS

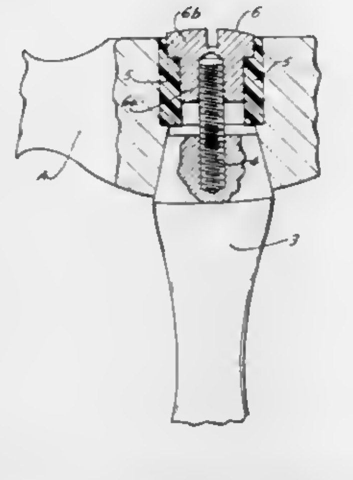
Bruce John McColl, Whitby, Ontario, Canada, assignor to Owens-Illinois, Inc.
Continuation-in-part of Ser. No. 572,530, Aug. 15, 1966, Pat. No. 3,533,458. This application Oct. 7, 1970, Ser. No. 78,764
Int. Cl. A01g *23/02*
U.S. Cl. 144—2 Z **7 Claims**



A rotary debarker-debrancher consists of apparatus having two coaxially positioned rings defining a path through the center thereof for a bole to travel for processing. The debarking-debranching tool arms have each of their ends pivotally mounted to a separate ring, both rings being rotated by power means in the same direction. The apparatus includes means for altering the circumferential position of one ring with respect to the other during rotation with the result being that the tools are pivoted inwardly or outwardly into or out of engagement with the circumferential surface of the tree. The tools are mounted on plates which overlap in an iris pattern to inhibit debris from entering the apparatus. Further, the tools are rotated in a direction to provide a lead cutting action to remove bark and branches from the bole and therefore throw it outwardly from the apparatus.

3,704,734
TOOL HAVING A HEAD AND A HANDLE

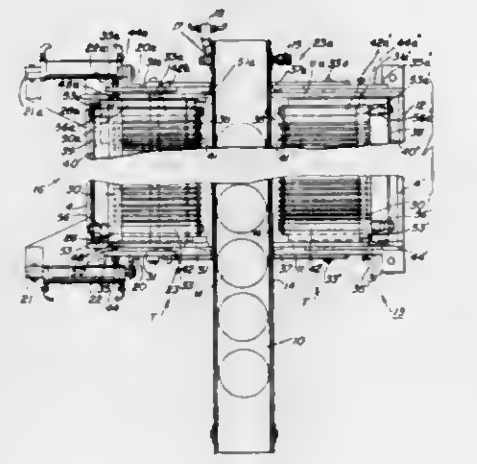
Eduardo Rodriguez Soto, and Joaquin Longo, both of Calle 3, No. 269 Rosario, Santa Fe Province, Argentina
Filed Oct. 20, 1970, Ser. No. 82,317
Claims priority, application Argentina, April 28, 1970, 228.374
Int. Cl. B25g *3/12*
U.S. Cl. 145—29 B **8 Claims**



A tool head has two spaced opposite sides and a stepped opening including a smaller-diameter first portion of non-circular cross-section which converges from one toward the other side, and a larger-diameter portion extending from the other side to and in alignment with the first portion. An end portion of a handle is received matingly in the first portion and an end face of it faces the section portion. A threaded pin is anchored in the end portion of the handle and has a part projecting into the second portion of the opening, with an elastic tubular bushing matingly received in this second portion and with clearance surrounding this part of the pin. Threaded retaining means meshes with said part in the clearance and bears against the bushing at the other side thereof.

3,704,735
AUTOMATIC SPLITTING MACHINE FOR HAND-OPENED MUFFINS

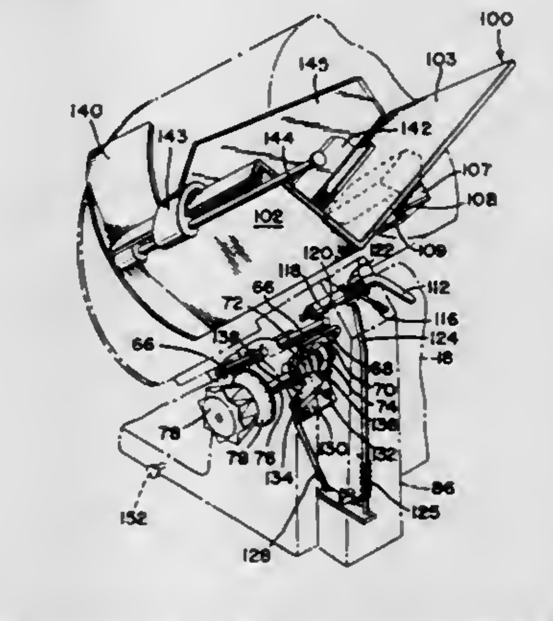
Eugene M. Noel, Newton Highlands, and Frank Conelly, Plymouth, both of Mass., assignors to Said Noel by said Conelly, a part interest
Filed Feb. 22, 1971, Ser. No. 117,333
Int. Cl. B26d *3/08*
U.S. Cl. 83—2 **4 Claims**



An automatic muffin-splitting machine of increased productivity having a traveling conveyor belt for intermittently delivering muffins to a tining section to be tined and split, said tining section having first and second pluralities of tines operating from respective opposite sides of the conveyor belt, said pluralities of tines traversing the belt in simultaneous reciprocal interdigitating cooperation from the opposite sides thereof, said first plurality of tines being automatically lifted out of the plane of interdigitation with the second plurality of tines as full penetration of the tines into the muffins is reached, and said intermittent tining of said muffins being coordinated with movement of the traveling belt by cam-actuated, pilot-operated, air cylinder-powered, over-center link and lever mechanism; whereby the machine automatically produces muffins properly perforated and split, but not fully separated, for gentle hand opening whenever desired in preparation for grilling or toasting.

3,704,736
FOOD SLICING MACHINES

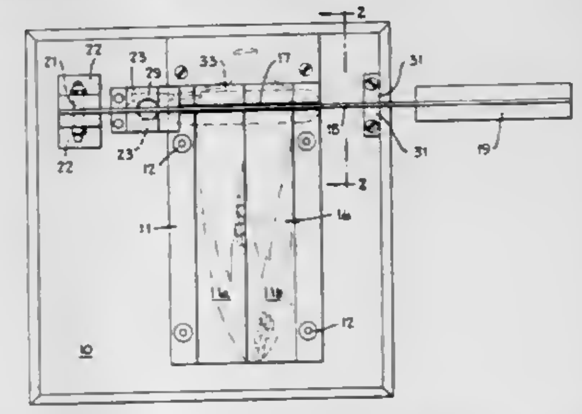
Clifford Pratley, London, England, assignor to The Hobart Manufacturing Company, Troy, Ohio
Filed Oct. 5, 1970, Ser. No. 78,091
Int. Cl. B26d *4/00*
U.S. Cl. 83—397 **7 Claims**



A slicing machine has a base which supports an inclined rotary knife driven by a motor and covered by a removable knife guard. A carriage is supported for reciprocation adjacent the knife and an adjustable gage plate, and includes a removable inclined tray member for supporting the articles to be sliced. A first interlock system prevents removal of the tray member until the gage plate is set at zero or flush with the knife, and a second interlock system prevents operation of the motor when the knife guard is removed for cleaning. A third interlock system assures that the motor will not operate when the knife guard is being reassembled in the event the main motor control switch was inadvertently actuated when the knife guard was removed.

3,704,737
VEGETABLE TRIMMING APPARATUS

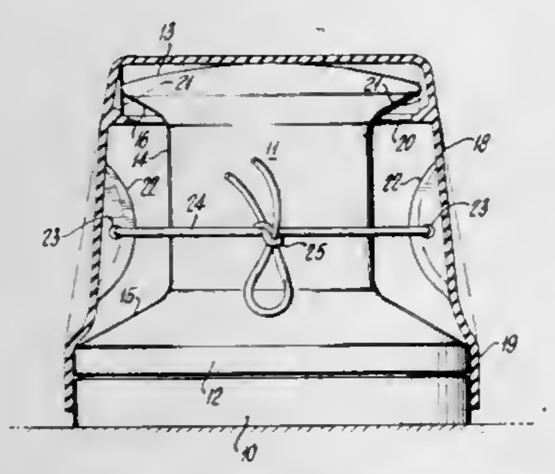
Wesley Stout, 4414 Brittany Road, Indianapolis, and W. J. Stout, IV, R.R. 4 Box 600, Brownsburg, both of Ind.
Filed May 13, 1971, Ser. No. 143,116
Int. Cl. B26d *1/26*
U.S. Cl. 99—637 **3 Claims**



Disclosed is a holder, V-shaped in cross section, adapted to receive vegetables, or the like, to be trimmed in the bight of the V. A knife is mounted to be moved transversely across the V-shaped holder portion to trim material in the holder and the base of the apparatus, underlying the knife edge is provided with a knife entry slot and an enlarged slot underlying and communicating with the knife entry slot to permit husks or leaves pulled into the entry slot by the downward motion of the knife to drop through the enlarged slot.

3,704,738
CAPSTAN TYPE WINCH COVER

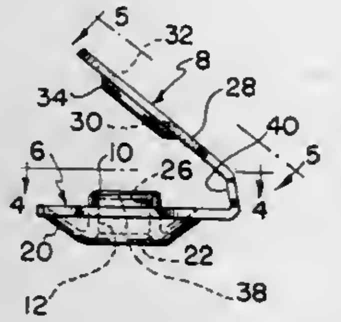
Frank M. LeCompte, Watchung, N.J., assignor to Tingley Rubber Corporation, South Plainfield, N.J.
Filed Aug. 18, 1971, Ser. No. 172,724
Int. Cl. B65d *65/02*
U.S. Cl. 150—52 R **9 Claims**



A cover for a capstan type winch comprises a blind tie-down cord which encircles the spool of the winch and threads through ears extending inwardly from the inner wall of the cover. The cord acts to hold the cover in place when tensioned and tied. A series of axially disposed ribs extending inwardly from the cover wall near the top yieldably engage the spool at the top and accommodate the cover for use with winches of different sizes.

3,704,739
FASTENING DEVICE

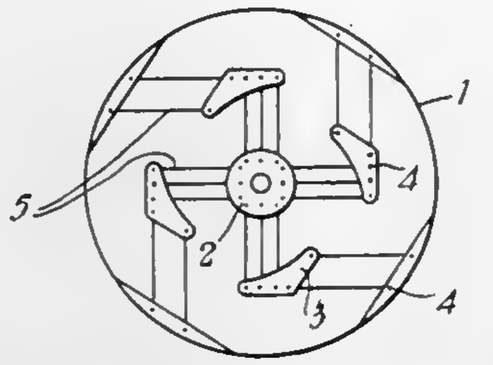
Robert J. Holton, Rocky River, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
Filed Nov. 30, 1970, Ser. No. 93,602
Int. Cl. F16b *39/00*
U.S. Cl. 151—41.7 **5 Claims**



A fastening device for use with an apertured panel including a body having a base adapted for engagement with one side of a support panel and an attachment member adapted for engagement with the opposite side of the panel. The attachment member is connected to the base at one end and free adjacent the other end and laterally spaced from the base to receive the marginal edge of the panel therebetween. A tubular hub extends inwardly from the base being adapted to be inserted into the aperture in the panel. The hub includes a bore adapted to receive a threaded member therein for locking the hub within the aperture to secure the device on the panel.

3,704,740
SUSPENSION SYSTEMS

John Russell Crompton Moore, Little Melton, Norwich, England
Filed May 21, 1971, Ser. No. 147,382
Claims priority, application Great Britain, May 28, 1970, 25,857/70
Int. Cl. B60b *9/04*
U.S. Cl. 152—75 **20 Claims**



A rotatable member for a suspension system comprises a hub and a rim joined by at least two compliant spoke structures each having two portions connected in series at an angle to each other between hub and rim and each portion having two substantially parallel spoke members forming a compliant parallelogram arrangement.

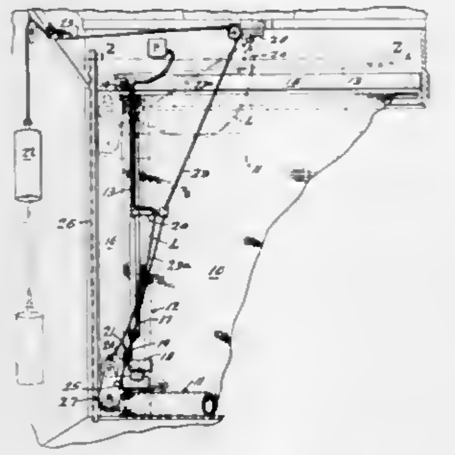
3,704,741
OZONE RESISTANT ETHYLENE/PROPYLENE TERPOLYMER LAMINATES TO OTHER RUBBER

David L. Turk, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Division of Ser. No. 619,195, Feb. 28, 1967. This application Aug. 17, 1970, Ser. No. 64,657
Int. Cl. B32b *27/08, 27/26;* **B60c** *1/00*
U.S. Cl. 152—358 **12 Claims**

Sulfur vulcanizable, ozone resistant blends of ethylene/propylene terpolymer and conventional general purpose rubbers containing a sulfonamide/sulfur vulcanization system and capable of adhering to a conventional general purpose rubber composition on vulcanization of the two phases. These blends may be used in the construction of tire sidewalls and cover strips for pneumatic tires.

3,704,742
SEALING MECHANISM FOR FLEXIBLE DOORS

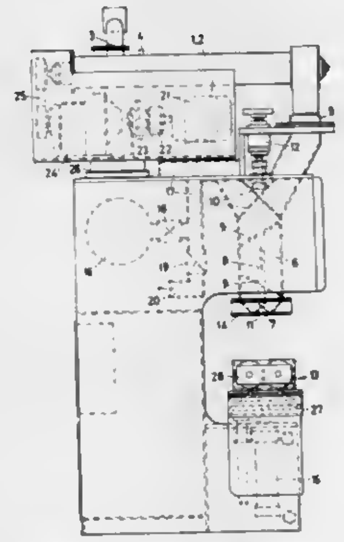
Ralph L. Kuss, Findlay, Ohio, assignor to R. L. Kuss & Co., Inc., Findlay, Ohio
Filed Feb. 25, 1971, Ser. No. 118,878
Int. Cl. A47g *5/02;* **E06b** *9/202*
U.S. Cl. 160—243 **5 Claims**



This invention relates to a sealing mechanism for flexible doors for large building openings such as aircraft hangars, gymnasiums, etc. On each vertical edge of the door is a pivotally mounted arm, having a flexible flap connected thereto, which is automatically pivoted into sealing engagement with a side of the flexible door when the door is moved to a closed position. Means are also provided for pivotally disengaging the arm and flap from the flexible sheet upon opening the door and for raising it up above the level of the door.

3,704,743
METHOD AND APPARATUS FOR MANUFACTURE OF COLD SETTING FOUNDRY MOULDS AND CORES

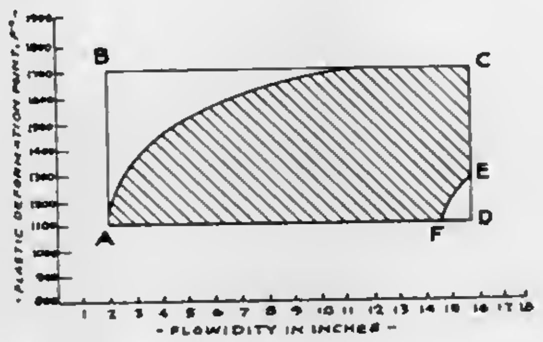
Albert Edwards, Peterborough, England, assignor to Baker Perkins Limited, Peterborough, England
Filed July 13, 1970, Ser. No. 54,227
Claims priority, application Great Britain, July 21, 1969, 36,548/69
Int. Cl. B22c *15/24*
U.S. Cl. 164—21 **12 Claims**



A method and means for making foundry moulds or cores from a cold setting sand/resin/catalyst mixture in which separate metered charges of sand and resin and sand and catalyst are supplied to a mixing chamber in which operates a rotary mixing element and when sufficient quantities of each charge have been supplied to the chamber for the core or mould being produced the resultant mixture is expelled from the chamber into a core or mould box by applying a blast of compressed air to the chamber.

3,704,744
SLAG USE IN CONTINUOUS CASTING OF STEEL

James W. Halley, Chesterton, Ind.; Donald E. Grimes, Lasing, Ill.; Norman T. Mills, Highland, Ind., and Krishna Rao Yalamanchili, New York, N.Y., assignors to Inland Steel Company, Chicago, Ill.
Division of Ser. No. 52,750, July 6, 1970, Pat. No. 3,649,249, which is a continuation-in-part of Ser. No. 7,464, Feb. 2, 1970. This application Oct. 22, 1971, Ser. No. 191,601
Int. Cl. B22d *11/00*
U.S. Cl. 164—82 **10 Claims**



A process of continuous casting of steel in which a layer of a molten synthetic slag about one-half to two inches thick is maintained on the surface of a pool of molten steel in the upper end of the continuous casting mold, and said synthetic slag being a mixture of oxides and fluorides wherein said oxides and fluorides are combined in said slag to provide said slag with a plastic deformation point between about 1,100°F and about 1,700°F in accordance with the following equation:

$$\begin{aligned}\text{Plastic Deformation (Point (°F))} &= 1{,}540 - \text{wt. \%}\ (K_20 + Na_20)\\ &\quad - 14\ \text{wt. \%}\ (B_20_3)\\ &\quad - 54\ \text{wt. \%}\ (LiF + Li_20)\\ &\quad + 10\ \text{wt. \%}\ CaO\ ;\ CaF_2)\\ &\quad + 1\ \text{wt. \%}\ (SiO_2),\end{aligned}$$

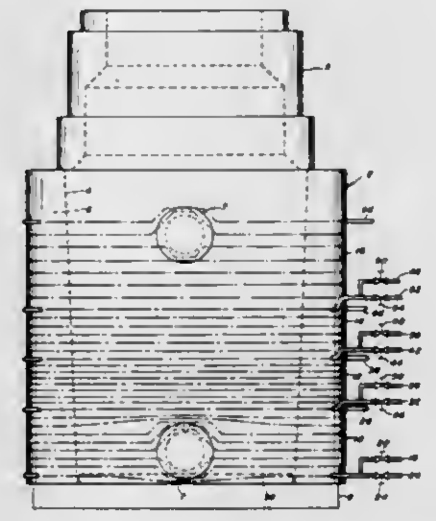
said oxide and fluorides also being combined in said slag to provide said slag with a flowidity between about 2 inches and about 16 inches in accordance with the following equation:

$$\begin{aligned}\text{Flowidity (inches)} &= 9.4 + 0.02\ \text{wt. \%}\ (K_20 + Na_20)\\ &\quad + 0.05\ \text{wt. \%}\ (B_20_3)\\ &\quad + 0.10\ \text{wt. \%}\ (CaO + CaF_2)\\ &\quad + 0.32\ \text{wt. \%}\ (LiF + Li_20)\\ &\quad - 0.20\ \text{wt. \%}\ (SiO_2),\end{aligned}$$

and said slag having an alumina solubility in excess of 20 percent by wt.

3,704,745
METHOD OF MAKING SOUND LARGE GENERALLY CYLINDRICAL INGOTS

Leonard M. Saunders, Pine Township, Allegheny County, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.
Division of Ser. No. 13,259, Feb. 20, 1970, Pat. No. 3,633,656. This application July 29, 1971, Ser. No. 167,335
Int. Cl. B22d *27/04*
U.S. Cl. 164—126 **4 Claims**



A large generally cylindrical ingot mold is provided with four sections of tubing around its outer surface except for some distance from its top. A valve controlled water feed and a valve controlled steam feed are provided to each of the sections. The intermediate cooling sections have a greater cooling effect per square foot of mold surface than the top and bottom sections. After molten steel is poured into the mold, steam is fed into all four sections for several hours. Then at spaced time intervals steam is turned off and water turned on successively to the bottom section, the second section, the third section and finally to the top section. This condition exists for a time period longer than the period with steam on. Then at spaced time intervals water is turned off and steam turned on successively to the bottom section, the second section, the third section, and finally to the top section. The steam is turned off prior to stripping of the mold from the ingot.

3,704,746

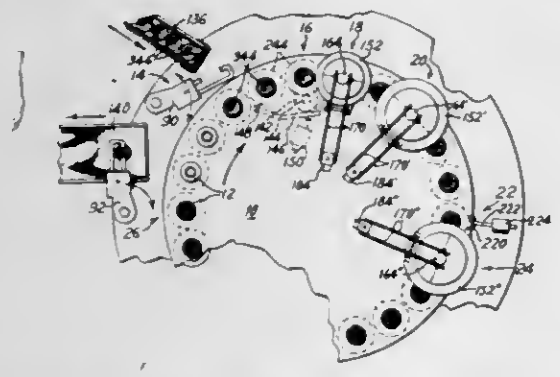
MACHINE FOR CASTING OBJECTS COMPOSED OF SEPARATED DIFFERENT METALS AUTOGENOUSLY JOINED

Earl A. Thompson, deceased, late of Bloomfield Hills, Mich. (by Elizabeth F. Thompson, executrix); Paul Franseth, Grosse Point, and Michael M. Wild, Royal Oak, both of Mich. (executors), assignors to F. Jos. Lamb Company, Warren, Mich.

Division of Ser. No. 777,512, June 17, 1968, Pat. No. 3,503,375, which is a division of Ser. No. 221,115, Sept. 4, 1962, Pat. No. 3,395,747. This application March 18, 1970, Ser. No. 20,567

Int. Cl. B22d *17/32, 23/00, 27/08*

U.S. Cl. 164—157 **6 Claims**



T-shaped valves for internal combustion engines are made with different parts formed of different metals, autogenously joined.

A mold holder, holding a number of rotary molds, head down, is moved past a series of pouring stations each of which deposits a metered amount of molten metal in that mold which is opposite it. At the first station a first molten metal is poured into the empty mold and the mold is spun to move the metal centrifugally outward to form the rim of the valve. Then, while spinning, the mold is moved to a second pouring station which pours a quantity of different metal to form the rest of the valve head, and if desired, part or all of the stem. If the second mold pours less than all of the stem the mold can be moved to a third station to pour a metal of a third composition to form the remaining part of the stem.

3,704,747

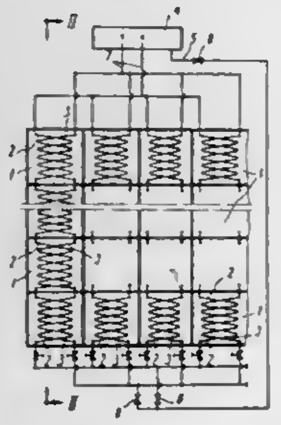
EVAPORATIVE COOLING OF METALLURGICAL FURNACES

Sergei Mikhailovich Andoniev, prospekt Pravdy, 5, kv. 60, Kharkov; Petr Georgievich Zhiguiev, prospekt Metallurgov, 39, kv. 202, Novokuznetsk Kemerevskoi oblasti; Gennady Alexandrovich Kudinov, prospekt Pravdy, 5, kv. 212, and Oleg Vladimirovich Filipiev, prospekt Pravdy, 5, kv. 41, both of Kharkov, all of U.S.S.R.

Filed Sept. 30, 1970, Ser. No. 76,704

Int. Cl. F28f *27/02*

U.S. Cl. 165—101 **4 Claims**



A device for evaporative cooling of metallurgical furnaces, wherein cooling members are interconnected and each member has at least two rows of coils for passing the coolant arranged in parallel relationship to the working surface of the cooling member and along the width of the cooling member.

3,704,748

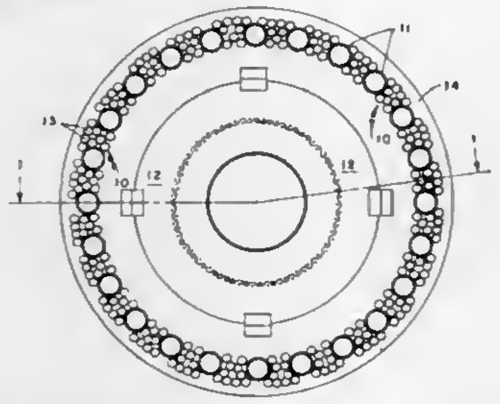
HEAT TRANSFER STRUCTURE

William H. Hapgood, Brookline, Mass., assignor to Ratheon Company, Lexinton, Mass.

Continuation-in-part of Ser. No. 737,135, June 14, 1968, abandoned. This application Feb. 11, 1970, Ser. No. 10,334

Int. Cl. F28f *01/32*

U.S. Cl. 165—165 **22 Claims**



A heat transfer structure and system including a matrix of tubes and spheres bonded together to provide a conduit for a first fluid such as water and a plurality of interconnected paths for a second fluid such as hot flue gas. The paths are made up of the spaces between the spheres such that the walls of the paths are portions of spherical surfaces. The total path length is made less than twenty times the average radius of curvature of the spherical surfaces and the spacing between adjacent tube elements is of the same order of magnitude as the average length of the paths. A water heater or boiler so constructed may be made to transfer substantially all the heat in a flue gas to water in an average path length of one inch or less.

3,704,749

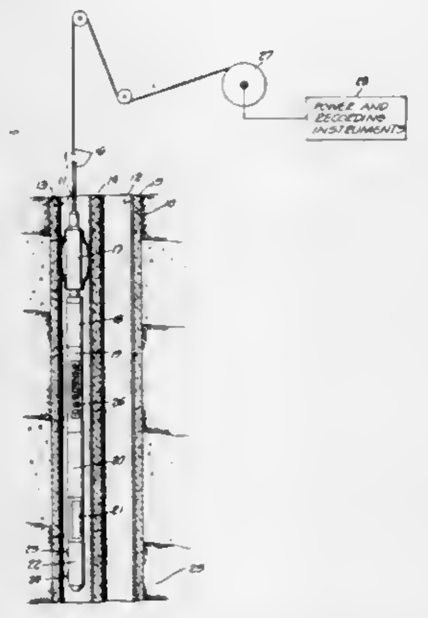
METHOD AND APPARATUS FOR TOOL ORIENTATION IN A BORE HOLE

James D. Estes, and Kirhy De Gough, both of Houston, Tex., assignors to N L Industries, Inc., New York, N.Y.

Filed May 6, 1971, Ser. No. 140,813

Int. Cl. E21b *47/024, 43/119*

U.S. Cl. 166—255 **15 Claims**



An orienting device for a gun or jet perforator or the like to permit setting at a selected angle to a ferrous element such as an adjacent casing string, comprising an exciter coil producing an alternating electromagnetic field and a pair of receiver coils longitudinally spaced from the exciter coils, the disposition of the receiver coils being such that the voltages induced therein vary differentially with the angle presented by the ferrous element by reason of the distortion of the otherwise axially symmetrical field. Electronic means are provided to convert the differential voltages to a pulsed signal which is received at the surface and caused to register the orientation angle. Motor means are provided to rotate the device. All operating power, control signals, and information signals are transmitted by a single conductor cable serving also to suspend the device.

3,704,750

PROCESS FOR INHIBITING SCALE FORMATION IN OIL WELL BRINES

Leon H. Miles, Plano, and Graham E. King, Dallas, both of Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Continuation-in-part of Ser. No. 789,927, Jan. 8, 1969, abandoned. This application Nov. 25, 1969, Ser. No. 879,919

Int. Cl. C02b *5/06;* **E21b** *43/25, 43/26*

U.S. Cl. 166—279 **23 Claims**

A method for introducing an inhibitor, e.g. an inhibitor against scale formation, into oil well brines is disclosed. This method comprises introducing into the porous reservoir structure, i.e. oil-bearing formation adjacent to the bore of an oil well a relatively water or brine insoluble polyvalent metal salt of the inhibitor, e.g. polyacrylic acid and/or hydrolyzed polyacrylamide, the polyacrylic acid having a molecular weight range of about 17,000 to 50,000, and the hydrolyzed polyacrylamide having from about 10 to 50 percent unhydrolyzed amide groups and a molecular weight of about 1,000 to 8,000, in which the metal is selected from the group consisting of alkaline earth metals, Zn^{++}, Cu^{++}, Pb^{++}, Fe^{+++}, Cr^{+++}, and Al^{+++}. The method comprises in situ formation of the relatively water or brine insoluble polyvalent metal salt of the inhibitor, e.g. polyacrylic acid and/or hydrolyzed polyacrylamide, in the reservoir structure by introducing into the porous structure a water-soluble salt of the inhibitor, e.g. the sodium salt of the polyacrylic acid and/or hydrolyzed polyacrylamide, and a water-soluble salt of the polyvalent metal in a strongly acidic, aqueous solution. In the in situ method the strong acid in solution initially inhibits reaction of the salts but is dissipated by the fluids in the oil-bearing formation and neutralized by the formation rock to allow reaction and formation of the desired water-insoluble metal salt of polyacrylic acid and/or hydrolyzed polyacrylamide in the formation.

3,704,751

METHOD FOR STIMULATING WELL PRODUCTION

Jack F. Tate, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed June 21, 1971, Ser. No. 155,309

Int. Cl. E21b *43/27*

U.S. Cl. 166—307 **16 Claims**

The production of hydrocarbons from a subterranean hydrocarbon-bearing formation containing acid-soluble components, such as one composed at least in part of dolomite or limestone, is stimulated by injecting into the formation a composition comprising an aqueous solution of a mineral acid having dissolved therein a phosphate ester of prescribed formula. The elimination of plugging of capillary openings within the formation and mineral scale deposition on production equipment due to post-precipitation of dissolved salts subsequent to acidization by means of the said phosphate ester results in a substantial improvement in hydrocarbon recovery.

3,704,752

APPARATUS FOR WORKING THE COMPOST OF MUSHROOM BEDS

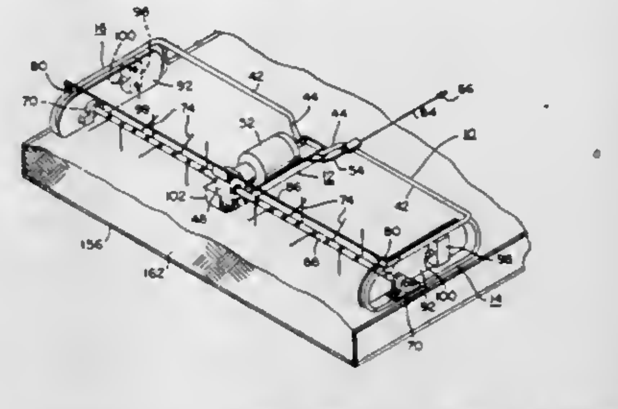
Thomas J. Piacentino, R.D. 2, Kennett Square, Pa.

Filed May 6, 1971, Ser. No. 140,667

Int. Cl. A01h *33/02, 33/12*

U.S. Cl. 172—116 **10 Claims**

A compost supported non-dirigible frame of a width for extending across a mushroom bed mounts a shaft and an electric motor and change speed unit operable for actuating the shaft. The shaft mounts a plurality of tines angularly spaced about the shaft and of a length for digging into the compost as they successively present downwardly when the shaft is actuated for working the compost and simultaneously advancing the frame progressively along the mushroom bed.



3,704,753

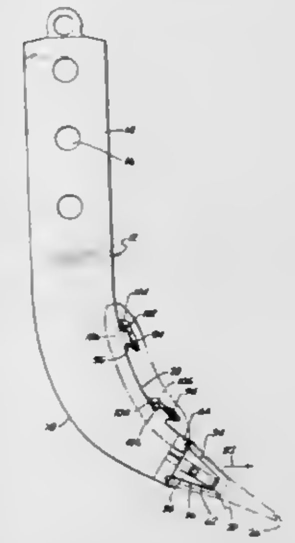
RIPPER SHANK

Hector Bernard Hasforth, Botony, Sydney, Australia, and William H. Wolff, Atherton, Calif., assignors to said Wolff by said Hasforth, a part interest

Filed April 29, 1970, Ser. No. 32,878

Int. Cl. A01b *13/08;* **E02j** *9/28*

U.S. Cl. 172—700 **3 Claims**



A ripper shank having a replaceable earth working tooth and a replaceable wear plate. Improved configurations that afford rapid installation and removal of the wear plate and earth working tooth on the shank. The wear plate and tooth are retained in place by removable cross pins that have retaining shoulders intermediate their ends.

3,704,754

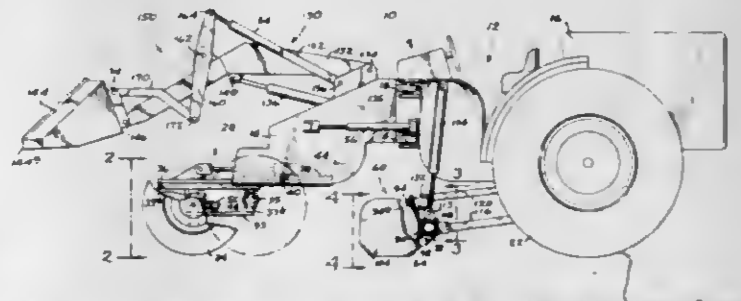
ARTICULATED VEHICLE HAVING AN ADJUSTABLE GRADER BLADE THEREON

Jack D. Layton, Salem, Oreg., assignor to Layton Manufacturing Company, Salem, Oreg.

Filed Feb. 19, 1970, Ser. No. 12,767

Int. Cl. E02f *3/12, 3/76*

U.S. Cl. 172—782 **13 Claims**



A vehicle having wheel-supported forward and rear frame sections which are pivotally interconnected for swinging relative to each other about an upright axis. The wheels supporting the forward frame section are steerable relative to the forward frame section, and power-operated means is provided for swinging the forward frame section relative to the rear frame section. The vehicle may be steered either by steering the front wheels, swinging the forward frame section, or by doing both. A grader blade is mounted on and follows the movement of the rear frame section. A loader boom and bucket are mounted on the forward frame section and follow the movement of the forward frame section. The grader blade extends transversely of the vehicle, and is extensible. The grader blade includes elongated blade sections connected by pivot means permitting swinging of the sections relative to each other about an axis extending longitudinally of the vehicle. This pivoted construction allows the blade to produce either a crown or a valley contour in the material it works.

3,704,755

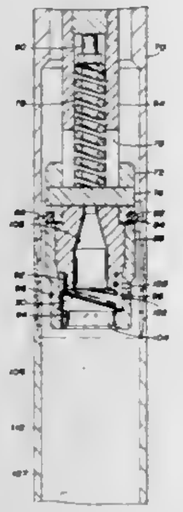
RETRIEVING AND LOWERING SYSTEM FOR A CORE BARREL

Tiete O. Wolda, Orillia, Ontario, Canada, assignor to Boyles Industries Limited

Filed June 18, 1971, Ser. No. 154,320

Int. Cl. E21b *9/20, 25/00*

U.S. Cl. 175—246 **13 Claims**



A lowering and retrieving system that may be used when core drilling, either up or down including drilling at any inclination. A latching washer in the body of the lowering and retrieving device grips an elongated spearhead attached to the core barrel. The spearhead opens a channel to allow fluid to bypass the lowering and retrieving device.

3,704,756

APPARATUS FOR LOWERING AND RETRIEVING A CORE BARREL

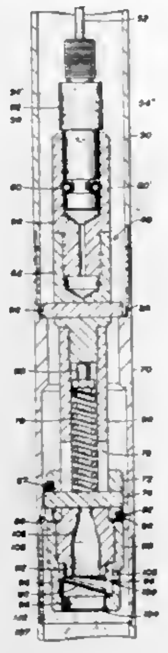
Tiete O. Wolda, Orillia, Ontario, Canada, assignor to Boyles Industries Limited

Filed July 19, 1971, Ser. No. 163,640

Int. Cl. E21b *9/20, 25/00*

U.S. Cl. 175—246 **11 Claims**

A lowering and retrieving system that may be used when core drilling, either up or down, including drilling at any inclination. A flexible seal element is mounted around the periphery of a lowering and retrieving device and looped over a pin on a movable actuator element. The flexible seal element forms a fluid seal with a hollow drill string allowing the lowering and retrieving device to be pumped through the drill string. An elongated spear head on a retractable core barrel contacts and moves the movable actuator element thereby changing the position of the flexible seal element and a fluid channel around the lowering and retrieving device is opened.



3,704,757

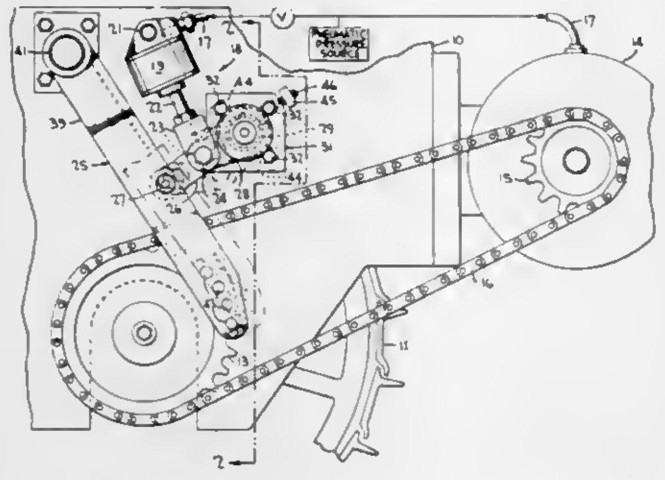
AUTOMATIC BRAKING MECHANISM

John W. Buress, III, Winston-Salem, N.C., assignor to Drill Carrier Corporation, Salem, Va.

Filed May 17, 1971, Ser. No. 143,982

Int. Cl. B62d *11/04;* **F16d** *65/24*

U.S. Cl. 180—6.48 **6 Claims**



Braking mechanism for a traction apparatus of the opposed traction unit type, automatically operable independent of the pneumatic control for the service brakes and operated by means of an air cylinder through the same pneumatic pressure source used for the chain drive of each traction unit. The braking mechanism includes a pivotally-mounted brake arm having sprocket teeth engaging means thereon movable into and out of engagement with the sprocket teeth of each chain drive sprocket wheel by means of a toggle linkage which, when collapsed by the air cylinder, moves the brake arm out of engagement and, when moved slightly past a dead-center position by the air cylinder, moves the brake arm into engagement under the assistance of a torsion spring.

3,704,758

GOLF CART

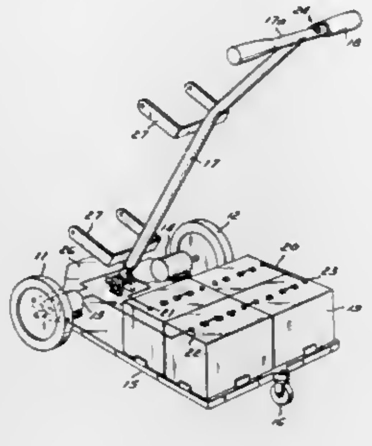
David Cropp, 501 Chestnut Street, Meadville, Crawford County, Pa.

Filed May 18, 1970, Ser. No. 38,331

Int. Cl. B62d *51/04*

U.S. Cl. 180—19 R **2 Claims**

The disclosure shows a vehicle suitable for carrying golf bags. The vehicle has two motor driven wheels, having permanent field motors connected in series so that in turning, one wheel can slow up or stop while the other wheel continues to rotate and thus drive the vehicle. The armature of one motor, while rotating, limits the current through the stalled motor so that the stalled motor does not overheat. The vehicle has self-contained multi-celled batteries which are connected to the motors through a tap changing switch on the handle. The vehicle has a third wheel which supports the back of the vehicle and the operator can hold onto the handle and thereby be pulled along.



3,704,759

ROAD WHEEL DRIVE ARRANGEMENT FOR AN ELECTRICALLY POWERED INDUSTRIAL VEHICLE

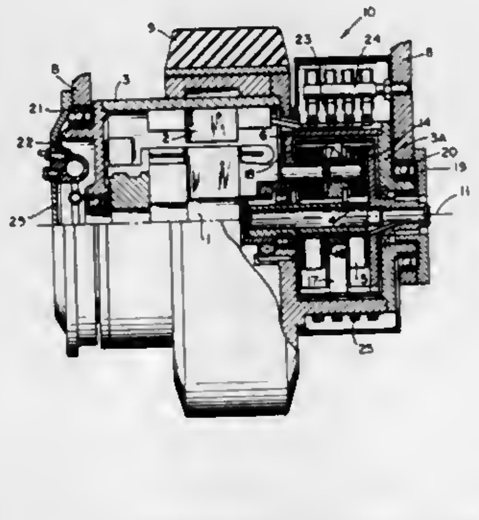
Emil Slavchev Vitkov; Milko Ivanov Petkov, and Gueorgui Stoylov Atanassov, all of Sofia, Bulgaria, assignors to DSO "-Balkancar", Sofia, Bulgaria

Filed Oct. 20, 1970, Ser. No. 82,464

Claims priority, application Bulgaria, Oct. 21, 1969, 13218

Int. Cl. B60k *7/00*

U.S. Cl. 180—65 F **1 Claim**



The outer rotor of a statorless electric drive motor and the drive wheel of an electric fork-lift truck or similar vehicle to be powered thereby are each directly connected to the outer motor case or housing. The housing is mounted for rotation with respect to the vehicle body. The central gear of a speed-reducing planetary gear set is affixed to the shaft of the inner rotor. The satellite or, alternatively, the annular ring gear of the set is directly connected to the rotatable motor housing, while the other of such annular or satellite gears is affixed to the body of the vehicle to immobilize such latter gear against rotation. Such an arrangement avoids the necessity of separate rotational connections among the inner and outer rotors and the drive wheel.

3,704,760

ELECTROPNEUMATIC PROPELLING SYSTEM FOR VEHICLES

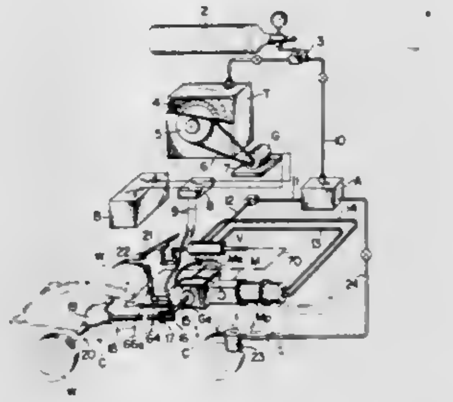
Kunimori Maruyama, Yokohama, Japan, assignor to Oscar Kogyo Kabushiki Kaisha, Tokyo-To, Japan

Filed June 22, 1971, Ser. No. 155,422

Claims priority, application Japan,

Int. Cl. B60l *11/14*

U.S. Cl. 180—66 B **6 Claims**



A system for electropneumatically propelling a vehicle comprises essentially a pneumatic motor and an electric motor. The pneumatic motor is driven by the air supplied under pressure from a source of compressed air such as a cylinder or a liquid-air tank, while the electric motor is driven by a storage battery in which is stored electrical energy produced by a generator, which is driven by a turbine operated by air supplied under pressure from the source of compressed air. Both the pneumatic motor and the electric motor are connected to transmission means linked to the driving wheels of the vehicle. The transmission means includes first and second differential means adapted for controlling the supply of air to the pneumatic motor and for causing the pneumatic motor to rotate in the same direction as a preselected rotational direction of the electric motor.

3,704,761

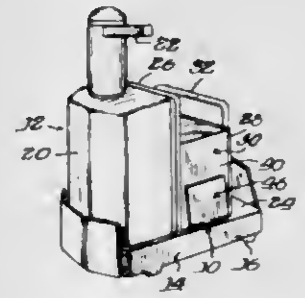
BATTERY SUPPORT ARRANGEMENT

Arthur M. Barrett, Jr., Lake Forest, Ill., assignor to Barrett Electronics Corporation, Northbrook, Ill.

Filed June 3, 1970, Ser. No. 42,933

Int. Cl. B62d *25/00*

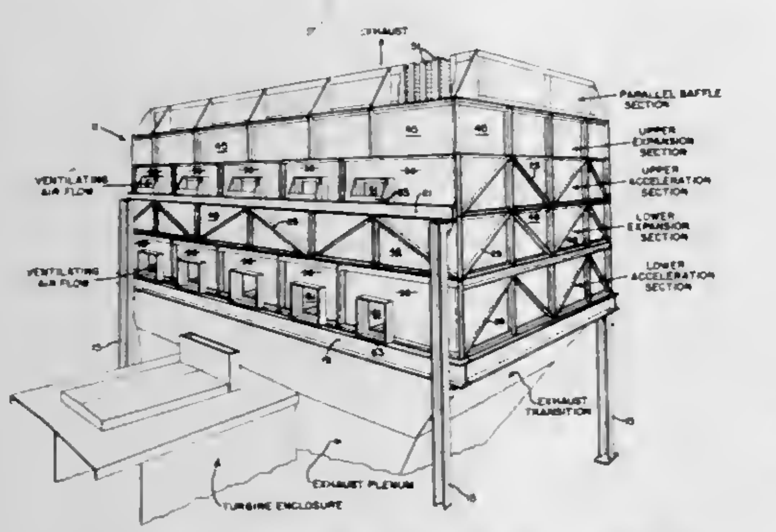
U.S. Cl. 180—68.5 **10 Claims**



An arrangement for supporting and releasably retaining a battery and the like in centered position on a carrier including a base plate adapted to support a pair of opposed gate members each having first and second plate portions forming an acute angle therebetween, the gate members being pivotal between first positions adapted to receive a battery therebetween and second positions to center the battery and lockingly retain it between the gate members.

3,704,762
GAS TURBINE EXHAUST SILENCER AND SUPPORT

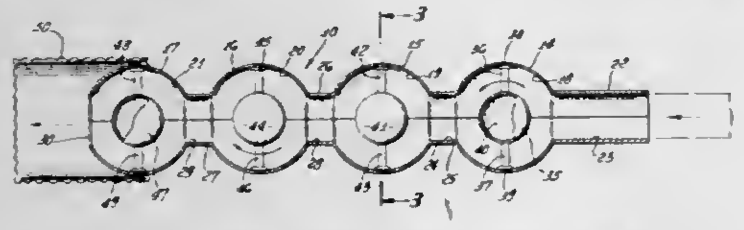
Thomas F. Smith, Greenville, S.C., and Richard E. Frederick, Baliston Lake, N.Y., assignors to General Electric Company
Filed Sept. 16, 1971, Ser. No. 181,002
Int. Cl. B64f *1/26;* **F01n** *1/10, 7/18*
U.S. Cl. 181—33 HB **8 Claims**



A free-standing, ventilated, gas turbine exhaust silencer which effectively reduces both high-frequency and low-frequency noise emissions. The silencer is supported on a structural frame adjacent to the exhaust end of a gas turbine. Two low-frequency silencing sections are each mounted on the structural frame in such a manner that they are free to expand and contract with temperature variations in order to avoid thermal stressing. A HIGH-frequency section is supported by the upper low-frequency station. The weight of said silencing sections is transferred to the structural frame by ventilated tunnels which pass through the said low-frequency sections and act as structural beams.

3,704,763
SILENCER

Richard B. Becker, 8534 Ocean View Ave., Whittier, Calif., and Clarence C. Chapman, 7860 Raviller Dr., Downey, Calif.
Filed Feb. 9, 1972, Ser. No. 224,857
Int. Cl. F01n *1/08, 7/02, 7/20*
U.S. Cl. 181—47 B **9 Claims**

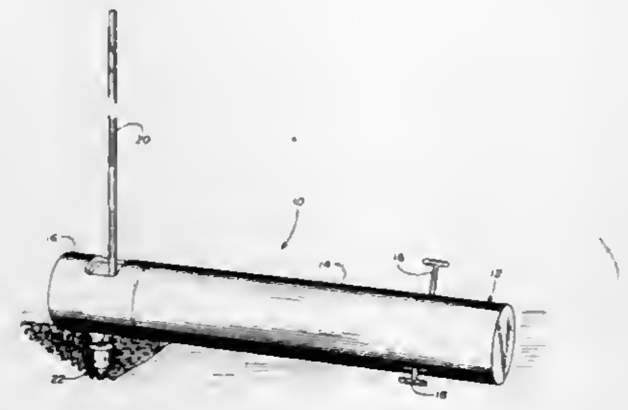


A device for reducing noise produced by a relatively low-powered high speed combustion engine is adapted to be attached to the tailpipe. The device has a series of inter-connected spherical spaces in horizontal spaced alignment with a hollow sphere mounted concentrically in each space. The device is preferably manufactured in two complementary halves which are then attached to each other to complete the device.

3,704,764
AIR DELIVERABLE SEISMIC SYSTEM

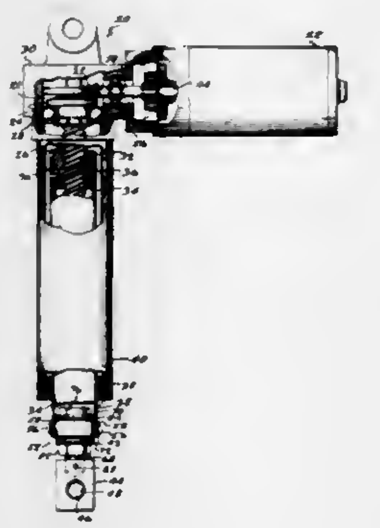
Harold B. Henderson, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 23, 1969, Ser. No. 887,555
Int. Cl. G01v *1/16*
U.S. Cl. 181—.5 VM **13 Claims**

An aerial delivery system includes a cylindrical container having blunt ends. One portion of the container houses an antenna and a seismic sensor. Another portion houses a pair of stabilizing feet and a motor for rotating the portions of the container relative to each other. In use, the container is dropped from an airplane, etc. Upon landing, the feet are extended and the orientation of the container is determined. Then, the one portion of the container is rotated until the antenna and the sensor are vertical. Finally, the antenna and the sensor are deployed.



3,704,765
OVERLOAD CLUTCH

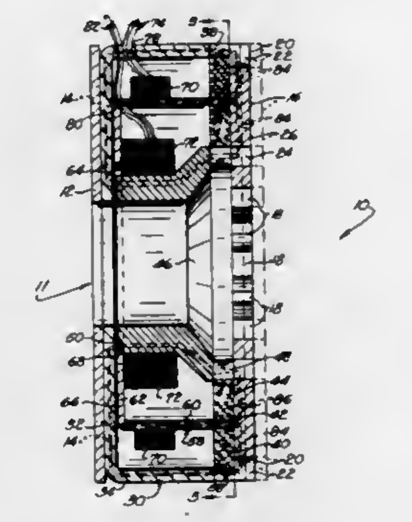
James Bruce Withrow, Charlotte, and Earl William Gardner, Concord, both of N.C., assignors to Duff-Norton Company, Inc., Charlotte, N.C.
Filed July 15, 1971, Ser. No. 162,943
Int. Cl. F16d *67/00*
U.S. Cl. 188—134 **17 Claims**



An overload clutch for a jack mechanism or the like located between a load and a travelling nut and protecting the motor and gearing against excessive torque development by allowing non-operating rotation of the nut when the applied torque exceeds the rotational restraint of the clutch. The clutch comprises a first component connected to the travelling nut through a tubular sleeve and having an axial bore through which a second component extends for non-rotatable attachment to a load therebeyond. The second component has a head on its inner end and a nut between its outer end and the first component, and pairs of Belleville spring washers are arranged in opposing concave face-to-face relation on the second component between the second component head end and the first component and between the nut and the first component, with the nut serving to compress the washers to provide frictional resistance therethrough and thereby apply the rotational restraint of the load to the travelling nut for load manipulating operation of the travelling nut while allowing frictionally resisted relative rotation of the travelling nut when the applied torque exceeds the frictional resistance of the compressed Belleville spring washers.

3,704,766
ELECTROMAGNETIC FRICTION COUPLING

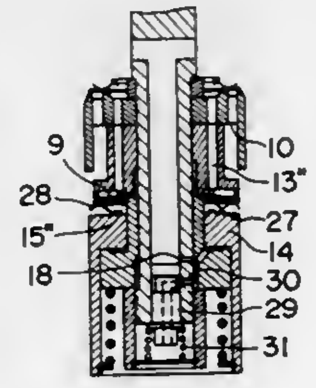
Ralph L. Jaeschke, Kenosha, Wis., assignor to Eaton Corporation, Cleveland, Ohio
Filed Dec. 28, 1970, Ser. No. 101,698
Int. Cl. F16d *65/34*
U.S. Cl. 188—164 **12 Claims**



A brake mechanism for accurately positioning a member to be braked includes a first member and a second member rotatable relative to the first member. The first and second members have friction surfaces thereon which are engaged during braking of the members. A coil is provided for establishing a magnetic field having lines of flux which travel through a flux path, to thereby develop a braking torque between the first and second members. The first and second members each include a plurality of spaced apart magnetic conductive portions thereon through which the flux lines pass. When the conductive portions of the first and second members are aligned, the intensity of the flux lines in the flux path is maximized resulting in the frictional engagement of the first and second members and causing the rotation of the second member to be stopped at a predetermined position.

3,704,767
OIL-TYPE VIBRATION DAMPER

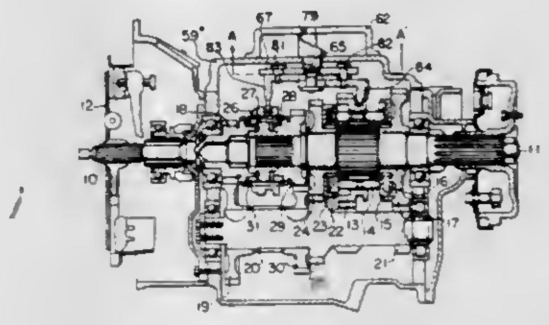
Tatsuya Takagi, 6-10, Araebisu-machi, Nishinomiya-shi, Hyogo-ken, Japan
Division of Ser. No. 738,281, June 19, 1968, Pat. No. 3,570,635. This application July 9, 1970, Ser. No. 53,548
Claims priority, application Japan, Dec. 11, 1967, 42/79345; Jan. 10, 1968, 43/1128; March 27, 1968, 43/19435
Int. Cl. F16f *9/348, 9/50*
U.S. Cl. 188—280 **3 Claims**



An oil-type vibration damper includes a piston and a cylinder, and either one or two sets of pressure control valves. With two sets of pressure control valves, one set effects damping of vehicles vibrations above supporting springs and the other set effects damping of vehicle vibrations below the supporting springs. When only one set of pressure control valves is used, this set effects damping of both vehicle vibrations, but with different response characteristics for each type of vehicle vibration. A pusher member detects changes in the frequency of vibrations to act automatically on either one pressure control valve or the single pressure control valve to either close the one pressure control valve or increase the resilient force on the single pressure control valve in accordance with the frequency of the vibrations.

3,704,768
SPEED CHANGER

Koichiro Hirozawa, and Shigeo Takahashi, both of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Nov. 2, 1970, Ser. No. 85,940
Claims priority, application Japan, Oct. 31, 1969, 44/87450; Oct. 31, 1969, 44/87451; Oct. 31, 1969, 44/87452; Oct. 31, 1969, 44/87453
Int. Cl. F16d *67/00*
U.S. Cl. 192—3.57 **8 Claims**

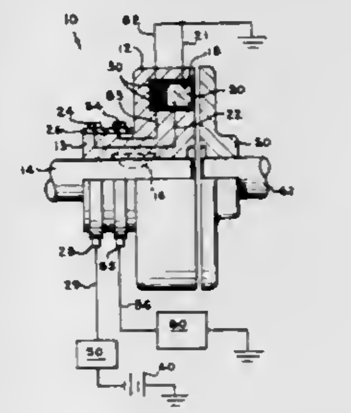


This invention relates generally to a speed change gearing for a powered and wheeled vehicle, especially an aotomotive vehicle. More specifically, it relates to an intermittent control of the speed change gearing for transmitting power in the case of selective engagement of the gears contained therein.

The improvement resides in the provision of such means adapted for interrupting the engagement of a clutch unit provided in the speed changer, by one and the same servo-pressure which is utilized for the actuation of the fork means to execute the on-off control of the clutch, so as to reduce otherwise invited time lag between the operation of fork servo and that of clutch servo to a possible minimum.

3,704,769
ONE-WAY TIME DELAY ELECTROMAGNETIC CLUTCH

Glenn S. Spencer, Horseheads, N.Y., assignor to The Bendix Corporation
Filed Sept. 21, 1971, Ser. No. 182,338
Int. Cl. F16d *27/06*
U.S. Cl. 192—52 **11 Claims**

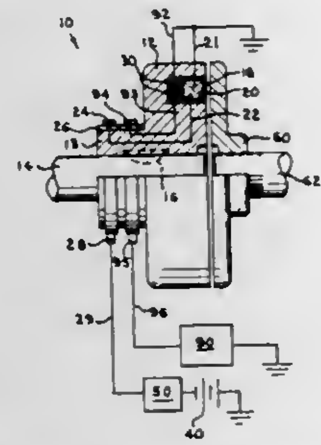


An electromagnetic clutch or brake including means for retarding or slowing the engagement or release of the armature is shown herein. An additional coil comprising one or more turns of high current capacity wire and at least one diode in series circuit relationship therewith is included within the magnet body forming an electromagnetic coupling with the main coil in order to impede the generation or collapse of the main coil-induced electromagnetic field. Control means connected in series circuit relationship with the additional coil comprising at least one diode and a switch and located externally of the clutch may also be included so that application of the one-way magnetically retarding coil and diode means can be selective.

3,704,770
ADJUSTABLE TIME DELAY ELECTROMAGNETIC CLUTCH

Glenn S. Spencer, Horseheads, N.Y., assignor to The Bendix Corporation

Filed Sept. 21, 1971, Ser. No. 182,339
Int. Cl. F16d *27/06*
U.S. Cl. 192—52 **9 Claims**

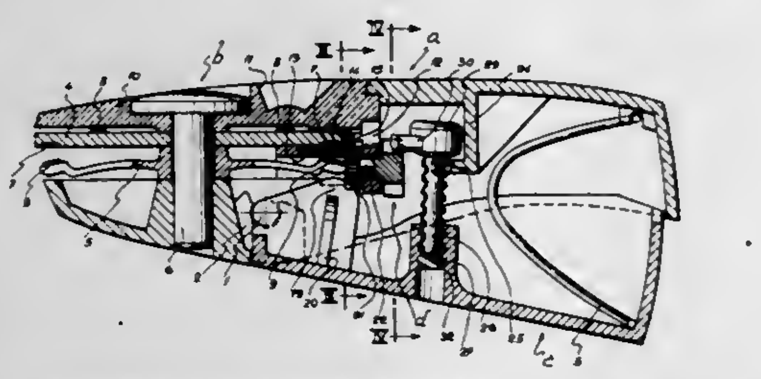


An electromagnetic clutch or brake including means for retarding or slowing the engagement and/or release of the armature is shown herein. An additional coil comprising one or more turns of high current capacity wire is included within the magnet body forming an electromagnetic coupling with the main coil in order to impede the generation and/or collapse of the main coil-induced electromagnetic field. A variable resistor or equivalent means is connected in series circuit relationship with the additional coil in order to selectively vary the amount of eddy current permitted to be induced in the additional coil, therefore providing means for regulating the response time of the armature to energization and deenergization of the primary coil. Control means connected in series circuit relationship with the additional coil and variable resistor comprising at least one diode and a switch may also be included so that application of the magnetically retarding coil can be selective and/or unidirectional.

3,704,771
MANUAL LABELING DEVICE

Francisco Barcelloni Corte, Ruta Panamercana Kilm, 26, 300, Buenos Aires, Argentina

Filed Aug. 20, 1971, Ser. No. 173,456
Claims priority, application Argentina, Jan. 28, 1971, 233699
Int. Cl. B41j *1/30*
U.S. Cl. 197—6.7 **8 Claims**

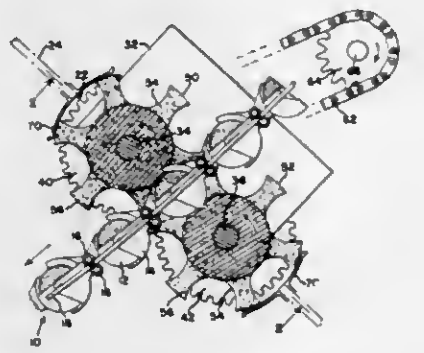


A labeling device for printing characters on a belt and the like. A body and a lever are pivotally connected with a spring normally urging them apart. A pair of closely arranged rotary members are provided with cooperating characters thereon having a space therebetween for receiving the belt on which the characters are to be imprinted by pressing. Means are provided for guiding the belt to the position between the rotary members for imprinting. A toothed wheel engages the belt to drive it in response to rotation of a drive wheel. The drive wheel is rotated only after the body and lever have been moved or pressed together. A threaded pin is rotatably and threadably received in the lever and has a head with an arm which operatively engages the drive wheel. When the lever and body are pressed together, the arm moves out of engagement with the drive wheel, and when pressure is released and the spring forces the body and lever apart, the pin and thereby the arm are pivoted in the opposite direction so as to engage and rotate the drive wheel and thereby the belt engaging wheel so that the belt is moved a distance equal to at least one character.

3,704,772
AMMUNITION FLOW PATH FIRE PROPAGATION PREVENTION SYSTEM

Otto H. Meier, Shelburne, Vt., assignor to General Electric Company

Filed Oct. 12, 1970, Ser. No. 79,931
Int. Cl. B65g
U.S. Cl. 198—1 **3 Claims**

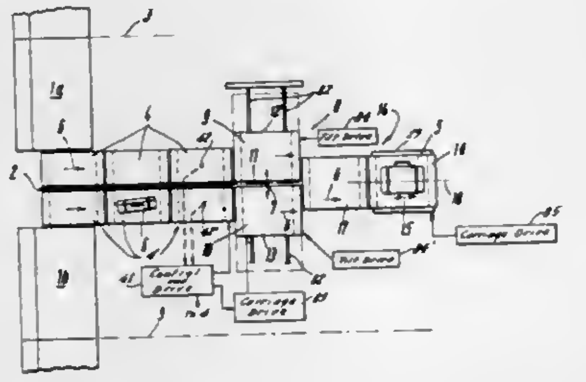


A continuously effective fire propagation barrier comprises a pair of counter-rotating baffle wheels disposed in an aperture in a stationary fire wall.

3,704,773
AIRPORT CHECK-IN COUNTER WITH BAGGAGE RECEIVING AND HANDLING FACILITY

Gerhard Lingg, Leimen, and Eberhard Hellermann, Morfelden, both of Germany, assignors to Mannesmann-Geisel GmbH. & Co., Mannheim, Germany

Filed Aug. 30, 1971, Ser. No. 176,070
Claims priority, application Germany, Feb. 26, 1971, P 21 10 132.6
Int. Cl. B65j *47/26*
U.S. Cl. 198—1 **5 Claims**

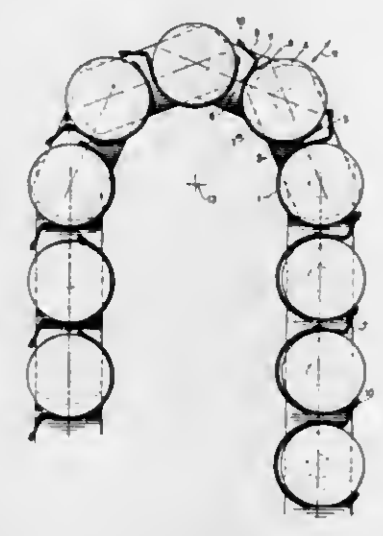


A twin check-in counter having two counter desks and baggage receiving areas next to the counter desks and next to each other, there being a pallet conveyor facility behind the counter to be shared by the two counters; in each receiving area begins a flight of conveyor belt for moving baggage towards the pallets; two belts are disposed behind the two flights of conveyor belts for tilting luggage on its side, they are laterally displaceable, to align either of them with the pallet conveyor facility.

3,704,774
APPARATUS, LIKE A STERILIZER, WITH A CONVEYOR

Johannes Bernardus Van der Winden, Amstelveen, Netherlands, assignor to Stork Amersterdam, Amstelveen, Netherlands

Filed Aug. 21, 1970, Ser. No. 66,031
Claims priority, application Netherlands, Aug. 26, 1969, 6912986
Int. Cl. B65g *17/12, 17/16*
U.S. Cl. 198—152 **2 Claims**



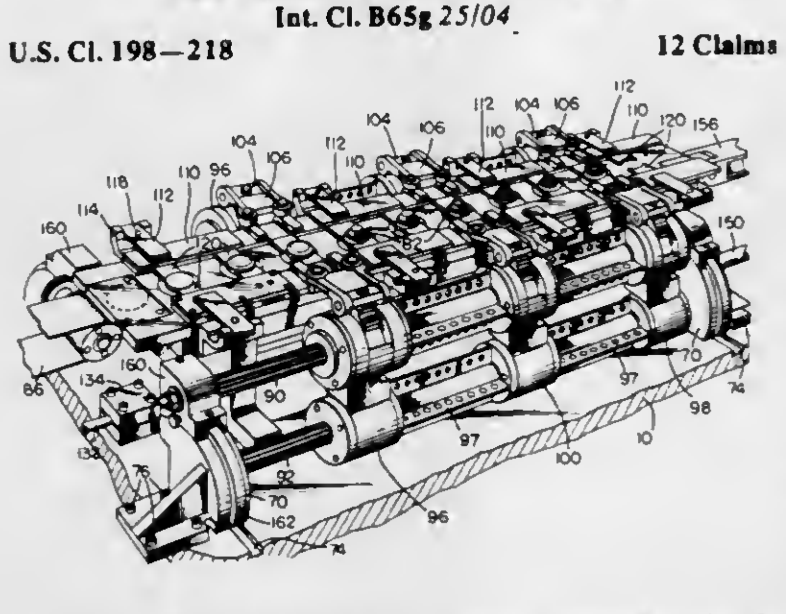
Sterilizers for e.g. tins of food, having a conveyor travelling in vertical loops and comprising two chains with carriers for supporting the tins therebetween. Each carrier is attached to two opposite chain links and has a trough-like shape with a discharge opening for the tins along its entire length.

In vertical portions and bottom curves of the conveyor's path these openings are barred by sideways protruding lips on edges of adjacent carriers. In the top curves the tins may be placed into or discharged from the carriers since the protruding lips give access to the opening of adjacent carriers due to the different angular position of the chain links.

3,704,775
WORKPIECE TRANSFER MECHANISM

Frank C. Eickenhorst, Mason, Ohio, assignor to The Minster Machine Company, Minster, Ohio

Filed Sept. 14, 1970, Ser. No. 71,670
Int. Cl. B65g *25/04*
U.S. Cl. 198—218 **12 Claims**

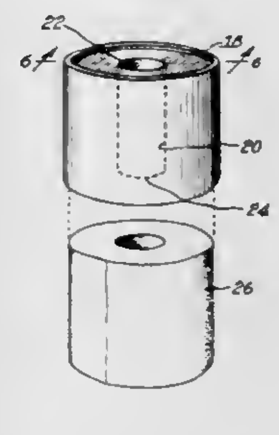


The specification discloses a workpiece feeding device for advancing workpieces step by step from an incoming station into a plurality of work stations and then to an outgoing station. The device has frame members reciprocable in the direction of movement of the workpieces and movably carried by the frame members are workpiece engaging elements arranged in opposed relation and movable toward each other to engage workpieces and away from each other to release workpieces. The feeding device is particularly adapted for use with a mechanical press and is arranged to be driven by the press crankshaft so as to operate in timed relation to the movement of the press slide.

3,704,776
BATHROOM (HOUSEHOLD) ACCESSORY

Catherine A. Collins, 108 72nd St., Brooklyn, N.Y.

Filed June 26, 1970, Ser. No. 50,023
Int. Cl. A45c *11/00*
U.S. Cl. 206—1 R **1 Claim**

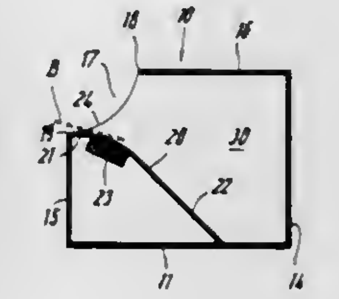


A cylindrical member closed at at least one end has an axial bore extending through the closed end and sealed off at a point adjacent the other end of the member. This structure can be used as a base with flowers disposed in the bore.

3,704,777
CONTAINER FOR MAGNETIZABLE ARTICLES

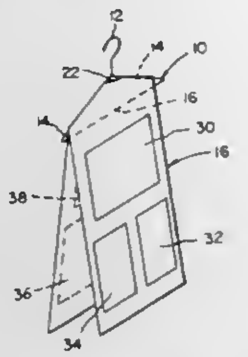
Eckhard Linnebuhr, deceased, late of Herne, Germany (by Karin Linnebuhr, heir), assignor to Arlac-Werk Heiko Ippen KG, Hamburg, Germany

Filed Aug. 12, 1971, Ser. No. 171,101
Claims priority, application Germany, Aug. 26, 1970, G 70 31 863.7
Int. Cl. A45c *11/00*
U.S. Cl. 206—1 R **10 Claims**



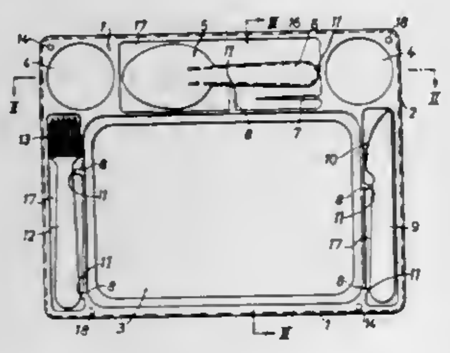
A container for storing and dispensing magnetizable articles such as paper clips, nails and the like, consisting substantially of a box shaped casing defining one or a plurality of chambers for receiving such articles. When more than one chamber is provided, adjacent chambers are separated by a dividing wall. Each chamber includes an opening, a curved guide surface extending from the opening towards the container interior and a bar magnet arranged below the guide surface.

3,704,778
GARMENT BAG
Richard Raschdorf, 15 Tidewater Avenue, Massapequa, N.Y.
Filed Sept. 18, 1970, Ser. No. 73,381
Int. Cl. B65d *85/18*
U.S. Cl. 206—7 **3 Claims**



A garment bag which may be used to hold a suit and other clothing accessories usually worn with the suit. It comprises a hanger for carrying the jacket and pants of the suit and a sheet of material covering the hanger which has a plurality of article holding pockets. The pockets are used to carry other items of clothing commonly worn with the suit. A covering which encloses the sheet protects the suit and other clothing from soiling.

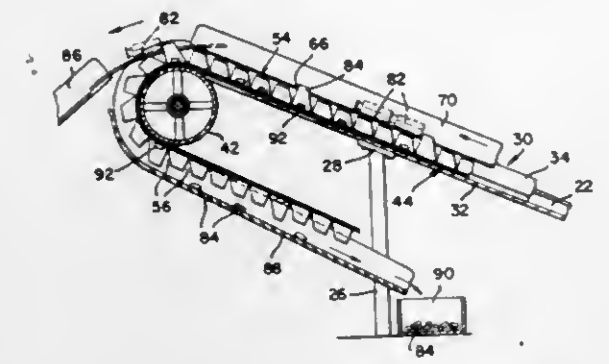
3,704,779
FOOD SERVICE TRAY WITH CUTLERY
Paul Nigg, Altstatten, Switzerland, assignor to Ego Werke AG, Altstatten, Switzerland
Filed Sept. 28, 1970, Ser. No. 76,091
Claims priority, application Switzerland, Jan. 30, 1970, 1320/70
Int. Cl. B65d *79/00, 83/00*
U.S. Cl. 206—47 R **8 Claims**



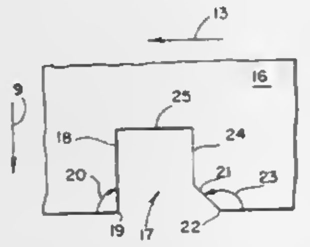
Throw-away food service tray made of plastic material, with integral break-off cutlery, the device comprising a substantially rectangular receptacle for containing food items, a knife, a fork and a spoon, the three cutlery pieces being protected by a surrounding reinforced frame and arranged so that they can easily be broken out by hand by the user.

3,704,780
SEPARATOR-CONVEYOR
Samuel S. Aldlin, 214 Beaumont St., and Stephen H. Aldlin, 3855 Shore Parkway, both of New York, N.Y.
Filed June 24, 1971, Ser. No. 156,249
Int. Cl. B07c *5/06*
U.S. Cl. 209—73 **11 Claims**

A separator-conveyor for the product and scrap of blow-molding apparatus in which the product drops between spaced, upwardly and outwardly convergent guide plates onto the top of closely spaced flat, rigid cleats arranged in edge-to-edge relation longitudinally of an endless conveyor belt. The cleats have their top edges terminate short of the convergent edges of the guide plates and the blow molding products rest on top of the cleats and against the edges of the guide plates, the scrap dropping between the guide plates to each side of the cleats. In one embodiment of the invention spaced, selected of the cleats are of higher altitude and extend into the space between the guide plates to act as pushers for the blow molded products.



3,704,781
INFORMATION STORAGE CARDS
John H. Lanahan, Whitesboro, and William W. Abraham, Utica, both of N.Y., assignors to Mohawk Industrial Laboratories, Inc., Vernon, N.Y.
Filed Aug. 11, 1970, Ser. No. 62,901
Int. Cl. B07c *5/34*
U.S. Cl. 209—80.5 **15 Claims**

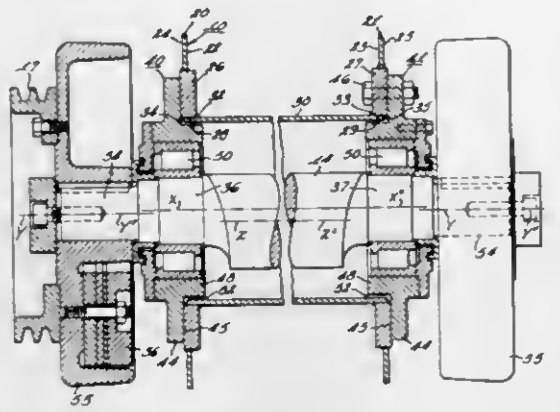


Information storage cards are provided with notches on an edge thereof at a location corresponding to information on the card. The notches are utilized for the selection of certain cards from a plurality of edge-aligned cards. According to the present invention, the notches have a novel configuration which facilitates separation of the desired cards. In a first embodiment, each notch is defined by a first side extending from a point at the card edge inwards at an angle of more than 90°, preferably 120° to 150°, with respect to the horizontal and by a second side extending from a point spaced from said first point on the card edge inwards at an angle of not more than 90° with respect to the card edge, both angles being taken in a sense through the card material and not through the notch opening. In another embodiment, both sides of the notch extend inwards at an angle of less than 90° taken in a sense through the card material.

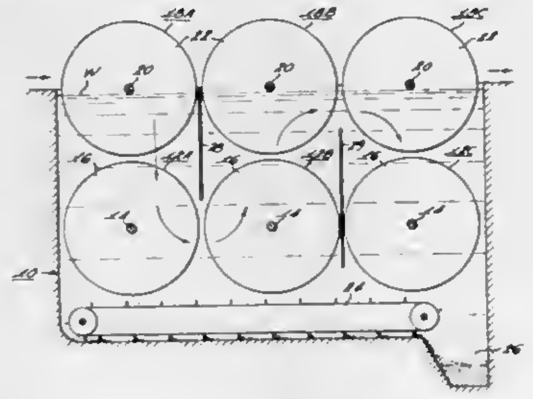
3,704,782
UNIT BODY VIBRATING SCREEN WITH DISTORTION FREE BEARING ASSEMBLIES
Mathew P. Hahn, Wauwatosa, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Aug. 28, 1970, Ser. No. 67,832
Int. Cl. B07b *1/28*
U.S. Cl. 209—326 **1 Claim**

A vibrating screen is disclosed of unit body construction having a cylindrical vibrator housing welded on each end to vertical side walls of a screen body, to utilize the vibrator housing as a unitary part of the screen body. Bearing housing

assemblies fitted to journal ends of a vibrator shaft in the housing, are provided with a collar connected to outer surfaces of the side walls around apertures defined therein in register with the cylindrical vibrator housing. Back bearing housing is provided with a cylindrical portion projecting along the central axis of the collar, inward of the adjacent side wall and into the adjacent end of the cylindrical vibrator housing to extend bearing support of the vibrator shaft to within the space between the side walls of the screen body. The cylindrical portion of the bearing housing is spaced radially inward of the vibrator housing along the entire axial length of the cylindrical portion of the bearing housing to provide a clearance around the entire circumference of the cylindrical portion of the bearing housing and isolate the cylindrical portion of the bearing housing from distortion of the vibrator housing.



3,704,783
APPARATUS FOR TREATING SEWAGE
Ronald L. Antonie, Milwaukee, Wis., assignor to Autotrol Corporation, Glendale, Wis.
Filed June 17, 1970, Ser. No. 46,968
Int. Cl. C02c *1/10*
U.S. Cl. 210—151 **7 Claims**

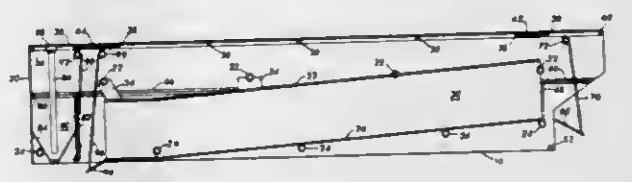


A waste water treatment apparatus and method in which completely submerged movable biological contactors, such as rotating disks, are used to provide biological treatment of waste water in a treatment tank.

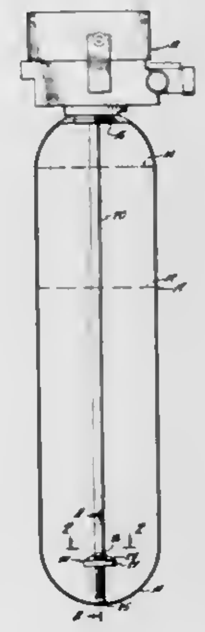
The completely submerged biological contactors provide a surface for attachment and growth of microorganisms and provide contact between the attached biomass and the impurities in the waste water. Suitable aerating means, such as partially submerged rotating disks, provide aeration of the waste water to maintain aerobic biological activity in the attached biomass on the completely submerged biological contactors.

3,704,784
FLOATING OIL SKIMMER
Donald E. Craggs, 223 Burnett St., and Richard S. Gillen, 1330 Beachmont St., both of Ventura, Calif.
Filed July 27, 1970, Ser. No. 58,364
Int. Cl. C02b *9/02*
U.S. Cl. 210—242 **8 Claims**

A floating oil skimmer for recovering oil from the surface of a body of water is disclosed. The skimmer is comprised of an elongated, box-like skimming unit having an open front equipped with an adjustable inlet lip, an oil and water separation zone, adjustable oil overflow weir, an oil collection sump, and a water outlet gate. A buoyant pontoon section is removably attached at each side of the skimming unit to render the apparatus buoyant. The pontoon sections are easily detachable to facilitate land transport of the device.



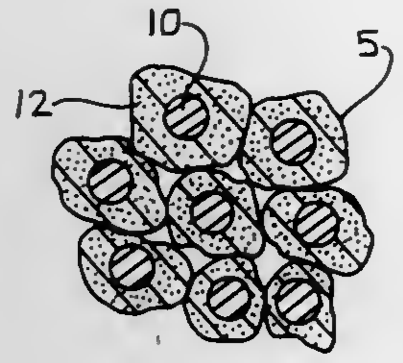
3,704,785
WATER SOFTENER DEFLECTOR-DISTRIBUTOR STRUCTURE
Robert E. Marsh, 12200 Montecito Road, Seal Beach, Calif.
Filed Sept. 15, 1971, Ser. No. 180,738
Int. Cl. B01d *23/10*
U.S. Cl. 210—285 **21 Claims**



There is provided, in association with the collector-distributor tube of a water softener tank, a baffle or deflector member for conforming to an ideal pattern the distribution of liquid flowing from perforations at the perforated end of the tube that is immersed in a bed of ion-exchange resin in the tank. The deflector is positioned adjacent to the uppermost of the perforations in the tube and is apertured to permit some flow-through of liquid emerging from the tube through the perforations, while revertively deflecting a portion of the liquid to cause it to spread and flow generally uniformly through the bed of resin instead of channeling in close proximity to the tube in its flow toward the other end of the tank.

3,704,786
PARTICULATE FILTER MEDIA HAVING A GRADIENT OF REMOVAL RATINGS
Marc Lerner, Swan Lake, N.Y., and Giora Erlich, 220 West Jersey St.
Filed Aug. 30, 1971, Ser. No. 176,182
Int. Cl. B01d *23/10*
U.S. Cl. 210—290 **7 Claims**

A particulate filter bed in which the particles define a generally uniform gradient of removal ratings of decreasing coarseness from top to bottom, and a method of producing the filter particles therefor are provided. The bed comprises a multiplicity of particles of uniformly decreasing size and increasing specific gravity from top to bottom. The particles have cores of approximately equal size and specific gravity and outer coatings of varying thicknesses, but equal specific gravity. The specific gravity of the outer coating is substantially less than the specific gravity of the core, so that the overall specific gravity of the larger particles is less than that of the smaller particles. The method comprises encapsulating the higher specific gravity core material with lesser specific gravity material by spray coating or the like.



3,704,787

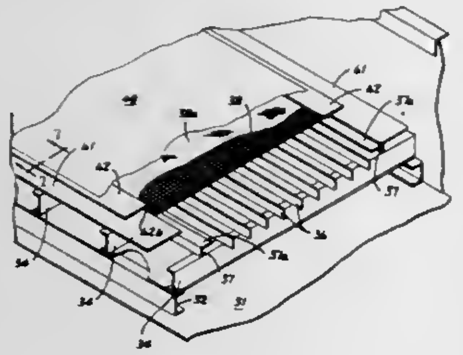
SEAL FOR DISPOSABLE MEDIA FILTER APPARATUS

Orien K. Norton, 2011 Elizaville Road, Lebanon, Ind.

Filed Nov. 23, 1970, Ser. No. 91,881

Int. Cl. B01d *33/00*

U.S. Cl. 210—387 **6 Claims**



A filter apparatus in which a sheet of disposable filter media is moved by a carrier belt over the open top of a tank subjected to sub-atmospheric pressure, with liquid to be filtered disposed on the top face of the filter media to be drawn therethrough into the tank, and having seals formed at the side margins of the carrier belt and travelling with the belt to maintain the sub-atmospheric pressure in the tank.

3,704,788

SEWAGE TREATMENT SYSTEM

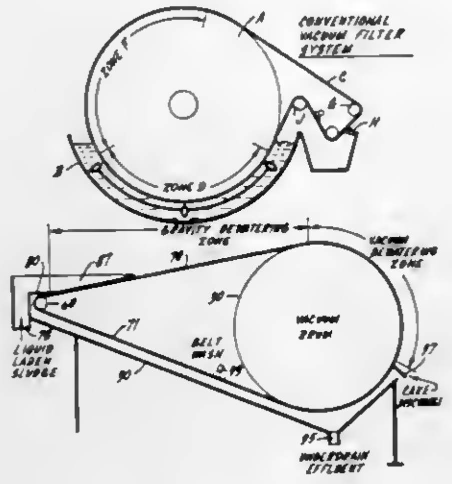
Brian L. Goodman, and Robert B. Higgins, both of Overland Park, Kans., assignors to Ecodyne Corporation, Chicago, Ill.

Filed Jan. 11, 1971, Ser. No. 105,189

Int. Cl. B01d *33/14*

U.S. Cl. 210—401 **6 Claims**

A concentrator system having a large diameter vacuum drum over which an endless filter media screen is trained. The endless screen has an overall length substantially greater than the circumference of the drum and is trained over an idle roller horizontally displaced from the drum. Solid containing liquid slurry or sludge is flowed onto the generally horizontal upper reach of the screen adjacent the roller by horizontal feed. As the screen carries the slurry or sludge away from the feed end, gravity filtering of liquid through the screen takes place. When the screen passes over the drum, vacuum dewatering further reduces the liquid content.



3,704,789

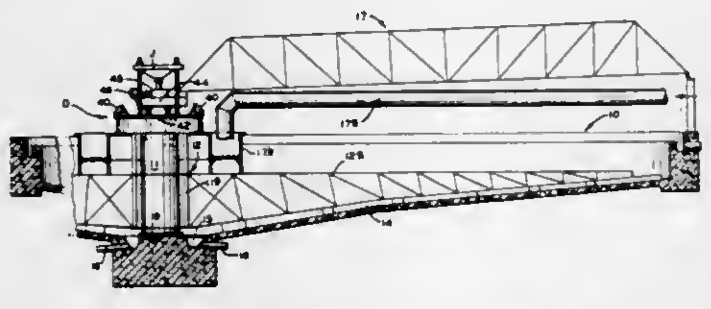
CONTINUOUS SEDIMENTATION TANK WITH CENTER-PIER SUPPORTED SEDIMENT RAKING APPARATUS

Theodore M. Jablon, Stamford, Conn., and Russell C. Raynor, South Salem, N.Y., assignors to Dorr-Oliver Incorporated, Stamford, Conn.

Continuation of Ser. No. 748,893, June 21, 1968, abandoned, which is a continuation-in-part of Ser. No. 537,170, March 24, 1966, abandoned. This application Sept. 8, 1969, Ser. No. 856,054

Int. Cl. B01d *21/12*

U.S. Cl. 210—531 **32 Claims**



A drive head for a center pier-supported rake structure in a sedimentation tank, featuring a peripherally overhanging top structure mounted on a turntable base, and carrying drive means for an externally toothed bull gear connected to the rake structure, and supported for rotation on the turntable base below said overhanging top structure.

3,704,790

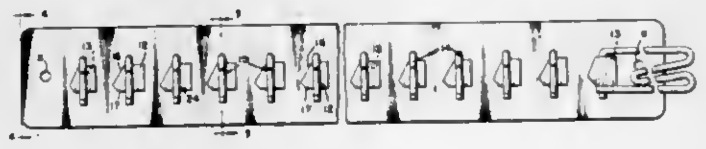
NECKTIE RACK

Salvatore J. Rock, 1809 Brickell Avenue, Apt. 417, Miami, Fla.

Filed Sept. 3, 1970, Ser. No. 69,400

Int. Cl. A47f *7/00*

U.S. Cl. 211—13 **2 Claims**



A necktie rack having a plurality of removeable legs, each leg for supporting a necktie and anchored through a cylindrical aperture in an elongated supporting rack, each leg having a first end portion, a middle portion and a second end portion, said first end portion engaged through said aperature, said middle portion for receiving and supporting a necktie and said second end portion resiliently in contact with said first end portion, thereby removeably locking said leg to said supporting rack.

3,704,791

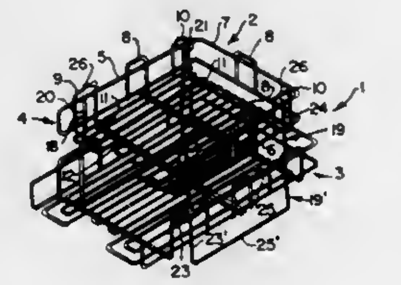
WIRE CORRESPONDENCE TRAY

Ira Bruce Young, Jr., 4215 Cromwell Road, Chattanooga, Tenn.

Filed Feb. 24, 1971, Ser. No. 118,382

Int. Cl. A47f *3/14, 5/01*

U.S. Cl. 211—126 **3 Claims**



A wire correspondence tray which is economically manufactured from strong wire and which includes a bottom, opposite sides, a back, and support means extending downwardly from opposite sides of the tray, said support means comprising a brace for the side portions of the tray and being flared downwardly and outwardly from the plane of the sides of the tray whereby a plurality of trays may be stacked one upon the other without creating stresses in the support portions of the tray. Detent means are provided in the side portions of the tray for cooperative association with the support portion of another tray to hold the trays in assembled relationship.

3,704,792

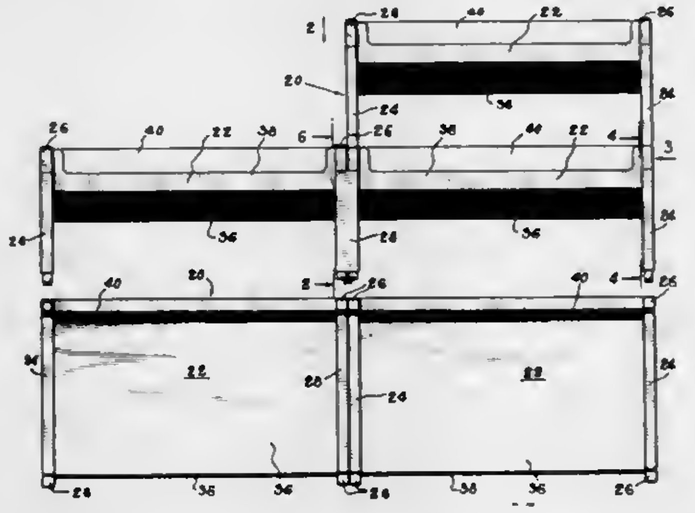
KNOCK-DOWN DISPLAY

Lee R. Wiese, Tenafly, N.J., assignor to Henschel-Steinau, Inc.

Filed June 21, 1971, Ser. No. 154,872

Int. Cl. A47f *3/14, 5/10*

U.S. Cl. 211—126 **8 Claims**



A knock-down display having a product supporting tray and combined end supports and legs which mate with and support the tray at three points so that a vertically stacked assembly and/or an end to end linear relationship of a plurality of trays may be formed. Each of the combined side supports and legs mates with the tray at three points to thereby provide a rigidly supported structure.

3,704,793

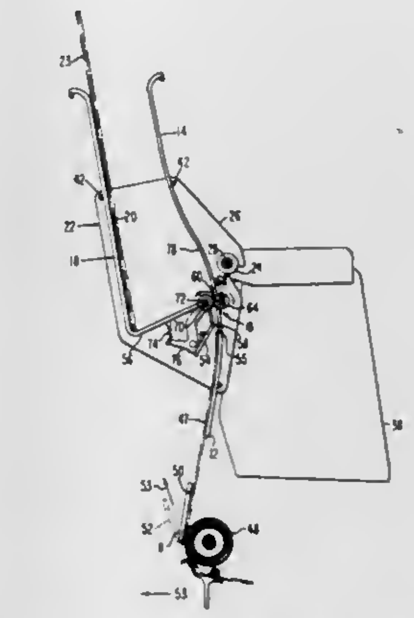
SHEET STACKING DEVICE

Edward A. Nicol, Farmington, and Harold M. Frederick, Birmingham, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed April 2, 1971, Ser. No. 130,583

Int. Cl. B65h *31/22*

U.S. Cl. 214—7 **9 Claims**



A sheet stacking device for serially stacking sheets in a substantially upright position where sheet ejection means impels a sheet upwardly into a vertically disposed sheet retainer. A sinuous guide opposingly displaced from the sheet retainer directs the sheet into engagement with the injecting means and assists in displacing the sheet securely into the sheet retainer by deflecting and bending the sheet in a predetermined degree and direction.

3,704,794

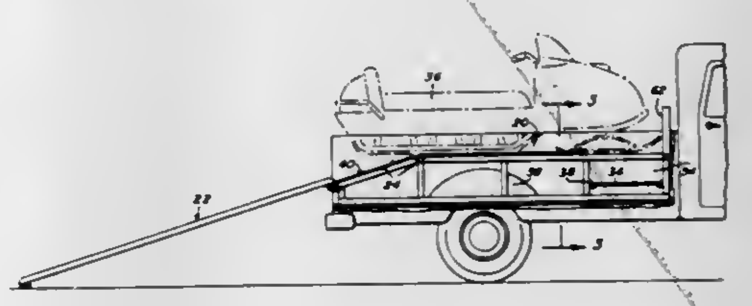
VEHICLE MOUNTED EQUIPMENT DECK AND RAMP

James R. Flamm, 227 East Main, Rexburg, Idaho

Continuation-in-part of Ser. No. 12,193, Feb. 18, 1970, Pat. No. 3,613,920. This application Nov. 17, 1970, Ser. No. 90,328

Int. Cl. B65g *67/02*

U.S. Cl. 214—85 **10 Claims**

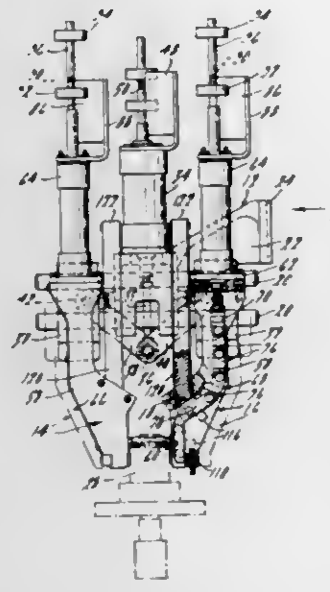


A support deck selectively mountable within a pickup truck box so as to define an elevated platform over the wheel well covers whereby the full width of the box can be utilized for the accommodation of snowmobiles or the like. The deck, either in its entirety or along the rear portion thereof, slopes downwardly so as to facilitate the movement of snowmobiles thereon and therefrom. Access to the rear of the deck is provided by means of a removable inclined ramp.

3,704,795
REINFORCEMENT DISPENSING MECHANISM

Norman S. Loren, Livonia, and Theodore L. Porter, Sterling Heights, both of Mich., assignors to Enterprise Machine Products Corporation, Mt. Clemens, Mich.

Filed May 18, 1971, Ser. No. 144,460
Int. Cl. B65g *59/06*
U.S. Cl. 214—8.5 F **10 Claims**



A mechanism for dispensing and accurately positioning metallic reinforcing elements within a mold cavity of an automatic casting machine in appropriate timed relationship relative to the mold assembly cycle.

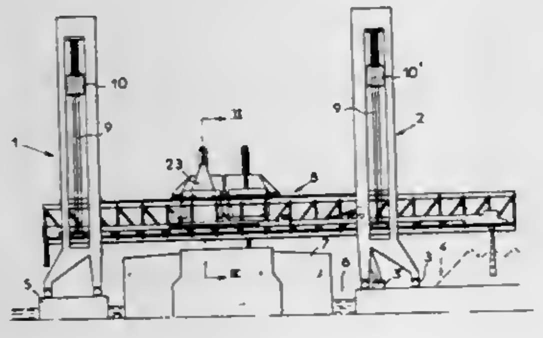
3,704,796
PLANT FOR UNLOADING AND HANDLING LOOSE SOLID MATERIAL

Pierre de Demandolx Dedons, Dunkerque; Gerard Giroud, Petite Synthe, and Daniel Delaunay, Dunkerque, all of France, assignors to Port Autonome de Dunkerque, Dunkerque, France

Filed July 22, 1970, Ser. No. 57,146

Claims priority, application France, July 25, 1969, 6925466; Nov. 7, 1969, 6938408; Nov. 20, 1969, 6939896; Nov. 21, 1969, 6940051

Int. Cl. B65g *63/00*
U.S. Cl. 214—14 **40 Claims**

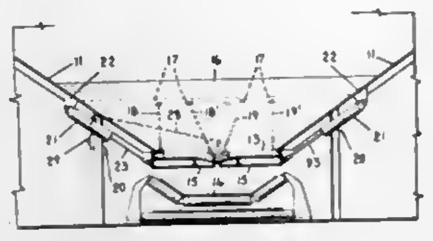


A handling apparatus for transferring loose solid material between a ship, a railroad truck or the like and a stocking area and conversely comprising a beam shiftable vertically or obliquely between two uprights so as to span a wet dock or other operative area. The beam carries longitudinally a conveyor feeding a bucket or two buckets operating alternatingly and moving along a vertical path without any lateral shifting, this being allowed by a tiltable part such as a sloping plane which is brought out of a vertical inoperative position into registry with the bucket in its upper position so as to dump the material dropping out of the bucket into a hopper feeding further conveyors.

3,704,797
BULK MATERIAL DISCHARGING ARRANGEMENT

Matthieu Suykens, 87 North Park Gardens, Belleville, Ontario, Canada

Continuation of Ser. No. 842,535, July 17, 1969, abandoned. This application May 24, 1971, Ser. No. 146,425
Int. Cl. B65g *67/58*
U.S. Cl. 214—15 D **7 Claims**

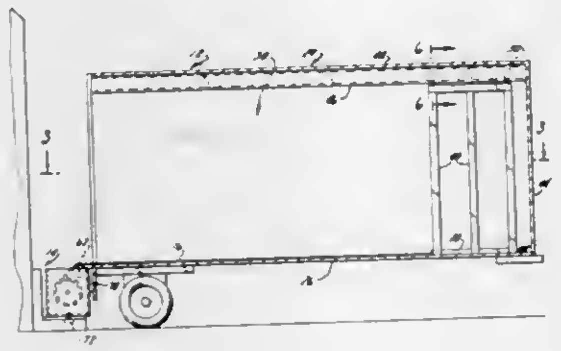


An equalizer basket gate for regulating the discharge of bulk material from a hopper, comprises a pair of similar gate members positioned beneath the hopper and arranged symmetrically with respect to it. The gate members are suspended so that the pressure of bulk material on them tends to open the gate. The gate members are closed, and restrained against opening, by a pair of hydraulic rams connected in parallel to a pressure fluid supply. A mechanical locking device is also provided for holding the gate members in the closed position.

3,704,798
TRUCK CARGO TRANSFER ASSEMBLY

Herbert L. Carpenture, Jr., Babylon, N.Y., and Oscar Green, Worthington, Ohio, assignors to Greif Bros. Corporation, Delaware, Ohio

Filed Feb. 3, 1971, Ser. No. 112,124
Int. Cl. B60p *1/38*
U.S. Cl. 214—38 D **5 Claims**



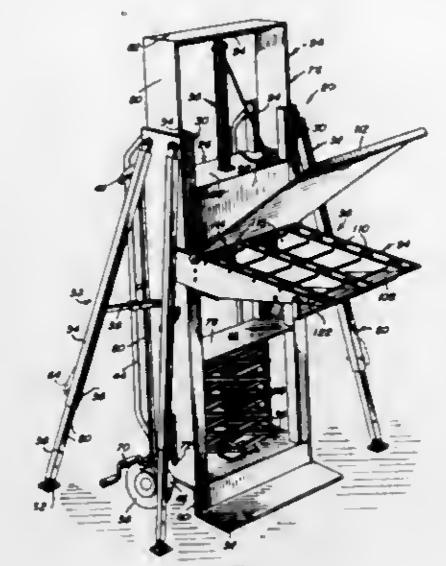
An assembly for transferring the cargo of a truck to and from the truck front portion during loading and unloading procedures is provided herein. The assembly includes a longitudinally movable belt overlying the truck bed and having a front end coupled to a platform which, in turn, is coupled to a cable, and a rear end adapted to be coupled to a take-up drum. The drum may be mounted to the trailer frame or to an associated loading dock. The assembly also includes a cage unit extending about the front and sides of the platform and supported from overhead tracks.

3,704,799
HANDTRUCK HOIST

Carton M. Morris, Jr., 4033 Tulane Drive, Kenner, La.

Filed Dec. 23, 1970, Ser. No. 101,023
Int. Cl. B62b *1/12*
U.S. Cl. 214—370 **12 Claims**

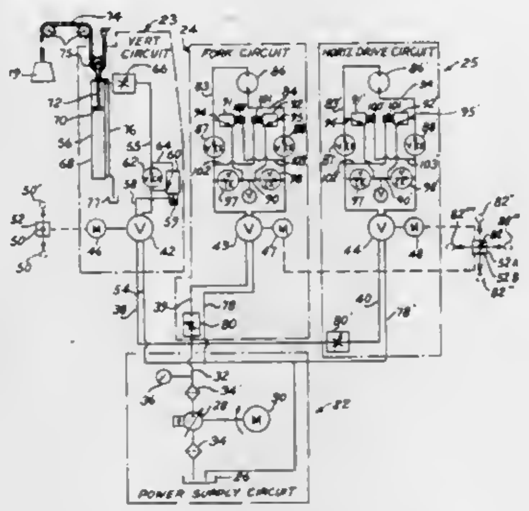
A two wheel mobile handtruck incorporating laterally extensible stabilizing legs and first and second hoist sections including a primary screw jack actuated section and a secondary block and tackle section for selectively elevating a projecting load platform. The load platform can alternately present a roller surface or a panel surface.



3,704,800
HYDRAULIC LOAD CARRIER

Paul E. Redelman, South Holland, Ill., assignor to Interlake Steel Corporation

Filed April 21, 1970, Ser. No. 30,452
Int. Cl. B66f *9/14*
U.S. Cl. 214—730 **13 Claims**



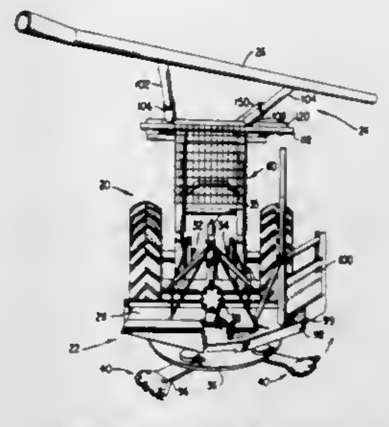
A hydraulic load carrier having a hydraulic powered lift platform, forks and horizontal drive includes variable proportional flow valves to variably control the flow of hydraulic power fluid to the lift platform, forks and drive to selectively and independently control the speed of each of these components. Velocity and acceleration means may be provided in one or more of the hydraulic circuits to limit the maximum velocity and acceleration, respectively, of the components and to prevent uncontrolled free fall of the lift platform.

3,704,801
FALLING TREE CONTROLLER AND IMPROVED MOWER CUTTING DEVICE

Eugene V. Stair, Box 238, Caddo, Okla.

Filed Nov. 4, 1970, Ser. No. 86,735
Int. Cl. A01g *23/02*
U.S. Cl. 144—34 A **26 Claims**

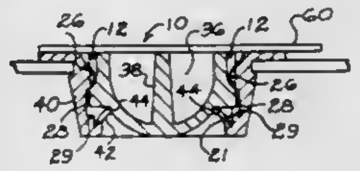
A mowing apparatus including rotating cutter assemblies having replaceable cutter plates each formed with a number of saw teeth, with the teeth being arranged in groups or sets on different cutting diameters. The cutter mechanism has a housing with specific structure which cooperates with a directional falling tree controller and a hook section on the cutter assembly to discharge the cut material to one side of the mowing apparatus out of its path of advancement.



3,704,802
CHILD RESISTANT SAFETY CAP CLOSURE ASSEMBLY FOR A CONTAINER

Robert S. Schultz, P.O. Box 56, Old Greenwich, Conn.

Filed June 30, 1971, Ser. No. 158,274
Int. Cl. A61j *1/00;* **B65d** *55/02*
U.S. Cl. 215—9 **8 Claims**

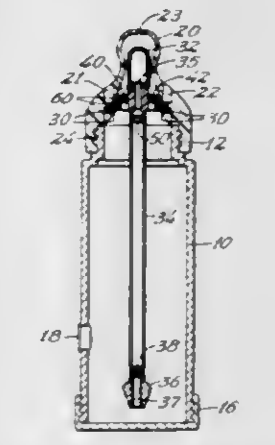


A cap closure and peripheral neck for any container which is child resistant since it requires a combination downward and twisting motion to either open or close the cap closure. A sloping camming surface in the peripheral groove portion of the cap assists in the closing action. The cap may be provided with a finger tab that projects upwardly from a dished central portion of the cap closure, thereby making it more difficult for children to grasp and open and close the cap closure. A resilient flange on either the cap or container biases said cap in an upward direction. An abutment stop in the neck portion prevents overstressing the resilient flange and indicates when to rotate on opening. A vertical stop in cap indicates when cap is ready to be totally removed.

3,704,803
NURSING BOTTLE

Charles L. Ponder, 694 Concordia, St. Paul, Minn.

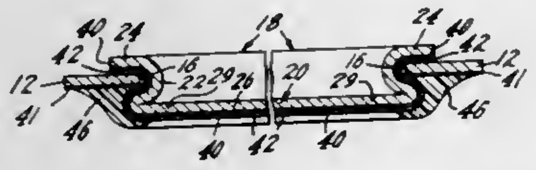
Filed July 13, 1971, Ser. No. 162,231
Int. Cl. A61j *9/02, 9/04*
U.S. Cl. 215—11 A **5 Claims**



A baby nursing bottle having inner and outer nipples each connected through special valving means to opposite ends of the nursing bottle so as to permit an adequate flow of milk irrespective of the position of the bottle. The special valving means comprise small flexible flaps disposed in the direction of flow of fluid. Similar valve means are incorporated into the outer nipple in a position to allow air to enter into the bottle to replace the displaced milk.

3,704,804
PLASTIC FILM FOR CONTAINER END CLOSURES

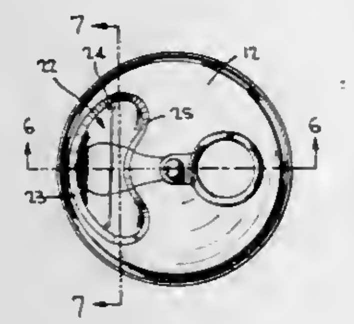
Ralph William Kaercher, Barrington, and John Ralph Peschke, Prospect Heights, both of Ill., assignors to American Can Company, Greenwich, Conn.
Filed July 19, 1971, Ser. No. 163,569
Int. Cl. B65d *17/24*
U.S. Cl. 220—53 **45 Claims**



An improvement in a container end closure having a central panel and which can have secured to it within an aperture therein, a substantially rigid plug having a tear-out portion defined by score lines, the improvement which comprises including on the interior primer-coated surface of the container end and/or plug, a film which preferably is an unplasticized acrylic multipolymer comprising a blend of (1) a hard resinous terpolymer of acrylonitrile, styrene and methyl methacryalte, and (2) polybutadiene grafted with methyl methacrylate, styrene and acrylonitrile. The film can also be a hard, unplasticized thermoplastic comprising from about 85 to 100 percent polyvinyl chloride and from about 15 to 0 percent polyvinyl acetate. The film isolates the closure or plug metal from the container product and prevents corrosion of the metal and consequent contamination of the product. The acrylic multipolymer film can be applied in a single pass as a direct extrusion coating or film lamination.

3,704,805
BEVERAGE CONTAINER HAVING INTEGRAL FORMED LIP GUARD

Edward A. Sheafe, III, 6935 Columbia Drive, Alexandria, Va.
Filed May 7, 1970, Ser. No. 35,474
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **1 Claim**



A beverage container of the easy-opening type has an end panel including a removable panel portion formed by a peripheral score line. The end panel has a concave portion extending into the score line and on both sides of the removable panel portion to enable an upper lip of a person drinking from the container to extend into the concave portion. The concave portion of the end panel facilitates drinking from the container.

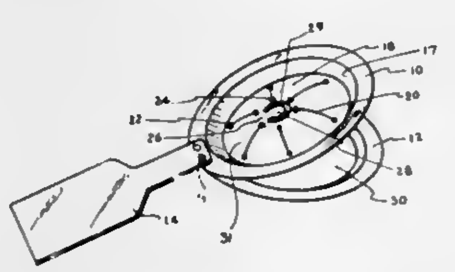
3,704,806
DEHUMIDIFYING COMPOSITION AND A METHOD FOR PREPARING THE SAME

Tikhon Grigorievich Plachenov, Leningrad; Grigory Markovich Belotserkovsky, Leningrad; Ekaterina Nikolaevna Dolgova, Leningrad; Jury Valentinovich Ezhov, Leningrad; Vladimir Alexandrovich Fogel, Leningrad; Andrei Pavlovich Benediktov, Zelenogorsk, and Iliya Yakovlevich Avilov, Leningrad, all of U.S.S.R., assignors to Leningradsky Tekhnologichesky Imeni Lensoveta, Leningrad, U.S.S.R.
Filed Jan. 6, 1971, Ser. No. 104,480
Int. Cl. B65d *25/14*
U.S. Cl. 220—64 **8 Claims**

A dehumidifying composition intended for the dehydration of hermetically sealed containers of various shape and capacity, small-capacity containers inclusive, which contains 20–60 wt. percent of zeolite and 40–80 wt percent of thermosetting polymer. Said polymer may be obtained by curing diverse thermosetting resins such as, for example, epoxide and phenol-formaldehyde resins. The dehumidifier of the invention finds application in the form of a film or coat strongly bonded to the material of the containers being dehydrated and no special means are required for securing it in the containers used in conjunction with diverse semiconductor devices and instruments.

3,704,807
SAFETY RELIEF DEVICE

Robert J. Lidgard, Hacienda Heights, Calif., assignor to Ametek, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 881,234, Dec. 1, 1969. This application March 8, 1971, Ser. No. 121,695
Int. Cl. B65d *25/00*
U.S. Cl. 220—89 A **8 Claims**

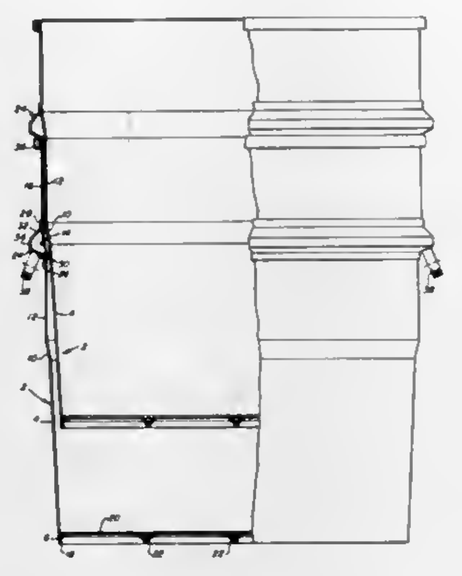


A pre-bulged, frangible member and a relief device employing the frangible member is described. The member has a predetermined burst pattern that is relieved into its crown which insures that no portion of the member is severed from the member when it fails. The basic pattern uses radial slits extending from the periphery of the crown and terminating short of the center. The center portion of the crown is relieved with a pattern employing at least one non-rupturable, interconnecting web between the apex and the remainder of the member so that, on failure, this web retains the apex of the crown.

3,704,808
RIM LIFT BINS

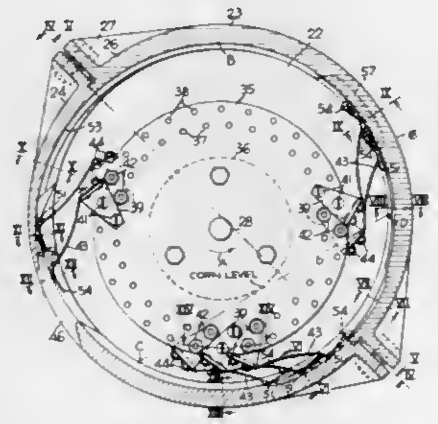
Charles I. Gibson, Moorestown, N.J., and Wayne A. Maley, Moon Township, Allegheny County, Pa., assignors to United States Steel Corporation
Filed Dec. 9, 1970, Ser. No. 96,495
Int. Cl. B65d *21/02, 7/44*
U.S. Cl. 220—97 C **10 Claims**

A rim lift bin has a main body member substantially rectangular in horizontal section. The body member has a relatively long bottom tapered section tapering outwardly and upwardly, a relatively short intermediate tapered section above the bottom tapered section which tapers upwardly and outwardly at an angle greater than the bottom tapered section, a first vertical section connected to the top of the intermediate tapered section, an upper tapered section connected to the top of the first vertical section, and a second vertical section extending upwardly from the upper tapered section. A channel rim member having a bottom leg extending upwardly and outwardly at a slight angle, a top leg and a vertical base connecting the legs is fastened to the main body member above the center of gravity of the bin. This arrangement permits nesting and easy handling of the bins.



3,704,809
PLATELESS PLANTER

Alvin L. Cleek, Laporte, Ind., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed March 18, 1971, Ser. No. 125,532
Int. Cl. A01c *7/04*
U.S. Cl. 221—220 **8 Claims**

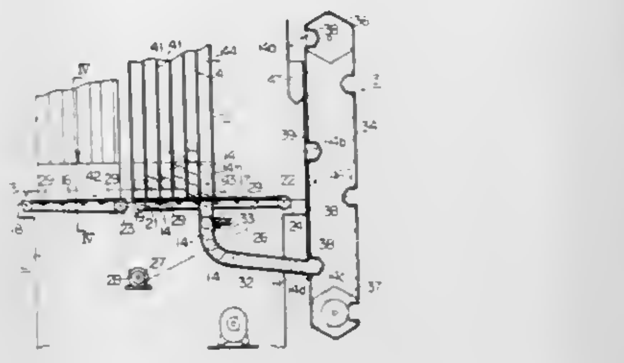


A plateless planter wherein rotating fingers pick up seeds, move them in adjoining parallel grooves in the periphery of the drum surrounding the fingers to a joint where a single opening is positioned between grooves for receiving the seeds from the rotating fingers.

3,704,810
AUTOMATIC COP FEEDER

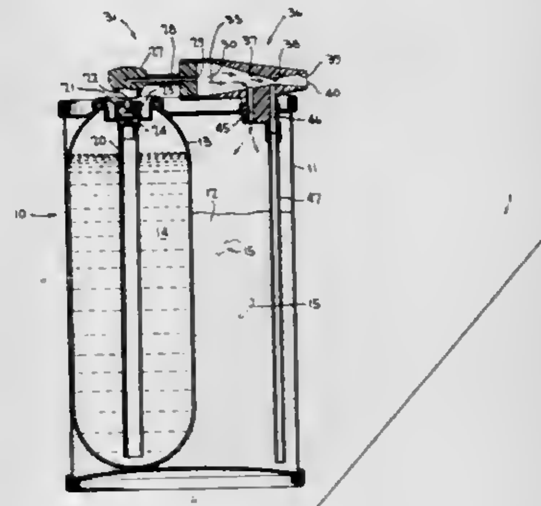
Shozi Sakai, Kyoto, Japan, assignor to Murata Machinery, Ltd., Kyoto, Japan
Filed June 24, 1971, Ser. No. 134,828
Int. Cl. B65h *5/02*
U.S. Cl. 221—236 **12 Claims**

Automatic cop feeder used in combination with bottomless type cop containers containing cops in prescribedly defined multiple columns wherein cops are delivered from said container into a cop shooting tunnel intermittently from column to column with a help by a feeder disposed to the tunnel and thusly delivered cops are transported one by one towards next operational station such as a rewinding part from the shooting tunnel through a conveyer tower located in connection with an outlet end of the shooting tunnel.



3,704,811
PORTABLE SANDBLASTER

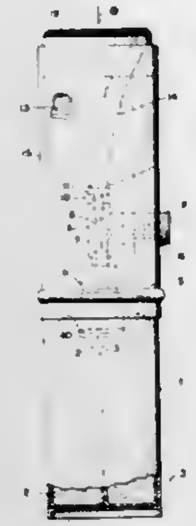
Joseph T. Harden, Jr., Richmond, Va., assignor to Creative Ideas, Inc., Richmond, Va.
Filed July 24, 1970, Ser. No. 58,093
Int. Cl. B05b *7/32*
U.S. Cl. 222—4 **16 Claims**



Particulate material is dispensed from a portable supply container by application of positive pressure in the open space of the container above the material to fluidize the same, and simultaneously, applying a vacuum through a venturi nozzle. The pressurized fluid for feeding the venturi nozzle and for fluidizing the particulate material preferably originates from a single source, a self-contained propellant tank positioned inside the supply container. An expansion chamber is provided at one end of the venturi nozzle and a dispensing orifice is positioned at the other end. Interconnecting transfer means between the expansion chamber and the open space may be a restricted passage or an open interface; in the latter embodiment a stream splitting lip being formed by said one end of said nozzle. A modified embodiment may be operated in either the upright or inverted position by providing alternative dispensing apertures in the top of the supply container for cooperation with a coupling stopper; sealing and transfer stoppers being positioned to automatically close off the unused aperture and supply pressure to the open space of the container.

3,704,812
MULTI-COMPONENT DISPENSER AND VALVE

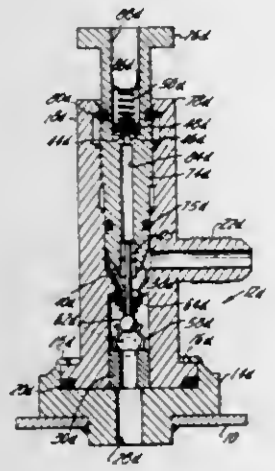
Jean Marand, Norwalk, Conn., assignor to Ciba-Geigy Corporation, Town of Greenburgh, N.Y.
Filed June 29, 1970, Ser. No. 50,394
Int. Cl. B65d *83/14*
U.S. Cl. 222—136 **23 Claims**



A dispenser includes a container enclosing several fluid components in isolated sac chambers. The chambers communicate through a valve with at least one passage in a coupler-aspirator. An aerosol propellant cartridge with a valve couples with another passage in the coupler-aspirator. The valve includes a stationary stem and a movable stem member. The sac chambers have adaptors which communicate with the valve. The adaptors may be unitary or individual.

3,704,813
VALVE SYSTEMS FOR NON-REFILLABLE CONTAINERS

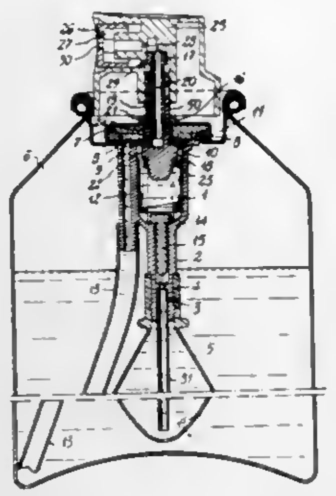
George C. Devol, 990 Ridgefield Road, Wilton, Conn.
Filed Dec. 8, 1969, Ser. No. 883,122
Int. Cl. B65d *47/02*
U.S. Cl. 222—147 **10 Claims**



Several forms of valve assembly, to be secured permanently to a container, enable one-time-only filling of the container, for avoiding dangerously refilled containers. The valve assembly has a shut-off valve for controlling fluid dispensing. In some forms, the shut-off valve converts the assembly to its non-fillable condition as a consequence of the first closing operation of the shut-off valve. There may be an initially inactive check valve that allows the container to be filled and becomes a discharge-only check valve, or a check valve in a dispensing passage may have a parallel filling passage that is blocked after one use.

3,704,814
VALVE FOR DISPENSING TWO DISTINCT LIQUIDS FROM AN AEROSOL CONTAINER

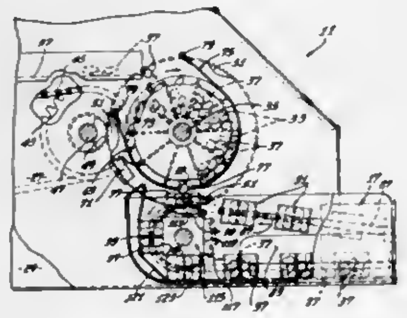
Tomaso Ruscitti, Milan, Italy, assignor to Coster Tecnologie Speciali S.p.A., Milan, Italy
Filed July 13, 1971, Ser. No. 162,211
Claims priority, application Italy, July 15, 1970, 27443 A/70
Int. Cl. B65d *83/14*
U.S. Cl. 222—145 **6 Claims**



A valve applicable to an aerosol container of the type containing two liquids, one of which in the container and the other of which in a deformable vessel in turn enclosed within the container. The valve is capable of dispensing the two liquids separately for supply thereof to a dispensing cap where said liquids are intermixed. The valve comprises a hollow body, in which a first hollow extension projects and on which a deformable vessel containing one of said liquids is carried. The valve comprises a second hollow extension communicating with a chamber connected to a further chamber by a duct which, under inoperative conditions, is closed by a seal pressed by a flange projecting the valve stem on which a spring is operative. In the stem, two longitudinal conduits are provided, at the lower end of which in the stem two distinct small holes are provided and located above said seal.

3,704,815
APPARATUS FOR FILLING MATERIAL INTO AND DISCHARGING MATERIAL FROM COMPARTMENTS

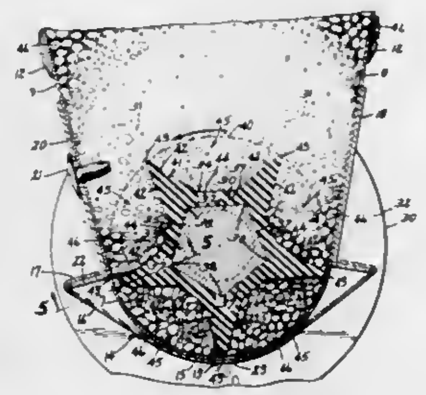
Robert F. Jones, Los Angeles, Calif., assignor to Hoffman Manufacturing Company, Glendale, Calif.
Division of Ser. No. 726,153, May 2, 1968, Pat. No. 3,495,550. This application Feb. 16, 1970, Ser. No. 11,658
Int. Cl. G01f *11/10*
U.S. Cl. 222—368 **3 Claims**



A method and machine for making a coated candy cluster. In a preferred form of the invention, the machine includes a rotatable rotor having a plurality of compartments. The rotor rotates the compartments between a filling station in which cluster material is deposited in the compartments and a discharge station at which the cluster material is discharged from the rotor onto a conveyor. Metoring means responsive to rotation of the rotor control the amount of cluster material deposited in each of the compartments. The conveyor conveys the discharge cluster material to an enrober which coats the cluster material with chocolate or other suitable coating material.

3,704,816
FEEDING ROTOR FOR DISPENSERS OF GRANULAR MATERIAL

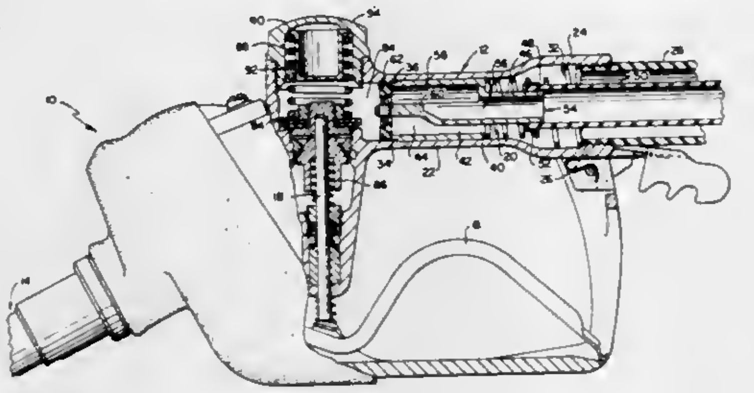
Ebenhard S. Gandrud, P.O. Box 528, Owatonna, Minn.
Continuation of Ser. No. 11,406, Feb. 16, 1970, abandoned. This application Nov. 17, 1971, Ser. No. 199,814
Int. Cl. G01f *11/24*
U.S. Cl. 222—368 **11 Claims**



A spreading machine including an elongated dispensing rotor having a rigid axial shaft and an elongated body of elastomeric material covering the shaft in axially inwardly spaced relation to the ends of the shaft, the body including a plurality of generally radial vanes extending longitudinally of the shaft, each of the vanes having opposite sides converging generally radially outwardly to define a longitudinally extending flexible feather edge.

3,704,817
CARTRIDGE INSERT FOR A DISPENSING NOZZLE

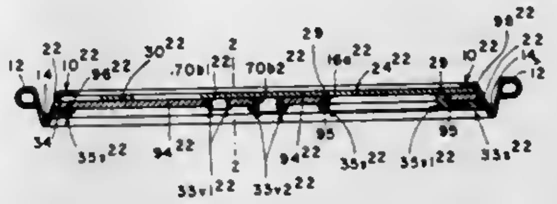
Paul R. Wilder, Cincinnati, Ohio, and Donald L. Smallwood, Fort Mitchell, Ky., assignors to Dover Corporation, New York, N.Y.
Filed July 12, 1971, Ser. No. 161,571
Int. Cl. B67d *3/00*
U.S. Cl. 222—482 **10 Claims**



A fluid dispensing nozzle cartridge for providing two fluid paths through two separate passages extending through the cartridge supported in a passage in the nozzle body is disclosed. The cartridge has a valve supported at the outlet end of the passages with the valve having a separate portion controlling each of the passages. When there is flow through only one of the passages in the cartridge, the portion of the valve cooperating therewith is opened by the fluid flow and the portion of the valve cooperating with the other passage is biased closed to insure that there is no significant leakage from the nozzle into the passage in the cartridge not having pressurized fluid supplied thereto.

3,704,818
CAN END WITH BONDED SEAL SLIDES

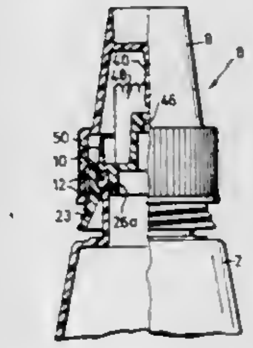
Donald L. Dunty, Franklin Township, Westmoreland County, Pa., assignor to United States Steel Corporation
Division of Ser. No. 146,945, May 26, 1971, which is a division of Ser. No. 61,384, Aug. 5, 1970, Pat. No. 3,622,055. This application Jan. 28, 1971, Ser. No. 221,600
Int. Cl. B65d *47/10*
U.S. Cl. 222—484 **41 Claims**



A can end is provided with an opening and a can end sealing portion. A slide is disposed against the can end adjacent the opening. A stationary member is disposed against the slide and is provided with a pour opening and a stationary member sealing portion. The slide has a slide sealing portion adjacent the pour opening and is movable to a sealing position where the pour opening is covered by the slide. The pull tab has a connection to the slide. Engaging means engage the can end and one of the slide and the stationary member to position the stationary member sealing portion adjacent the can end sealing portion, and to press the slide sealing portion against the stationary member adjacent the pour opening. A pressure barrier material seals the can end sealing portion to the stationary member sealing portion and the slide sealing portion to the stationary member adjacent the pour opening. The pressure barrier material is bonded to the stationary member adjacent the pour opening with a first predetermined shear strength and to the slide sealing portion with a second predetermined shear strength less than the first predetermined shear strength. The pull tab is movable to cause the slide to move away from the sealing position to break the bond between the slide sealing portion and the pressure barrier material adjacent the pour opening. The pull tab then is movable to cause the slide to uncover the pour opening.

3,704,819
RESEALABLE CLOSURE FOR BOTTLES AND OTHER CONTAINERS

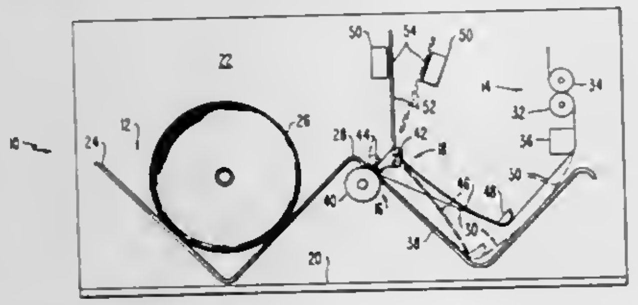
Alrik Civer Lindstrom, Bjornlundavagen 12, Alvsjo, Sweden
Filed March 28, 1969, Ser. No. 811,417
Claims priority, application Sweden, April 10, 1968, 4908/68; Oct. 31, 1968, 14790/68
Int. Cl. B65d *41/16*
U.S. Cl. 222—546 **3 Claims**



The invention concerns a resealable closure for bottles and other containers, the closure including a cap engaging around the mouth portion of the container, and an external safety or reinforcing element engaging around the cap and provided with an inner locking means engaging about the outside of the cap, the locking means preventing withdrawal of the outer element from the cap by pulling but permitting said element to be pushed onto the cap. According to the invention the outer element consists of a capsule provided with an inner thread or helically shaped outwardly projecting edge of asymmetric profile, said thread or edge forming said locking means. The cap may present one or more break pins adapted to pass into a corresponding groove in the opening edge of the capsule.

3,704,820
WEB TENSION CONTROL DEVICE

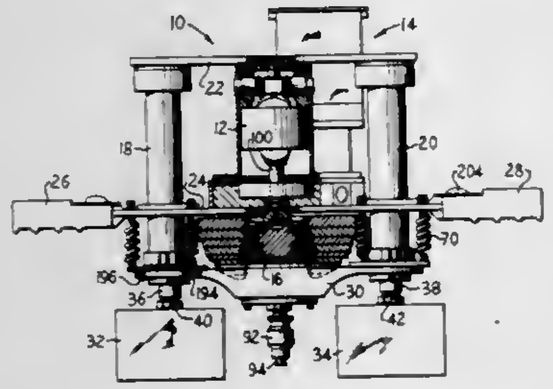
Harold M. Frederick, Birmingham, and Dewey M. Sims, Jr., Westland, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.
Filed May 3, 1971, Ser. No. 139,602
Int. Cl. B65h *25/04*
U.S. Cl. 226—34 **9 Claims**



A web feeding device is provided having a receptacle for peripherally supporting a web supply roll, a web feeder for moving a web past a print station or the like upon demand and a web tension control device mounted therebetween for supplying web from the former to the latter. The web tension control device has a pressure roller pivotable to press a passing web effectively against a continuously rotatable friction roller in response to an increase in web tension as detected by a lever contacting the web and operatively coupled to the pressure roller.

3,704,821
PORTABLE FRICTION WELDING MACHINE

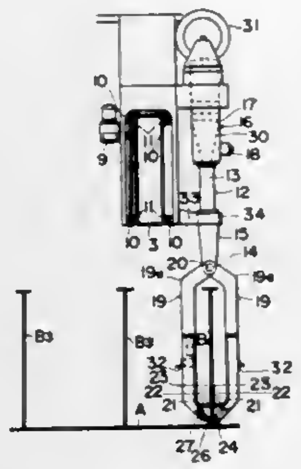
Calvin D. Loyd, Peoria; Theodore L. Oberle, Washington, and Ronald L. Satzler, Metamora, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Oct. 28, 1970, Ser. No. 84,746
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 **11 Claims**



A portable friction welding machine is provided with a pair of ram mechanisms which provide the necessary axial pressure during a welding operation and also operate to move a spindle of the welding machine to a position where the spindle may be pivoted outside the main machine body so that flywheels may be easily attached or removed from the spindle. The machine is also provided with an automatic disconnect mechanism between the drive motor and the spindle which disconnects the motor from the spindle upon the application of welding pressure through the rams.

3,704,822
APPARATUS FOR FORMING T-WELDS BETWEEN MUTUALLY PERPENDICULAR PLATES

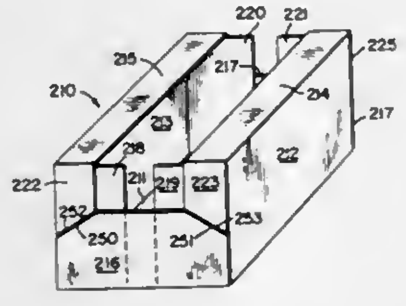
Hirokazu Nomura, Yokohama, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed March 20, 1970, Ser. No. 21,392
Int. Cl. B23k *1/00, 5/00*
U.S. Cl. 228—25 **6 Claims**



A welding apparatus for forming T-welds between a base plate and a plurality of reinforcing plates perpendicular thereto. Each of the latter reinforcing plates has an edge engaging a surface of the base plate to form a pair of corners therewith extending longitudinally of this edge, and a pair of fillet welds are simultaneously deposited in the pair of corners of each reinforcing plate so that in a single pass each reinforcing plate is T-welded to the base plate. For this purpose a pair of welding means are provided at each of the corners and a carriage means carries a pair of welding means for simultaneously transporting them longitudinally along the pair of corners to simultaneously deposit fillet welds in the latter, respectively.

3,704,823
OPEN-TOP STACKING CARTON AND BLANK THEREFOR

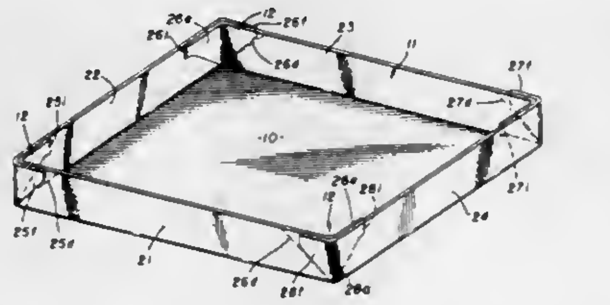
William J. Howe, Los Altos, Calif., assignor to Georgia-Pacific Corporation, Portland, Oreg.
Filed Dec. 8, 1969, Ser. No. 883,216
Int. Cl. B65d *5/18*
U.S. Cl. 229—32 **3 Claims**



A package of containerized goods, a packaging method, and a crate-like carton. The carton has a mostly-open top wall and partly-open front and rear walls, with closed bottom and side walls, all made from a single, continuous, generally rectangular blank of corrugated board. The vertical side walls are hinged to the bottom wall, and a top reinforcing horizontal wall portion is hinged to each of the side walls. Front and rear flaps are attached to each of the bottom, vertical and top walls. The flaps hinged to the bottom wall have a median height no more than half the height of the side walls and are secured to the flaps that are hinged to the side walls, which are substantially less than half as wide as the bottom wall. Also secured to these flaps are the flaps from the top wall, which are narrower than the flaps secured to the side walls. In one form of the invention, the top-wall flaps meet the bottom-wall flaps along a diagonal line. The containers, whether single-tiered or plural-tiered, substantially fill the carton, and individual containers can be taken out through the top of the carton without having to open it. During packaging, the carton is brought snugly around the containers, and this snugness strengthens the carton walls during subsequent stacking of cartons.

3,704,824
FIBERBOARD FLAT WITH JOINED STRENGTHENED CORNERS FOR SETTING UP INTO AN ANGULAR TRAY AND THE SET-UP TRAY

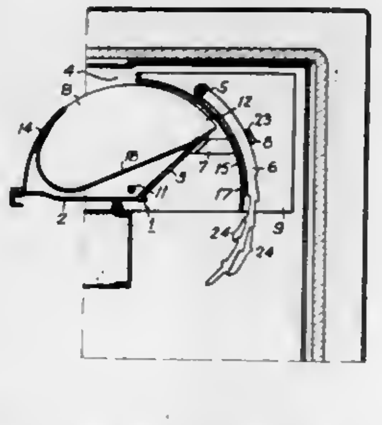
Thomas E. Croley, Worthington, Ohio, assignor to Corco, Inc., Columbus, Ohio
Continuation-in-part of Ser. No. 107,335, Jan. 18, 1971, abandoned. This application March 5, 1971, Ser. No. 121,279
Int. Cl. B65d *5/36*
U.S. Cl. 229—32 **7 Claims**



A flat of fiberboard or similar material which can be set-up to provide an angular tray with a main flat wall and a peripheral flange at a right angle to the plane thereof, the flange consisting of flaps hinged to the main wall and joined together at the angles of the tray. Each angular joint of the set-up tray is of such a structure that it has increased strength. The flat is manufactured in collapsed or flat condition with all corners joined ready to be expanded into set-up condition to provide the final tray. It is provided with improved corner-connecting joints which will ensure that in setting it up, bending will occur only at certain scored fold lines.

3,704,825
THEFT-PREVENTION STRUCTURE FOR DEPOSITORIES

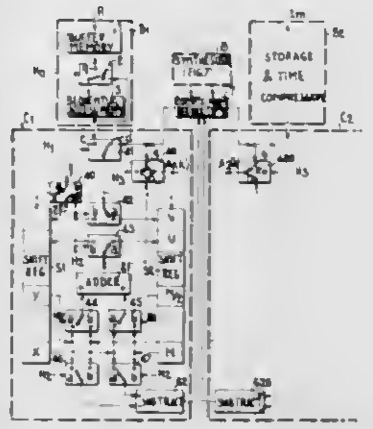
Kango Hinohara; Tadashi Nishino, both of Hiroshima, and Hiroshi Harada, Gion-machi, all of Japan, assignors to Kabushiki Kaisha Kumahira Seisakusho, Hiroshima-shi, Japan
Filed Nov. 20, 1970, Ser. No. 91,498
Claims priority, application Japan, Feb. 6, 1970, 45/9987
Int. Cl. E05g *1/00*
U.S. Cl. 232—44 **10 Claims**



A depository having a structure which prevents unauthorized removal of items from the depository. The depository includes an enclosure having a hollow interior to which access may be had through a lower door which can only be opened in an authorized manner. The enclosure has an upper drop-in opening and an upper door movable between a closed position closing the drop-in opening and an open position also closing the drop-in opening. However the upper door has a receiving portion accessible when the upper door is in its open position for receiving an item to be placed in the enclosure, and the upper door drops the item into the hollow interior of the enclosure when the upper door is returned to its closed position. A blocking structure is provided at the rear of the upper door for blocking removal of items in the enclosure out through the upper drop-in opening thereof, and this blocking structure is mounted for movement away from a blocking position when engaged by an item falling from the receiving portion of the upper door down into the hollow interior of the enclosure. the upper door has a locking structure which coacts with the blocking structure to lock the latter against movement away from the blocking position whenever the upper door is displaced even through a small part of the way from its closed toward its open position. Also, the blocking structure coacts with the lock structure to prevent movement of the upper door toward its open position in the event that the blocking structure has been displaced in some way away from the blocking position.

3,704,826
REAL TIME FAST FOURIER TRANSFORM PROCESSOR WITH SEQUENTIAL ACCESS MEMORY

Jean-Claude Constantin, Cagnes sur Mer, France, assignor to Thomson-CSF, Paris, France
Filed Dec. 24, 1970, Ser. No. 101,281
Claims priority, application France, Dec. 31, 1969, 6945634
Int. Cl. G06f *7/38, 15/34*
U.S. Cl. 235—156 **11 Claims**

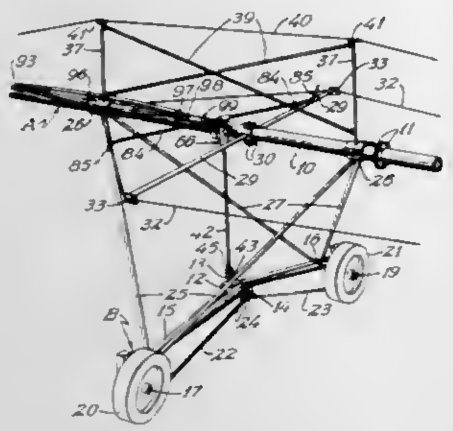


N complex samples of an input signal are stored in a sequential access circulating memory, and then transmitted to a calculator which has a pair of shift registers, each of N words capacity; the shift registers have terminals spaces by a single bit position from a final terminal, and an intermediate terminal, and are, alternatingly, stepped at shift rates of *f* and 2*f* respectively. An iterative method of fast Fourier transformation calculation is carried out by sequential access to the shift registers, alternatingly, and calculation of inputs (or outputs from) selected terminals of the shift registers, by means of selected interconnection from the specific shift registers to an adder, a subtraction circuit, and a multiplier which multiplies selected signals with a synthesized binary reference signal. The apparatus is useful for electrical signal spectral analysis.

3,704,827
SELF PROPELLED IRRIGATION SYSTEM

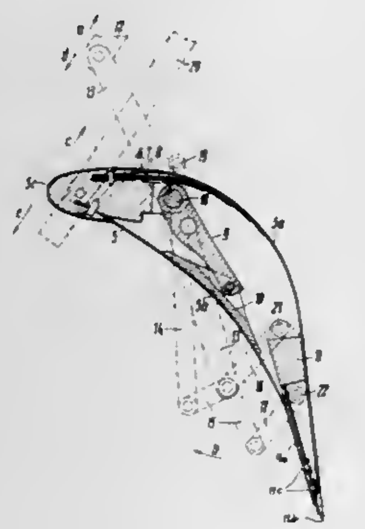
Thomas S. Moulton, Somerset, Wis., assignor to Moulton Irrigation Company, Somerset, Wis.
Filed Sept. 8, 1971, Ser. No. 178,633
Int. Cl. B05b *3/00*
U.S. Cl. 239—177 **11 Claims**

An irrigation system includes an elongated water distribution pipe supported by wheeled supports and rotatable about a water supply source. The wheeled supports are driven by power derived from the rotation of the sprinkler heads. Means is provided for increasing or decreasing the speed of each sprinkler head to keep the pipe straight. Means is also provided for instantly disconnecting each carriage from the sprinkler head when desired.



3,704,828
AIRCRAFT FAN WITH OUTFLOW DEFLECTORS

Hans-Luzius Studer; Eckart Petri; Karl Wurmstedt, and Jan Tomas Haas, all of Hamburg, Germany, assignors to Hamburger Flugzeubau GmbH, Hamburg, Germany
Filed Dec. 2, 1970, Ser. No. 94,296
Claims priority, application Germany, Dec. 16, 1969, P 19 62 956.2
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.19 **10 Claims**

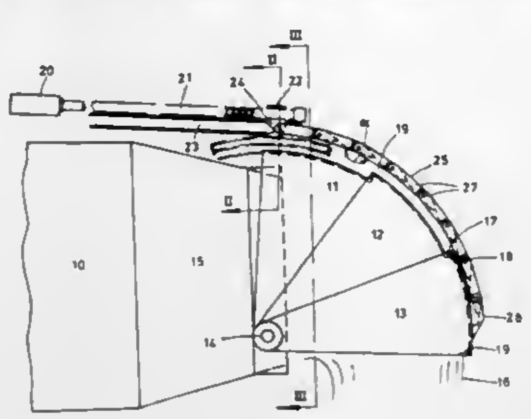


The cruise and lift fans of an aircraft are provided with an array of deflectors of the jalousie type forming a directed outflow path. The deflectors are generally of airfoil or aerodynamic profile and have flexible skins with an internal mechanism enabling the curvature to be altered to adjust the outflow direction through at least 105°.

3,704,829
JET NOZZLE

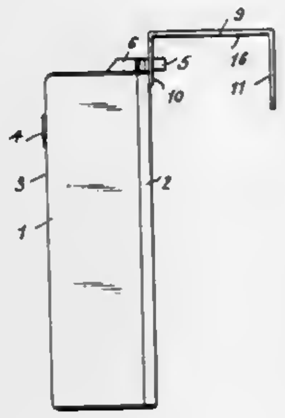
John Matthew Hall, Bristol, England, assignor to Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain & North Ireland, Whitehall, London, England
Filed July 21, 1971, Ser. No. 164,794
Claims priority, application Great Britain, July 31, 1970, 37,062/70
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.35 **1 Claim**

A jet nozzle for thrust vectoring has a jet pipe, at the downstream end of which are a plurality of part spherical segments which are movable from a nested position around the jet pipe into a position in which they deflect the stream of exhaust gases from the jet pipe. The movement is effected by a chain which is pushed and pulled by a linear actuator, the chain links having abutments thereon which limit the amount of flexing of the chain to a radius determined by movement of the outermost segment.



3,704,830
DOOR MOUNTED SPRAYING DEVICES

William J. Faso, 602 S.E. 6th Avenue, Deerfield Beach, Fla.
Filed Nov. 3, 1971, Ser. No. 195,294
Int. Cl. B30b *15/30*
U.S. Cl. 239—274 **8 Claims**

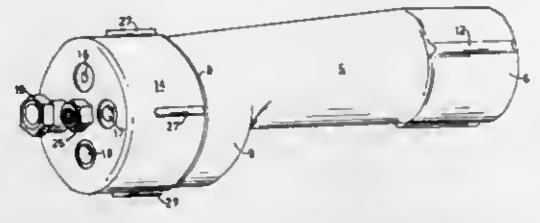


A spraying device comprising a housing carried by the movable door of a room and containing a pressurized spray container for a deodorant or other liquid, the housing carrying a movable projecting part in a position to be contacted by a part of the door frame each time that the door is closed to thereby depress the plunger of the spray container and spray the contents of the same. The invention contemplates the provision of an improved mounting means for the housing and by which the housing is assured of being in the required position on the door relatively to the door frame for the effective depression of the spray-operating lever when the door is moved to a closed position.

3,704,831
FIRE HOSE NOZZLE

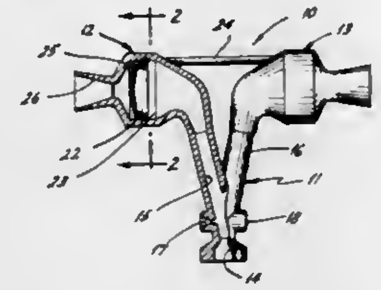
William Clark, Liverpool, New South Wales, Australia, assignor to B. F. Products Pty. Ltd., Burnwood, New South Wales, Australia
Filed Feb. 23, 1971, Ser. No. 118,130
Claims priority, application Australia, Feb. 29, 1970, PA0428/70
Int. Cl. A62c *31/02*
U.S. Cl. 239—394 **5 Claims**

A fire hose nozzle composed of a hollow handgrip portion and a rotatable nose section providing for the choice of any of a plurality of different sized jet. The handgrip portion has an offset enlarged end with a flat transverse face mounting a threaded stud and having an offset supply port connected with the interior of the handgrip portion. The nose section is mounted upon the stud and selectively tightened down by a nut onto the transverse face through a flat sealing washer of synthetic polymeric material to ensure a liquid-tight seal while permitting rotation of the casing.



3,704,832
FLUID FLOW CONTROL APPARATUS

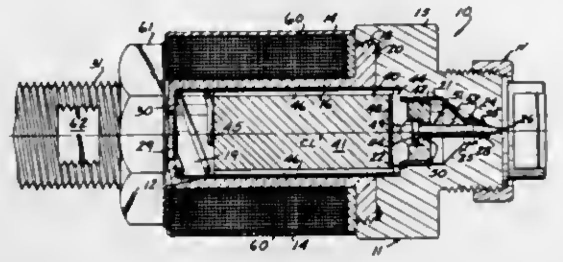
John W. Fix, Laguna Niguel; Charles E. Hallum, Irvine, and Warren F. Kaufman, Santa Ana, all of Calif., assignors to Philco-Ford Corporation, Philadelphia, Pa.
Filed Oct. 30, 1970, Ser. No. 85,510
Int. Cl. B05b *1/26*
U.S. Cl. 239—461 **6 Claims**



A fluidic thruster valve capable of operating in space, or other low pressure environments. The two passages of a supersonic bistable fluid amplifier lead, respectively, to a pair of reaction thrust nozzles, each in series flow connection with a vortex fluid amplifier. The tangential control nozzles of the vortex fluid amplifier are interconnected through a cross bleed duct, so as to limit leakage from the non-energized thrust nozzle.

3,704,833
SOLENOID VALVE ASSEMBLY

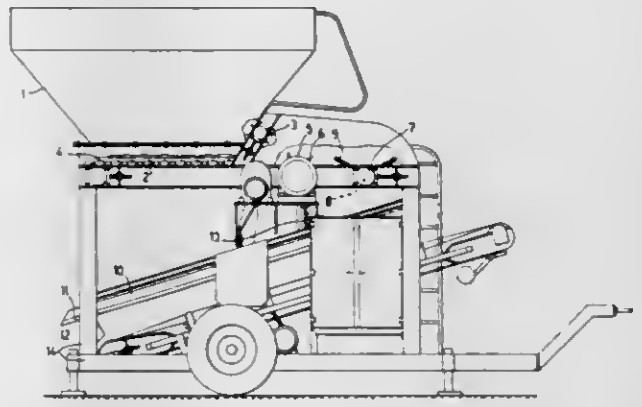
Fred O. Wheat, P.O. Box 308, Lilburn, Ga.
Filed Feb. 17, 1971, Ser. No. 116,161
Int. Cl. B05b *1/30*
U.S. Cl. 239—585 **6 Claims**



A high pressure solenoid valve and spraying head unit including a housing defining a fluid chamber therein with an inlet thereto and an outlet therefrom. An armature is slidably received in the chamber for movement toward and away from the outlet and is spring urged toward the outlet. A pilot adapted to close the outlet is carried by the armature but is freely movable with respect thereto for a prescribed distance. A magnetic coil is provided about the housing to selectively urge the armature and pilot away from the outlet to allow fluid to pass from the chamber.

3,704,834
APPARATUS FOR DISINTEGRATION AND SEPARATION OF SOIL AND SIMILAR MATERIALS

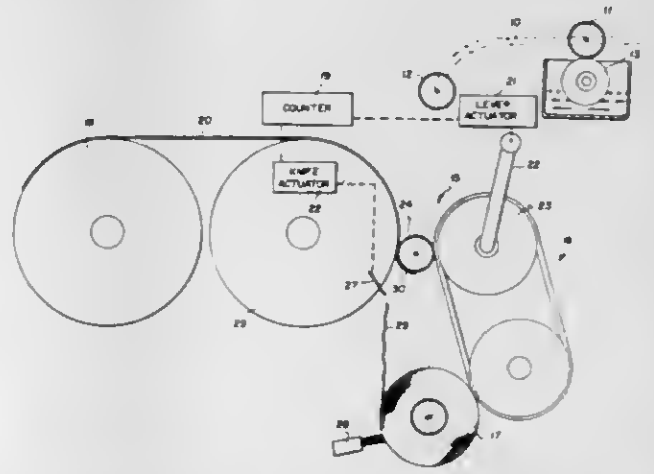
Harry Nilsson, Stjarnvagen 10, 172 46 Sundybert, and Gunnar Larsson, Pinnmovagen 6, 803 50 Gavle, both of Sweden
Filed Feb. 16, 1971, Ser. No. 115,379
Claims priority, application Sweden, Feb. 20, 1970, 2168/70
Int. Cl. B02c *13/02, 13/20*
U.S. Cl. 241—79.2 **5 Claims**



An apparatus for disintegration and separation of soil material, comprising a hopper to which the soil to be treated is supplied, and a conveyor disposed at the outlet of the hopper for forwarding of soil for further treatment. The improvement comprises a grate rotor at the discharge and of the conveyor for disintegrating the soil material and throwing the same into the working area of a whipping rotor having whipping chains for further disintegration of the soil and a sieve adapted to receive the treated material and separate waste material from usable soil.

3,704,835
ROLL CHANGING SYSTEM

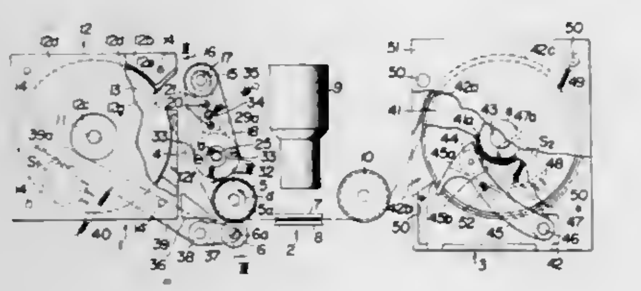
Arthur E. Harley, R.D. No. 2, Taylor Road, Savannah, N.Y.
Continuation-in-part of Ser. No. 837,174, June 27, 1969, abandoned. This application July 13, 1971, Ser. No. 162,192
Int. Cl. B65b *19/26*
U.S. Cl. 242—56 A **10 Claims**



A roll changing system is intended for a web winder for paper towels or tissues in which a sequence of rotatable cores are coated with bands of glue and advanced through a winding station where a belt drive assembly rotates the cores to wind the web. The web is severed between a fully wound roll and a successive empty core in such a way as to leave a glued trailing end and a glue leading end so that the trailer is adhered to the empty core for winding a new roll. To accomplish this, a counter signal that a roll is fully wound causes the belt drive assembly to press the successive empty core against the web on a back-up roll containing retractable knife which extends rotationally past the line of tangency with the successive core and behind the leading edge of the glue deposited on the web by the core to sever the web intermediate the glue line to leave a glued trailing end a glued leading end.

3,704,836
AUTOMATIC CARTRIDGE TAPE THREADING DEVICE

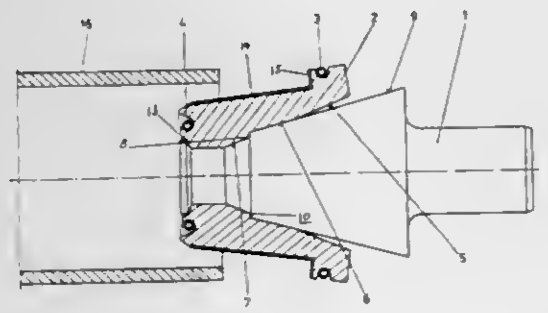
Hiroshi Yamada, Chiba-ken, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed March 29, 1971, Ser. No. 128,881
Claims priority, application Japan, April 8, 1970, 45/29870
Int. Cl. G03b *1/58*; **G11b** *15/32*; **B65h** *17/08*
U.S. Cl. 242—192 **10 Claims**



A reel drive roller and a tap draw-out roller are rotatably mounted coaxially on a pivoted support arm and are driven by belt means. When the arm is swung toward the opening in a cartridge, the reel drive roller engages a flange of the tape reel to rotate the tape reel to expand the outer convulsions of the wound tape radially outwardly and the tape draw-out roller engages the outer convulsions under some pressure to feed the leading end of the tape to a capstan roller associated with a pinch roller. The capstan roller and the pinch roller feed the draw-out tape to a take-up reel having a hub provided with a friction surface.

3,704,837
CHUCKING ARRANGEMENT FOR HOLLOW CORES, PARTICULARLY FOR NEWSPRINT ROLLS AND THE LIKE

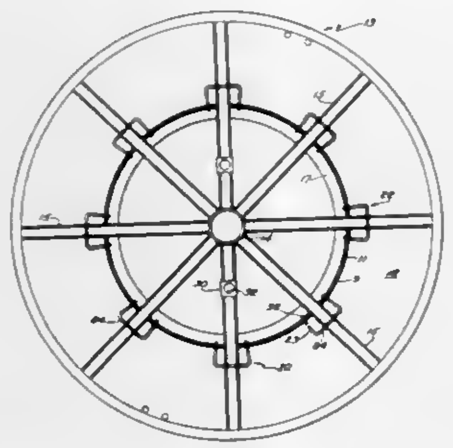
Hubert Heinz, Lauben, and Gunter Honsberg, Dietmannsried, both of Germany, assignors to Maschinenfabrik Augsburg-Nurnberg AG, Augsburg, Germany
Filed July 19, 1971, Ser. No. 163,580
Claims priority, application Germany, July 30, 1970, G 70 28 636.1
Int. Cl. B65h *17/12*
U.S. Cl. 242—68.2 **6 Claims**



A mandrel has a conical chucking head on which chucking jaws are located, the conical head having a predetermined angle of inclination; the interior surfaces of the chucking jaws have three internally inclined, successive surfaces of inclination, the third and the first matching the angle of inclination of the chucking head whereas the middle one has a lesser inclination; the inner and the middle angles are joined by an offset, the chucking head having a matching shoulder. The outer surfaces of the jaws are cylindrical. Upon introduction of the arrangement into a hollow core, the inner surfaces of the core will tip the chucking jaws above the edge formed by the two dissimilar surfaces of inclination, releasing the inter-engagement shoulder and offset to permit centered location of the jaws while enabling tight fitting.

3,704,838
METAL REEL

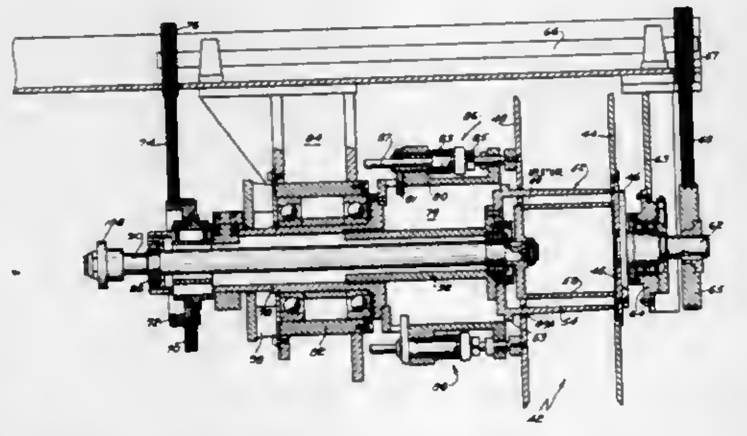
Robert N. Bernier, Woonsocket; Dwight W. Blackmer, Cumberland, and Paul L. Paulsen, East Providence, all of R.I., assignors to Wanskuck Company
Filed Feb. 18, 1971, Ser. No. 116,392
Int. Cl. B65h *75/18*
U.S. Cl. 242—77.3 **11 Claims**



A collapsible metal reel having a cylindrical barrel with a plurality of peripherally spaced tabs extending from each of its ends and having heads on each end of said barrel. Each head has an annular wall member with radially extending ribs attached to its outer face with arcuate brace members secured at their opposite ends to said radially extending ribs. The arcuate brace members have a surface parallel to the tabs of said cylindrical barrel. Slot means are formed radially outwardly from the arcuate brace members into which the tabs of the barrel are matingly engaged. Resilient fastening means are inserted in radially aligned apertures in said arcuate brace members and the tabs on the ends of said barrel to detachably secure said head to the barrel to provide a quickly assembled and disassembled reel structure.

3,704,839
DUAL BOXING COILER

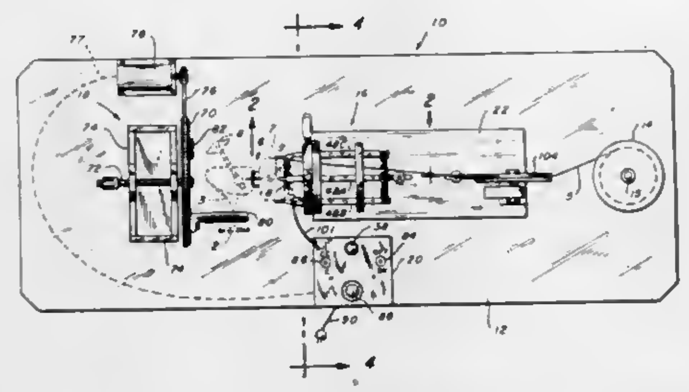
Dickran Manooglan, Cranston, R.I., assignor to The Entwistle Company
Filed Dec. 30, 1970, Ser. No. 102,843
Int. Cl. B21c *47/00*; **B21f** *3/04*
U.S. Cl. 242—80 **4 Claims**



A dual boxing coiler that directs alternately predetermined lengths of wire first down one path and then down a second path, each of these paths leading to a separate wire coiling reel having a barrel. At the coiling reel the wire automatically threads itself into an opening in the barrel which is formed by fork-like fingers extending from a disc-like end plate. Drive means are connected to the barrel for imparting thereto rotation that coils the wire on the barrel. Means are attached to the barrel to shift it laterally out of the space separating the heads of the wire coiling reel, thus allowing a completed coil of wire to drop into an awaiting package.

3,704,840
BULK FISHING LINE APPLICATOR

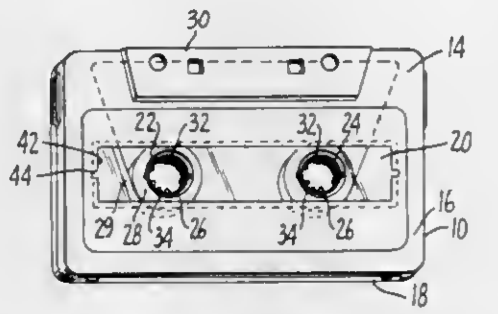
John S. Haddock, 2646 East 34th, Tulsa, Okla.
Filed June 4, 1971, Ser. No. 149,929
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.2 R **5 Claims**



In a bulk spool fishing line applicator for transferring monofilament fishing line from a bulk spool onto the spool of a spinning reel, the fishing reel line spool is rotated relative to the pickup cylinder thereof by electrical means. An automatic stop mechanism de-energizes the rotating means when a predetermined amount of line has been received on the fishing spool.

3,704,841
MAGNETIC TAPE CARTRIDGE

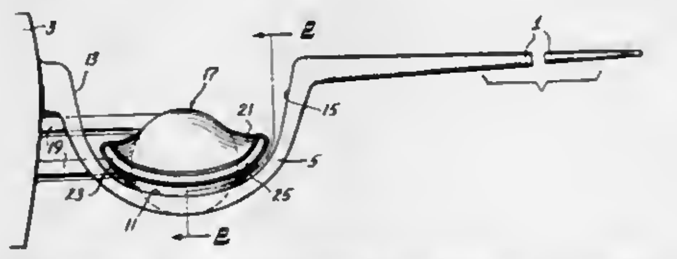
Keith S. Brown, Cupertino, Calif., assignor to Memorex Corporation, Santa Clara, Calif.
Filed Jan. 28, 1971, Ser. No. 110,403
Int. Cl. G03b *1/04*; **G11b** *15/32*, *23/04*
U.S. Cl. 242—199 **4 Claims**



An improved tape cartridge of moulded plastic having opposing tape reel viewing windows with internally projecting annular ridges fabricated around the periphery of spindle holes in the windows, the annular ridges being fabricated with relief slots for eliminating cracking of the windows during use.

3,704,842
CONTOURED STACK OF JET ENGINE WITH CHANNEL WING AIRCRAFT

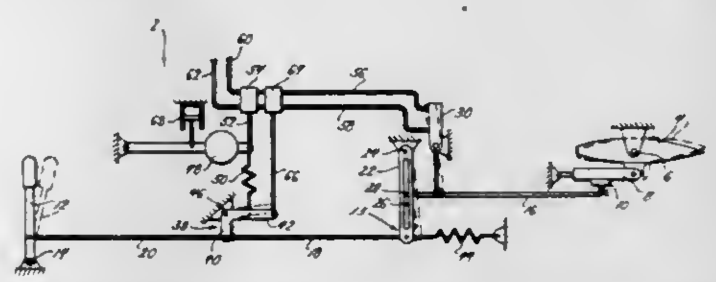
Willard R. Custer, 1905 W. Washington Street, Hagerstown, Md.
Filed Oct. 16, 1970, Ser. No. 81,266
Int. Cl. B64c *15/04*
U.S. Cl. 244—12 CW **1 Claim**



The discharge end of the exhaust stack of the jet engine is flattened and contoured to provide an elongated, curved, channel-shaped discharge opening, and the jet engine is mounted so that the discharge end of the exhaust stack is disposed adjacent to and a short distance above the leading edge of the open channel for discharging all of the exhaust gases in a flat stream parallel with the channel surface to provide a lift effect.

3,704,843
AIRCRAFT CONTROL SYSTEM

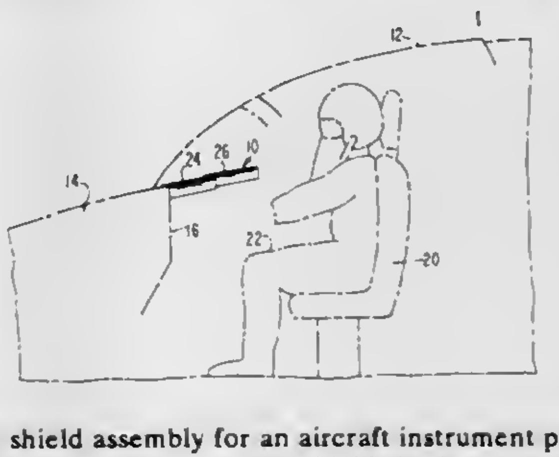
Robert B. Jenny, Kirkwood, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.
Filed June 11, 1970, Ser. No. 45,428
Int. Cl. B64c *13/04*
U.S. Cl. 244—85 **12 Claims**



A control system for operating the longitudinal control surface of an aircraft in response to movement of the control stick in the cockpit. The control system includes a variable ratio linkage arrangement connected between the stick and the power actuator which moves the control surface. The ratio of the linkage arrangement is varied by a fluid operated motor, and when that ratio is varied in the presence of a load factor on the aircraft the control surface also moves. An accelerometer and regulator spring are mounted in opposition to one another and are connected to a control valve which directs fluid to the motor for changing the linkage ratio. The regulator spring is also connected with the linkage arrangement so that the force exerted by it on the accelerometer varies with the stick position. When the spring and accelerometer are balanced the control valve remains closed. However, when one overcomes the other the valve opens and changes the linkage ratio along with the control surface position such that the resulting change in the normal acceleration of the aircraft tends to restore the accelerometer and regulator spring to a balanced condition. Accordingly a prescribed load factor is associated with every position of the stick, and the stick need not be adjusted when the speed and location of the center of gravity of the aircraft change. The control system also renders the control surface less sensitive to stick movement at higher speeds.

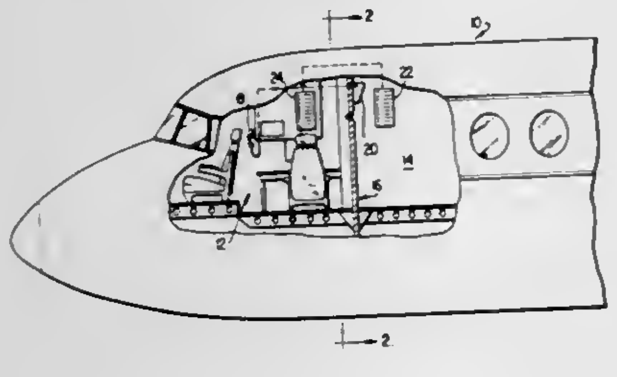
3,704,844
GLARE SHIELD ASSEMBLY

Walter C. Wolf, Los Angeles, Calif., assignor to Thermodyne International, Ltd.
Filed Dec. 14, 1970, Ser. No. 98,000
Int. Cl. B60j *3/02*
U.S. Cl. 244—121 **10 Claims**



A glare shield assembly for an aircraft instrument panel includes a base panel mounted to shield the instrument panel and a number of extension panels which can be slidably moved to extend the area of the glare shield. The extension panels desirably are made of a high heat-resistant, flexible thermoplastic material and are mounted on a telescoping sliding guide channel which, in turn, is hinged such that in the event of an ejection of the pilot from the aircraft, the extension panels rotate about the hinged portion to a cleared position upon impact thereto by, for example, the knees of the pilot.

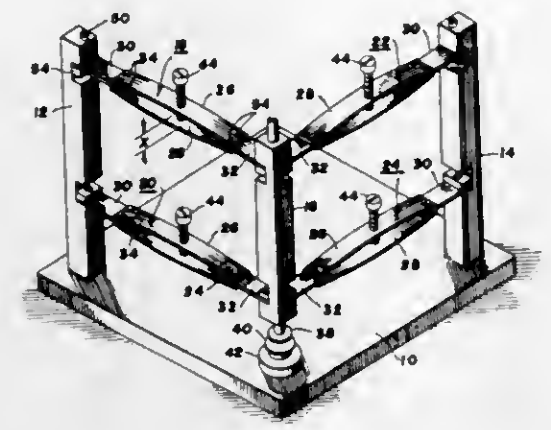
3,704,845
AIRPLANE HIJACKING PREVENTION SYSTEM
Michael Ord, 5267 Wilkins Avenue, Pittsburgh, Pa.
Filed Jan. 14, 1971, Ser. No. 106,337
Int. Cl. B64c *1/10*
U.S. Cl. 244—121 **8 Claims**



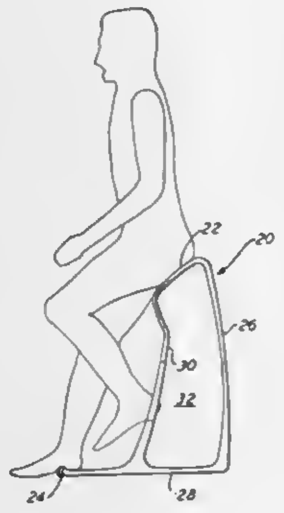
A method and system for preventing airplane hijacking provides for isolating the pilot and the cockpit from the passenger cabin of the airplane while nevertheless maintaining the necessary communication therebetween for assuring safety of the passengers and the airplane. Physical access between the cabin and the passenger compartment is restricted by a door which can be opened only from the cockpit, both the door and the associated bulkhead being of fire resistant, bulletproof material. An audio system provides verbal communication only from the cockpit to the cabin, and not in the reverse direction. Communication from the cabin to the cockpit is afforded exclusively by an electrical signalling system affording communication only of predetermined messages, specifically excluding any indication of hijacking attempts. The pilot's primary response to any emergency signalling indication is to land at the nearest airport. By assuring that all passengers are warned in advance of the installation in a plane of the system of the invention, potential hijackers are discouraged from even attempting to hijack a plane, since any effort to that end would be totally fruitless.

3,704,846
APPARATUS FOR MICROPOSITIONING AN OPERATIONAL MEMBER AND A WORKPIECE PLATFORM
James A. Clark, Mendon, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Dec. 8, 1969, Ser. No. 883,044
Int. Cl. F16m *13/00*
U.S. Cl. 248—125 **11 Claims**

Apparatus for micropositioning an operational member and a workpiece platform comprises either a fixed platform or a fixed operational member. In the fixed platform, four arms, each arm comprising a pair of substantially rigid coextensive resilient sections, extend between support posts affixed to the workpiece platform and a suspended operational member to angularly and translationally position the operational member relative to the workpiece platform by varying the extending length of each arm from the support posts by varying the spacing between each pair of resilient sections proximate their midpoints. In the apparatus for aligning the workpiece platform relative to the operational member, the platform has adjustable legs for angularly positioning the platform relative to the operational member and substantially rigid resilient translating legs fixed relative to the operational member, engaging the workpiece platform for translating the platform relative to the operational member by varying the length of each leg extending between its fixed point and the platform.



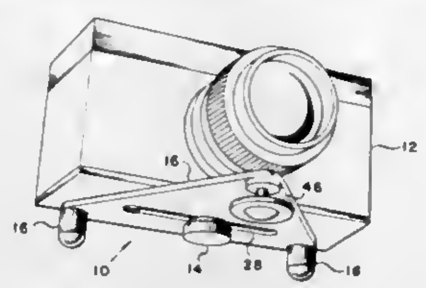
3,704,847
SUPPORT
Fred A. Schmitt, Nutley, N.J., assignor to Litton Business Systems, Inc., New York, N.Y.
Filed Sept. 2, 1970, Ser. No. 68,962
Int. Cl. F16m *11/00*
U.S. Cl. 248—127 **4 Claims**



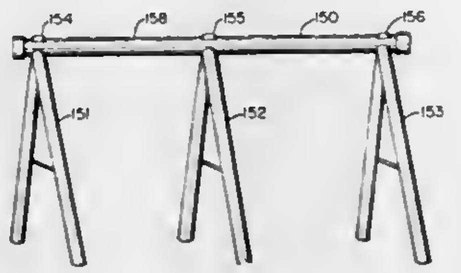
A device including a first surface adapted to receive the haunches or posterior extremety of a person and a second surface adapted to receive either both or one of the persons feet, to support the person in a leaning type position with his weight distributed so that a sufficient amount thereof is transmitted through said second surface to the surface upon which the support is disposed to minimize relative movement therebetween and thus obviate the need for securing the support in place.

3,704,848
MOUNTING AND LEVELING PAD
Eric W. Trebes, 8601 Balboa Blvd., Northridge, Calif., and Fred W. Trebes, 4175 Ivanboe Dr. 0703, Monroeville, Pa.
Filed July 10, 1970, Ser. No. 53,917
Int. Cl. F16m *11/04*
U.S. Cl. 248—163 **5 Claims**

A leveling pad for cameras and the like, usually triangular in shape. The pad, per se, includes a downwardly extending foot on each of its corners, at least one foot being vertically adjustable for leveling purposes. The pad is provided with an attachment screw for connecting the pad to an object to be supported, the screw being positioned in a slot for adjusting the center of gravity position of the supported structure.

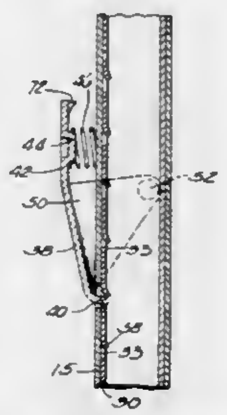


3,704,849
BOLTLESS GYM SET
Martin Green, 243 Franklin Turnpike, Mahwah, N.J.
Filed Sept. 23, 1969, Ser. No. 860,250
Int. Cl. F16m *11/32*
U.S. Cl. 248—165 **6 Claims**



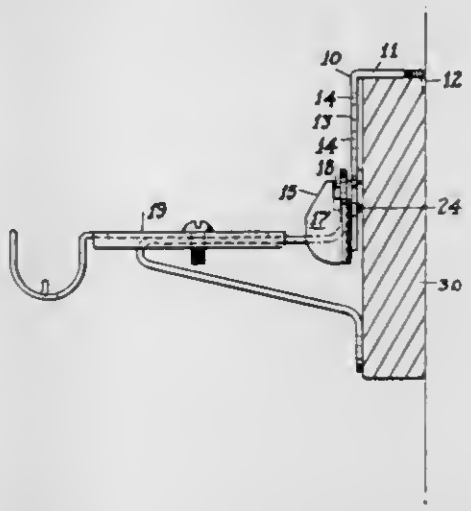
A gym set having boltless joining members wherein one member interlocks into the other through gravity friction. This frame construction has plays that are connected to the top horizontal bar of the frame structure, the top bar of the structure having a minimum number of holes for receiving plays, thus allowing for a lighter gauge tubing while at the same time providing a stronger member. The end of one member of the structure having tapered, reinforced ends for insertion within a complementary opening in another member to provide tightening at the interlocked joint of the two members while in use. The top bar having reinforced members extending from its center to its ends, thus eliminating the need of an additional two legs for center support.

3,704,850
TELESCOPICALLY COLLAPSIBLE TABLE LEG
Philip J. Hendrickson, and Richard J. Resch, both of Green Bay, Wis., assignors to Krueger Metal Products, Inc., Green Bay, Wis.
Filed Jan. 4, 1971, Ser. No. 103,590
Int. Cl. F16m *11/24*
U.S. Cl. 248—188.5 **3 Claims**



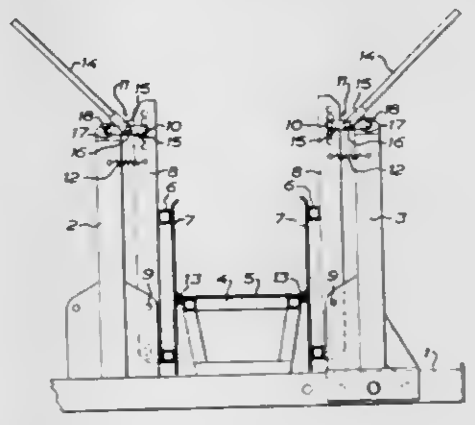
An adjustable table leg structure includes an upper leg connected to the table top and a leg extension or lower leg portion which is telescopically reciprocable within the upper leg to afford height adjustment. The extension leg is held in the adjusted position by a spring biased pawl which is pivoted on the exterior of the upper leg and has a terminal tooth which projects through a slot in the upper leg for engagement with any one of a plurality of vertically spaced locking apertures in the leg extension. The tooth is released from engagement by manual pressure on an arm pivoted to the pawl. The tooth is locked in engagement by pivoting the arm to locate a blocking tab on the arm between the pawl and the upper leg to prevent movement of the pawl and thus provide secure support.

3,704,851
CURTAIN ROD SUPPORT
Louis A. Cormier, c/o Cormier Jewelers, 42 Central Street, Southbridge, Mass.
Filed June 7, 1971, Ser. No. 150,269
Int. Cl. A47h *1/142*
U.S. Cl. 248—265 **5 Claims**



A device for use in adjustably mounting an accessory element such as a curtain rod support on a window frame, casement or the like. The device is so constructed as to permit horizontal and vertical adjustment of the supported element. The device is readily assembled without the necessity for bolts, screws, clamps and the like. It can be used with conventional accessory elements without the necessity of modification thereto.

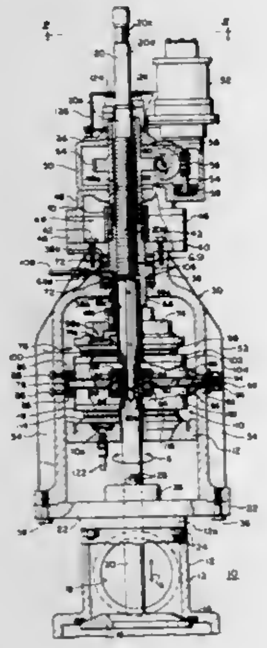
3,704,852
CONCRETE ELEMENT CASTING APPARATUS
Sven Arvid Emanuel Wellander, Malmo, Sweden, assignor to Ystads AB Smide & Svets, Ystad, Sweden
Filed June 7, 1971, Ser. No. 150,651
Claims priority, application Sweden, June 8, 1970, 7880/70
Int. Cl. B28b 7/22
U.S. Cl. 249—50 **5 Claims**



An apparatus for casting concrete pillars, columns and beams comprises several units following upon each other and serving to support a pair of mold side walls and a bottom plate of a concrete mold, the mold side walls and the bottom plate being exchangeable for permitting casting concrete elements of varying lengths, the distance between the mold side walls being adjustable and the height position of the mold side walls being variable to permit casting concrete elements of varying sizes, and the mold side walls being so arranged as to allow being moved apart for "opening" of the mold so that the concrete element cast can be removed.

3,704,853
VALVE WITH DIFFERENTIAL CLUTCHING VALVE ACTUATOR

Henry A. Waller, Los Angeles, Calif., assignor to Consolidated Controls Corporation, Bethel, Conn.
Filed March 26, 1971, Ser. No. 128,466
Int. Cl. F16d *13/42, 67/04;* **F16k** *31/00*
U.S. Cl. 251—59 **10 Claims**

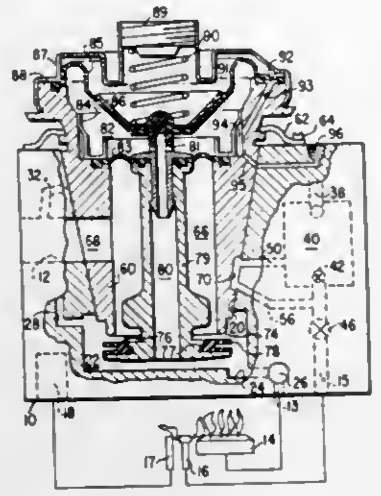


A valve including a body having a seat cooperating with a valve closure member and an actuator mechanism comprising an elongated valve stem connected to the closure member and having a threaded portion intermediate its ends. Differential clutch means is associated with the valve stem for rotation therewith and/or relative slidable displacement along the length of the stem. A drive nut is rotatably driven and mounted on the valve body for engagement with the threaded portion of the stem and means is provided for rotating the drive nut. A clutch mechanism selectively interconnects the nut and the differential clutch member whereby engagement of the clutch causes rotation of the stem in response to rotation of the drive nut. A brake mechanism selectively interconnects the valve body and the differential clutch member and is operative when engaged to restrain rotation of the valve stem so that the drive nut produces longitudinal movement of the stem to open or close the valve.

3,704,854
FLOW CONTROL DEVICE WITH PRESSURE REGULATION

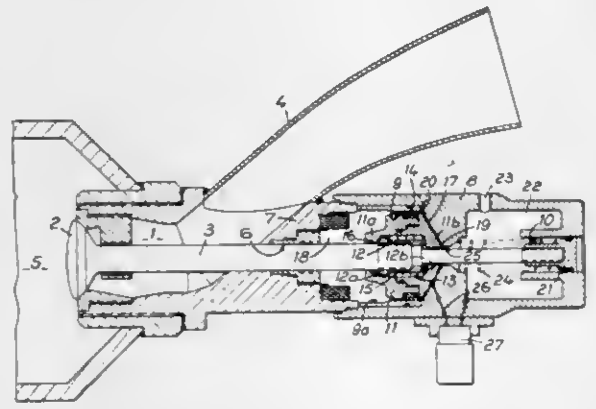
Jay R. Katchka, Long Beach, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Division of Ser. No. 740,150, June 26, 1968. This application Sept. 9, 1970, Ser. No. 70,812
Int. Cl. F16k *25/00, 31/145*
U.S. Cl. 251—61.2 **2 Claims**

A flow control device having a manually operable valve movable between a plurality of controlling positions for delivering fluid flows to main and pilot outlets; a pressure regulator assembly downstream of the manually operable valve regulates the pressure of the pilot flow as well as the main flow and the manually operable valve selectively permits the pilot flow to bypass the pressure regulator. Upstream of the pilot flow outlet the pilot flow line is provided with restricting orifices to prevent an excess of a non-regulated pilot flow and to dampen a regulated pilot flow as is necessary during initial compensation of the regulator.



3,704,855
DEVICE FOR CONTROLLING DISPLACEMENT OF AN ELEMENT

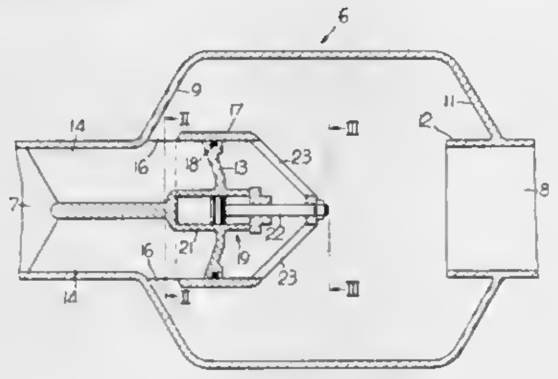
Robert P. Combes, La Valette, France, assignor to Socieote pour le Developpement de la Recherche Appliquee
Filed June 17, 1971, Ser. No. 154,135
Claims priority, application France, June 18, 1970, 7022521
Int. Cl. F16k *31/143;* **F15b** *15/22*
U.S. Cl. 251—63.4 **10 Claims**



A device for controlling the displacement of an element, the said device comprising a rod by means of which the element may be displaced, a first piston having a portion mounted for sliding movement on and sealed to the rod, a first cylinder within which the first piston is slidably mounted and which defines therewith an admission chamber whose volume changes on movement of the first piston, the admission chamber being adapted to be selectively brought into and out of communication with a source of fluid under pressure, the fluid in the admission chamber acting on a pressure surface of the first piston so as to urge the latter in a predetermined direction, means for urging the first piston in the opposite direction, an expansion chamber for the fluid under pressure, means establishing communication between the expansion chamber and the admission chamber when the volume of the latter exceeds a predetermined volume which is substantially less than its maximum volume, the minimum volume of the admission chamber being less than that of the said predetermined volume, stop means mounted on and secured to the rod, opposite faces of the stop means being respectively engageable by corresponding faces of the first piston to limit relative movement therebetween in the said predetermined and opposite directions, and resilient means which are interposed between the stop means of the first piston and which urge the latter in the said opposite direction, whereby the initial displacement of the first piston by the fluid corresponds to a relative displacement of said first piston with respect to the rod, the first piston and rod thereafter moving in unison only after the first piston has come to bear against one of the opposite faces of the stop means.

3,704,856
VALVE WITH ENERGY DISSIPATION CHAMBER

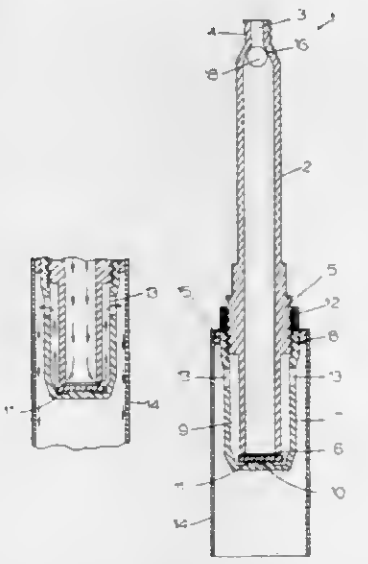
Tgnacy Swiecicki, York, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Nov. 5, 1970, Ser. No. 87,245
Int. Cl. F16k *47/00*
U.S. Cl. 251—118 **1 Claim**



A valve for handling large volumes of water including an energy dissipating chamber. A valve is provided at the inlet to the chamber which includes a water deflecting surface causing the onrushing water to be deflected against the side walls of the energy dissipating chamber when the valve is open. A sleeve slidably contained on the deflecting member engages the end wall of the dissipating chamber when it is desired to block the flow of water. To open the valve the sleeve is moved downstream from the end wall presenting an unobstructed circular orifice forcing the water into a fan shape as it enters the energy dissipating chamber.

3,704,857
WATER FLOW SILENCING MEANS

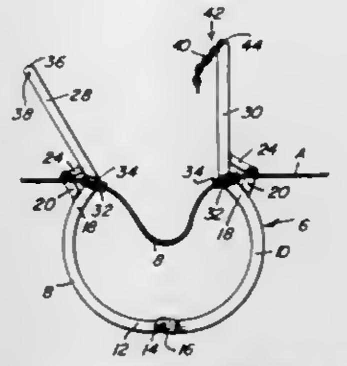
George Henry Claridge, 91 Easther Crescent, Kew, Dunedin, New Zealand
Filed Sept. 22, 1970, Ser. No. 74,455
Int. Cl. F16k *47/10*
U.S. Cl. 251—118 **6 Claims**



A water flow silencing means arranged to provide an adjustable back pressure to ensure water is delivered at an acceptable rate but without causing pipe noises normally associated with the use of valves or taps connected to high pressure water supply.

3,704,858
WIRE TIGHTENER

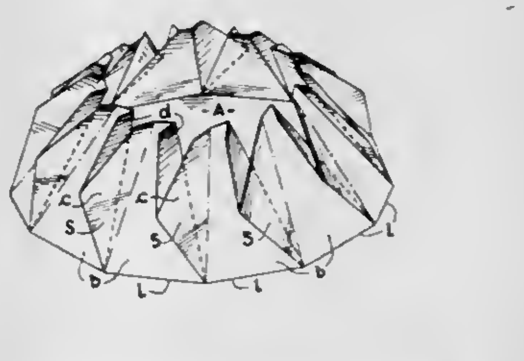
Duane A. Hutton, and Michael Hutton, both of Keating Stage, Baker, Oreg.
Filed Dec. 31, 1970, Ser. No. 103,140
Int. Cl. B25b *25/00*
U.S. Cl. 254—81 **6 Claims**



A manually usable fence wire handling tool designed and adapted to enable a user to grip and manipulate a post-suspended wire, to loop the wire, take up slack, then twist the looped portion in a manner to adequately tighten the wire. It comprises an easy-to-handle frame characterized by (1) a first pair of main legs pivotally joined together (2) a second pair of auxiliary legs hingedly linked to the free outer ends of the main legs and (3) paired and confronting wire clamping jaws fixed on coacting hinged ends of said main auxiliary legs.

3,704,859
INFLATABLE CUSHIONS OF UTILITY AS JACKS

Daniel Josien, Roubaix, France, assignor to Societe Anonyme Pronal, Roubaix, France
Filed March 8, 1971, Ser. No. 121,773
Claims priority, application France, March 19, 1970, 7009828
Int. Cl. B66f *3/24*
U.S. Cl. 254—93 HP **8 Claims**

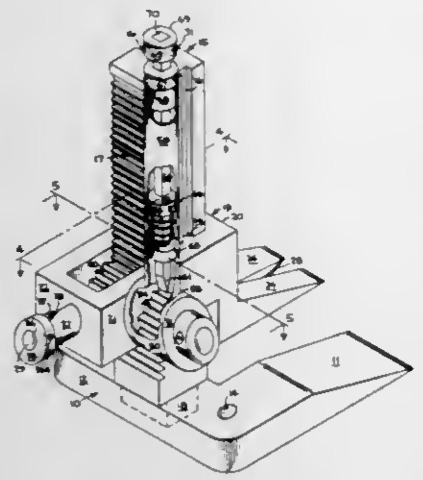


A method for manufacturing an inflatable cushion of utility as a jack. The cushion is made from a piece of fabric coated with elastomer and comprising a polygonal bottom wall and a top wall which includes triangular portions between which are circumferentially interposed gores. The top wall is formed by folding over the triangular portions onto the bottom wall and securing the gores to the triangular portions, as by an adhesive or vulcanization. If desired, a reinforcing and retaining disc can be secured to the outer and/or inner face of the upper wall. A center inflating valve may be secured to the center of the upper wall.

3,704,860
WEDGING AND PRYING TOOL

John M. Krapu, Box 564, La Moure, N. Dak.
Filed Jan. 25, 1968, Ser. No. 700,512
Int. Cl. B66f *3/02*
U.S. Cl. 254—95 **5 Claims**

An apparatus for use a jack or pry tool with a U-shaped base member having a lifting bar or jaw disposed within the legs of the base. The bar is attached to a carriage which is moved by a ratchet actuated rack and pinion. The rack teeth are formed on a central post member which is attached perpendicular to the base and also serves as a guide means for the carriage.



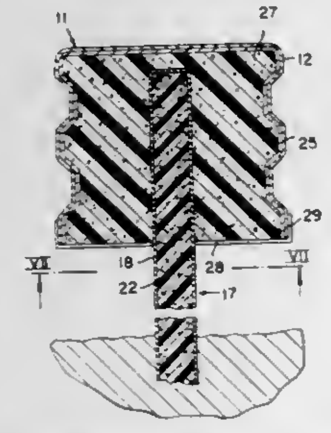
3,704,861
ROADWAY GUARD-RAIL ASSEMBLY

Ernest Glaesener, Dudelange, Luxembourg, assignor to ARBED, Acieries Reunies de Burbach-Eich-Dudelange SA, Luxembourg G.D. de, Luxembourg

Filed May 28, 1971, Ser. No. 147,817

Int. Cl. E01f *15/00*

U.S. Cl. 256—13.1 **7 Claims**



A guard rail for vehicular roadways consisting essentially of box-like rail members of downwardly open sheet-metal channels filled with a foamed elastomeric synthetic resin, with blade-like posts for the rails received in the synthetic resin mass. The walls of the channel are longitudinally corrugated or profiled.

3,704,862
VIBRATOR

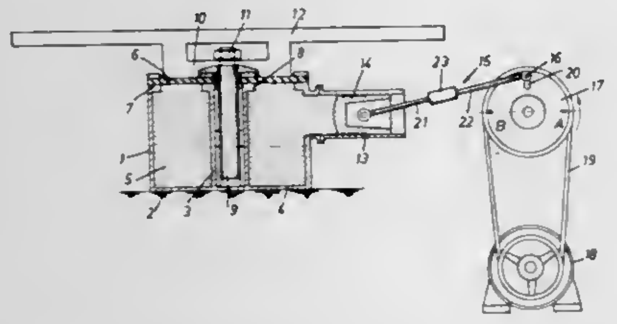
Virginio Sironi, Milan, Italy, assignor to Vibratechniques S.A., Paris, France

Filed Nov. 23, 1970, Ser. No. 92,121

Claims priority, application France, Nov. 21, 1969, 6940115

Int. Cl. B01f *9/00*

U.S. Cl. 259—1 R **10 Claims**



A vibrator, particularly for the manufacture of moulded concrete products, comprises a support for a mass to be vibrated and means for vibrating the support; said means including a reciprocable member having an elastic portion for increasing the acceleration of the support during vibration thereof when it is near its extreme positions of vibration.

3,704,863
APPARATUS FOR MIXING A PIGMENT DISPERSION INTO A POLYAMIDE MELT

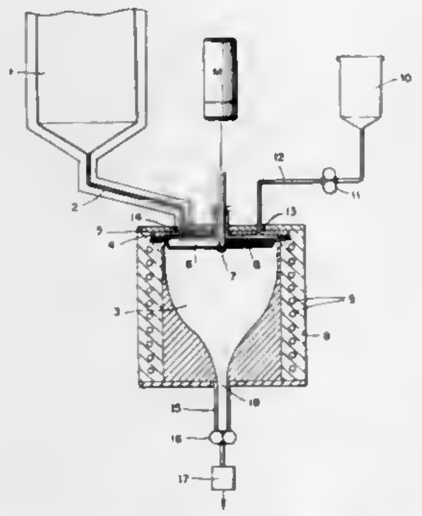
Ernst Meyer, Oberbruch/Rhineland; Wolfgang Grimm, Erlenbach; Klaus Gerlach, Obernau, and Helmut Linhart, Aschaffenburg, all of Germany, assignors to Akzona Incorporated, Asheville, N.C.

Division of Ser. No. 777,370, Nov. 20, 1968, Pat. No. 3,560,430. This application April 9, 1970, Ser. No. 31,443

Claims priority, application Germany, Nov. 21, 1967, P 16 94 348.9

Int. Cl. B01f *7/16*

U.S. Cl. 259—8 **7 Claims**



Process and apparatus for the uniform mixing of a polyamide melt with a pigment dispersed in a liquid medium soluble in the polyamide wherein the melt is divided, immediately after introduction of the liquid pigment dispersion as a thin liquid stream, into planar segments or displaced layers having a maximum thickness of about 1,500 microns, preferably 20 to 850 microns, using a paddle wheel stirring mechanism at the inlet end of an elongated mixing vessel tapering radially inwardly down to its outlet or discharge end.

This invention generally relates to a process for continuously mixing a pigment dispersion into a high molecular weight organic polymer which is in the molten state, for example nylon 6 (polycaprolactam), nylon 6,6 (polyhexamethylene adipamide) or other polyamides, particularly at the conclusion of a continuous polymerization or polycondensation process.

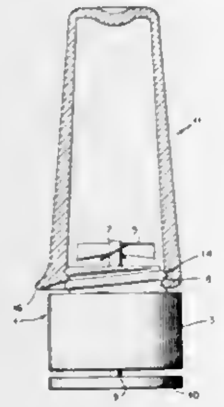
3,704,864
MIXING APPARATUS

Virginia Olga Lee, Homeward Lane, Weston, Conn.

Filed April 28, 1970, Ser. No. 32,598

Int. Cl. B01f *7/00*

U.S. Cl. 259—102 **2 Claims**



This invention relates to mixing devices, such as food mixers. One embodiment includes a mixer unit which may be removably, sealingly affixed to the top of a receptacle containing the material to be mixed and the combination thereafter inverted during the mixing operation. Thereby a short-shafted universal mixer device may be used with a wide variety of receptacles.

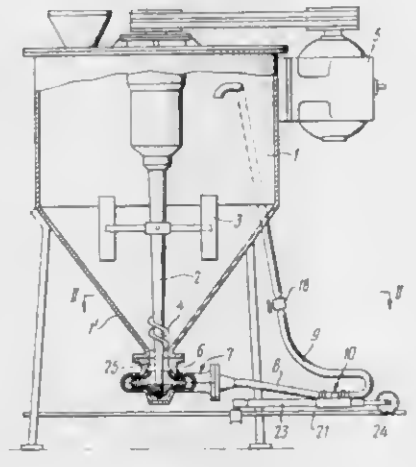
3,704,865
PLANT FOR APPLYING SOLIDIFYING PLASTIC MASSES

Gennady Grigorievich Kharitonov, ulitsa Vagonoremontnaya, 9/25, kv.15; Anatoly Mitrofanovich Nebytov, Fortunatovskaya ulitsa, 18, kv. 42; Sergei Mikhailovich Doroshin, 3 Pryadilnaya, ulitsa, 7, kv. 26, and Mariana Sergeevna Alimova, Setunsky proezd, 19, kv. 23, all of Moscow, U.S.S.R.

Filed Jan. 5, 1970, Ser. No. 729

Int. Cl. B28c *5/10*

U.S. Cl. 259—178 A **4 Claims**



A plant for applying solidifying plastic masses, which is essentially a tank having a pipeline to connect the upper and lower portions of the tank with a view to providing a continuous circulation of the mass inside the tank.

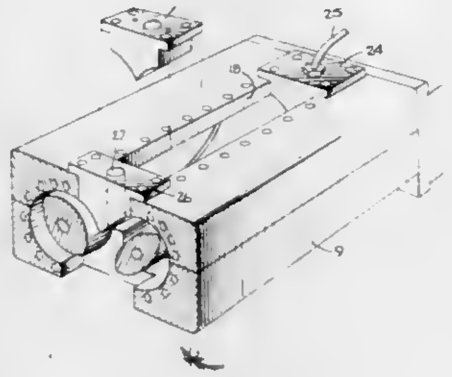
3,704,866
CONTINUOUS MIXER

Douglas E. Mosher, Seymour; Carleton H. Treat, Oxford, and Edwin H. Drab, Shelton, all of Conn., assignors to USM Corporation, Boston, Mass.

Filed May 28, 1970, Ser. No. 41,322

Int. Cl. B29f *3/02;* **B01f** *7/08*

U.S. Cl. 259—192 **11 Claims**



A continuous mixer has its barrel forming the rotor chambers upwardly open above these chambers and provided with removable closing sections.

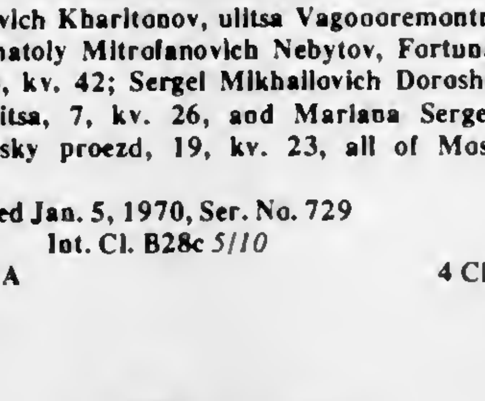
3,704,867
LOW SILHOUETTE DUAL FLOW STAGE CARBURETOR

Roy E. Diehl, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed March 4, 1971, Ser. No. 120,954

Int. Cl. F02m *7/12*

U.S. Cl. 261—62 **10 Claims**



A downdraft type carburetor induction passage has essentially a constant cross-sectional area with a rounded edge air inlet, the rounded edge cooperating with a rotatable member having its peripheral surface in the form of an inverted semi-venturi so as to form an inverted venturi whose area varies as a function of the rotation of the member to provide high fuel metering signals at low air flows and high air flow potential.

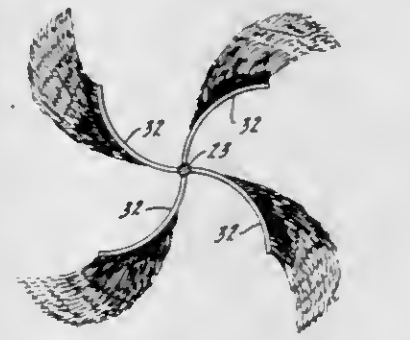
3,704,868
MECHANICAL AERATOR

Frank G. Weis, Kansas City, Mo., assignor to Ecodyne Corporation

Filed Sept. 25, 1970, Ser. No. 75,515

Int. Cl. B01f *3/04, 7/20*

U.S. Cl. 261—91 **8 Claims**



A mechanical aerator for the aeration of a liquid, having an impeller positioned so as to contact the surface of the liquid, the impeller comprising: a shaft rotatable about a substantially vertical axis; and a plurality of backward curved vanes extending outwardly from the shaft, the vanes curved such that as the impeller rotates about a substantially vertical axis a series of thin film waves eminate spirally outward and upward from the vanes, such that each particle of liquid contained therein moves radially outward from the axis of rotation.

3,704,869
GAS/LIQUID FILM CONTACT APPARATUS

Ronald Priestley, 84 Chesterwood Road, Kings Heath, Birmingham 14, England

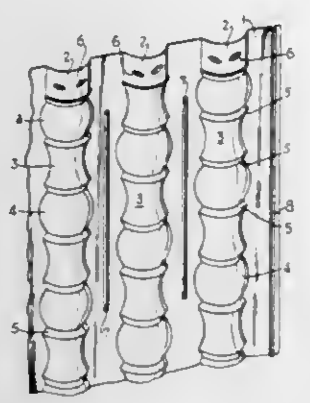
Filed Aug. 1, 1969, Ser. No. 846,751

Claims priority, application Great Britain, Aug. 6, 1968, 37,479/68

Int. Cl. B01f *3/04*

U.S. Cl. 261—112 **12 Claims**

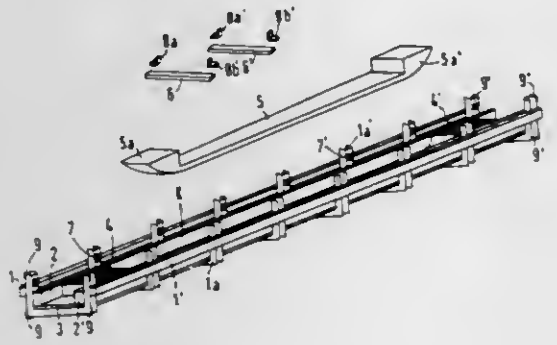
Packing sheets for gas/liquid contacting apparatus consist of a number of spaced parallel units, each of which is a sector of a hollow corrugated tube, connected by planar portions of the



sheets. The assembled sheets provide a regular array of hollow corrugated tubes.

3,704,870
APPARATUS FOR SATURATING AND HARDENING THE STATOR WINDING RODS OF HIGH VOLTAGE ELECTRIC MACHINES

Gunter Kremser, Kassenberg 37, Mulheim-Ruhr, Germany
Filed May 12, 1970, Ser. No. 36,612
Claims priority, application Germany, May 23, 1969, P 19 26 356.0
Int. Cl. F27b *9/24*; **F27d** *3/12*
U.S. Cl. 263—2 R **9 Claims**

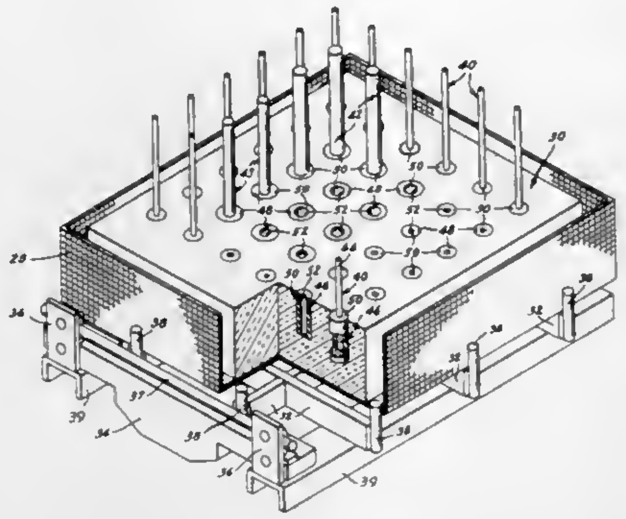


Each of a plurality of frames has frame wall portions defining the groove dimensions of a corresponding rigid rod wound with the insulating tape and substantially in its final configuration and additional bending frame wall portions for fixing the curved winding end portions of the rod in the junction between the straight groove portion and such end portions. A corresponding one of the rods is inserted into each of the frames thereby preparing the frames and the rods for a saturating operation. A carrier for a plurality of the rods and their frames are combined into a hardening unit. An additional frame is provided for all the rods in common at each surface at each end of the hardening unit for fixing the winding end portions and rod ends thereby preparing the frames and the rods for a hardening operation.

3,704,871
APPARATUS FOR HEAT TREATING METALLIC ARTICLES

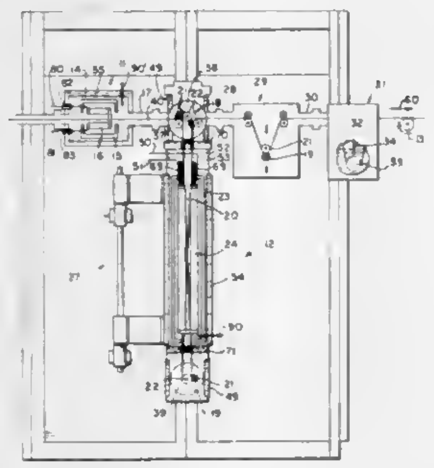
Carl G. Paulson, West Kingston, R.I., assignor to C. I. Hayes, Inc., Cranston, R.I.
Division of Ser. No. 675,437, Oct. 16, 1967, Pat. No. 3,615,927. This application July 13, 1970, Ser. No. 61,031
Int. Cl. F27b *3/02*
U.S. Cl. 263—2 R **1 Claim**

The method and apparatus for heat treating metallic articles, wherein the articles are embedded in a ceramic fiber work holder such that the embedded portion is prevented from reaching a temperature during the heat treating operation that produces a hardening action thereon, the non-hardened portion of the articles being easily stamped or marked with identifying indicia thereon after the heat treating operation.



3,704,872
SINTERING FURNACE

Gerhart P. Klein, Manchester, Mass., assignor to P. R. Mallory & Co, Inc., Indianapolis, Ind.
Filed Aug. 21, 1968, Ser. No. 754,393
Int. Cl. F27b *9/28*
U.S. Cl. 263—3 **11 Claims**

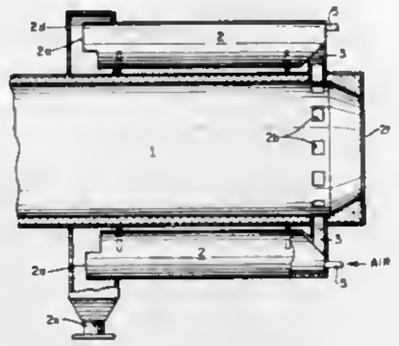


A horizontal-vertical sintering furnace wherein a workpiece is presintered in the horizontal plane and sintered in the vertical plane. The workpiece makes multiple passes through a vertical sintering means.

3,704,873
METHOD AND APPARATUS FOR COOLING CEMENT CLINKER

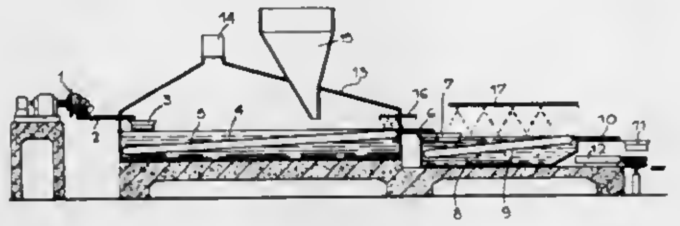
Flemming Edvin Jensen, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J.
Filed Aug. 18, 1971, Ser. No. 172,857
Claims priority, application Great Britain, Sept. 7, 1970, 42,808/70
Int. Cl. F27b *7/38*
U.S. Cl. 263—32 C **9 Claims**

Method and apparatus for cooling a rotary kiln product, for example cement clinker, by means of atmospheric air caused to flow countercurrently to the clinker through cooling tubes rotating with and provided in planetary fashion around the outlet end of the rotary kiln in which the clinker is manufactured, and connected with the kiln through substantially radial chutes through which the clinker passes into the tubes, additional outside air being introduced directly into the cooler tubes.



3,704,874
APPARATUS FOR COOLING WIRE ROD

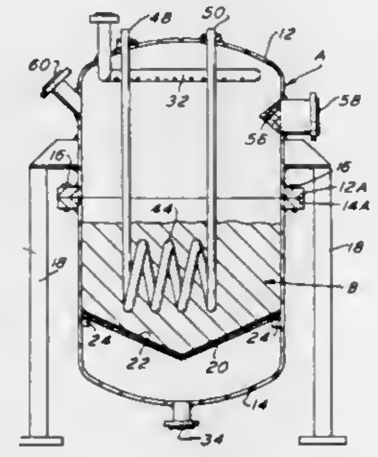
Emile Oscar Julien Van den Bulcke, Liege, Belgium, assignor to Cockerill-Ougree-Providence et Esperance, Longdoz en abrege Cockerill, Belgium
Filed July 6, 1971, Ser. No. 159,684
Claims priority, application Belgium, July 3, 1970, 42,888
Int. Cl. C21d *9/56*
U.S. Cl. 266—3 R **8 Claims**



Wire rod emerging from the hot mill is coiled and then moved through an aqueous calcium chloride bath in the form of overlapping nonconcentric loops. The wire rod is sprayed before it leaves the vicinity of the aqueous bath and then goes to a rinsing station from which it passes to a device for coiling it into a roll.

3,704,875
REMOVAL OF MERCURY FROM EFFLUENT STREAMS

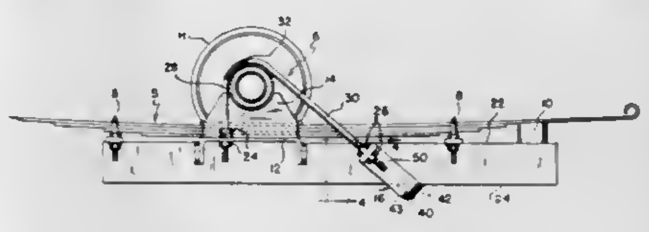
Paul Francis Waltrich, Hatboro, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed July 1, 1971, Ser. No. 158,753
Int. Cl. C22b *9/04, 43/00*
U.S. Cl. 266—15 **5 Claims**



Apparatus for treatment of effluent streams containing very low concentrations and even trace amounts of mercury in both elemental form and as mercuric ion. The stream is passed through a closed vessel having a bed of reactive metal particles, such as Zinc, magnesium and aluminum, and iron, so that the mercury forms an amalgam on the metal surface. The bed is regenerated and the mercury recovered by heating the bed while the vessel is under vacuum and condensing the vaporized mercury. The lower temperature permitted by the reduced pressure and the absence of air precludes oxidation and clumping of the metal granules.

3,704,876
TRACTION DEVICE

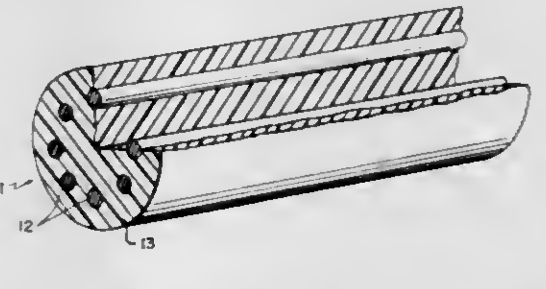
Joseph J. Schubeck, Lakewood, Ohio, assignor to Lakewood Industries, Inc., Cleveland, Ohio
Filed Aug. 27, 1970, Ser. No. 67,419
Int. Cl. F16f *1/22*
U.S. Cl. 267—66 **6 Claims**



A traction device for maximizing traction between the wheels of a motor vehicle and a road surface including an elongated lever-like bar and a clamping assembly operably connected thereto for clamping the bar to the rear axle housing of the motor vehicle. The clamping assembly includes a pair of elongated loop-like clamp members adjustably mounted on the bar having one end thereof extending generally perpendicular to the central axis of the bar and the opposite end thereof extending in generally angular relation with respect to the central axis of the bar. A saddle-like bracket member connects the opposite ends of the clamp members together and engages the bar in cradle-like relation to maintain maximum clamping engagement of the bar with the axle housing.

3,704,877
MEANS AND METHOD OF ENERGY STORAGE AND DAMPING

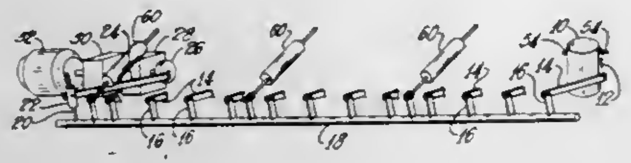
John Nunes, 239 Worthen Road, Lexington, Mass.; Arthur L. Geary, 1035 Woodland, Barrington, and John A. Roberts, 459 W. Oakwood Dr., Timberlake, Barrington, both of Ill.
Filed Feb. 22, 1971, Ser. No. 117,316
Int. Cl. F16f *1/06*
U.S. Cl. 267—166 **20 Claims**



A one-piece energy controlling device formed of a composite of at least two different materials, having desired energy storage and energy damping characteristics. The preferred devices have a plurality of unidirectional, elongated filaments of one material extending through and embedded in a matrix of a second dissimilar material to form an elongated structure which is set in a spring shape. The devices can be designed for use either as springs to store energy or for use as one-piece spring energy damper to both store energy and/or dissipate energy at different selected load levels.

3,704,878
METHOD AND APPARATUS FOR REDUCING TORQUE CHANGES IN ROCK SHAFTS

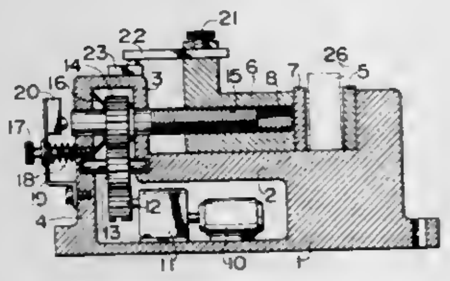
Richard E. Pitt, Mewark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Division of Ser. No. 821,259, May 2, 1969. This application March 18, 1971, Ser. No. 125,658
Int. Cl. F16f *15/02*
U.S. Cl. 267—182 **11 Claims**



A pneumatic cylinder connected between an eccentric on a rock shaft and a structural support, for absorbing energy during one quarter of the cycle of the rock shaft during which it is decelerated, and for putting the absorbed energy back into the rock shaft during the next quarter cycle when it is accelerated. The pneumatic cylinder is preferably a double acting one with a center port to accomplish the energy absorption and redelivery to the rock shaft, at both ends of the shaft rocking movement. The rate of energy absorption and subsequent reapplication may be controlled by supplying superatmospheric pressure to the center port, and/or by starting the compressive cycle prior to the mid point of the oscillating cycle. The later is accomplished by using a piston--side port valving arrangement wherein the piston has a length that is a sizable proportion of its stroke. The cylinder may be cooled by utilizing a center exhaust port opposite the inlet port, and causing a continual flow through the low pressure end of the cylinder after the piston has proceeded past the inlet port. Bleeds may be provided at opposite ends of the cylinder to reduce the reapplication force of the cylinder, and adjustable chamber means may also be provided on one or both ends of the cylinder for adjusting the absorption rate.

3,704,879
ELECTRIC VISE

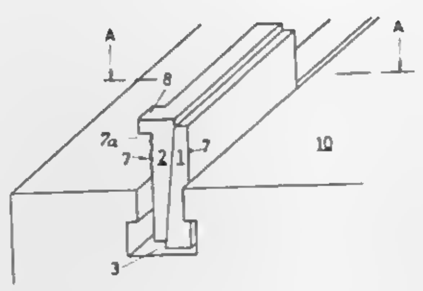
Eikichi Nishikawa, Osaka, Japan, assignor to Kyoritsu Manufacturing Company Limited, Osaka, Japan
Filed March 29, 1971, Ser. No. 128,687
Int. Cl. B25b *1/02, 1/18;* **B23q** *3/08*
U.S. Cl. 269—222 **3 Claims**



An electric vice which has a tightening screw driven by an electric motor, a movable jaw moved by the tightening screw, a limit switch actuated by backward axial movement of the tightening screw for determining the tightening force, an adjusting bar fixed to the movable jaw and adjustable in length thereof for operating another limit switch to thereby adjust the interval between the movable jaw and a fixed jaw when the movable jaw is opened.

3,704,880
WORKPIECE POSITIONING ARRANGEMENT

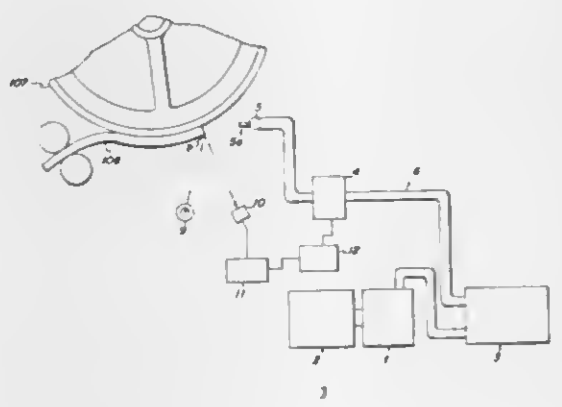
Alfred Gudel, Gaswerkstrasse 26, 4900 Langenthal, Switzerland
Filed April 15, 1971, Ser. No. 134,273
Claims priority, application Switzerland, April 27, 1970, 6341/70
Int. Cl. B23q *3/02*
U.S. Cl. 269—303 **6 Claims**



A work support has a surface provided with at least one groove. A limit stop device is provided for positioning and retaining workpieces on this surface against displacement. The device has a pair of self-locking wedge-members which can be inserted into the groove with at least one of the wedge members projecting out of the groove and beyond the surface so that a workpiece can abut against it. The wedge members are displaceable relative to each other in the groove between a released and a self-locking position, and in the latter they are wedged against the walls bounding the groove and thus become immovable.

3,704,881
TRANSFER SHEET PEELING DEVICE FOR XEROGRAPHIC APPARATUS

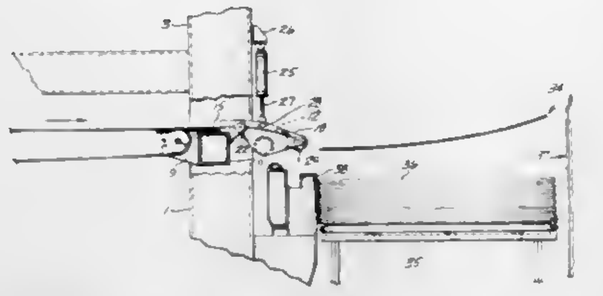
Katsuhide Suda, Ichikawa, Japan, assignor to Xerox Corporation, Stamford, Conn.
Filed May 10, 1971, Ser. No. 141,915
Claims priority, application Japan, May 7, 1970, 45/38293
Int. Cl. B65h *5/06*
U.S. Cl. 271—51 **1 Claim**



Apparatus to remove the copy sheet from the photoconductive surface of a xerographic machine following transfer of the image thereto. The apparatus consists of a pressure manifold having at least one discharge orifice directed toward a separation point on the photoconductive surface downstream of the transfer station, a source of pressure air, a valve to regulate the admission of pressure air to the manifold, and control means to actuate the valve as the leading edge of the copy sheet approaches the separation point. To obtain accurate response, a photocell type sheet detector is used to detect the leading edge of the copy sheet.

3,704,882
SHEET POSITIONER

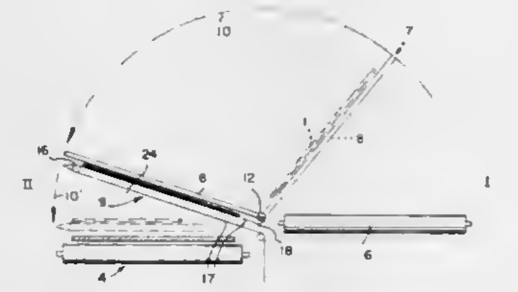
Byron B. Brookhyser, Milton, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed March 29, 1971, Ser. No. 128,779
Int. Cl. B65h *29/18*
U.S. Cl. 271—68 **4 Claims**



An apparatus particularly suited for the layup of plywood panels operates to position an individual sheet of veneer over an increasing stack of such veneer sheets. The positioning apparatus consists of a flexible sheet metal surface which is actuated by a hydraulic cylinder to impart the proper trajectory to the veneer sheets as they are thrown outwardly from the output edge of the positioner surface.

3,704,883
APPARATUS FOR FORMING A STACK

Gunter Don, Hiddesen, Germany, assignor to G. Siempelkamp & Co., Krefeld, Germany
Filed Feb. 17, 1971, Ser. No. 116,203
Int. Cl. B65h *29/36, 29/40*
U.S. Cl. 271—72 **10 Claims**

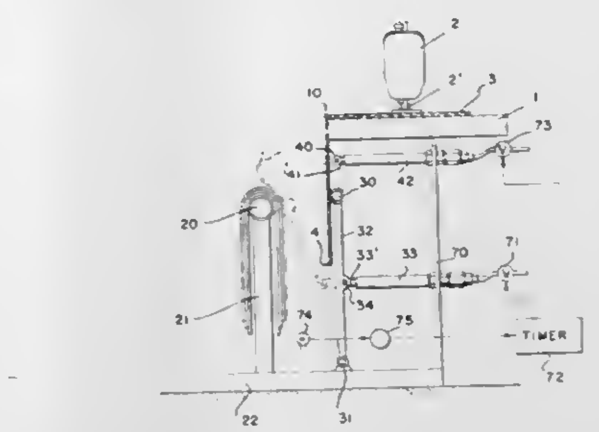


An apparatus for applying an adhesive-coated cover sheet or lamina to a substrate, such as a particulate or fibrous core, has a pair of substantially parallel surfaces which lie next to each other and form beds for the sheet and the substrate, respectively. Pivoted between these surfaces is a fork which can swing through an arc of close to 180° and has tines for lifting the adhesive-free underside of the sheet so that it can swing this sheet to a position above the substrate. A depositing arrangement is pivotal about an axis close to the fork pivot axis through the balance of the 180° arc so that it receives the sheet from the fork and moves it to immediately adjacent the substrate; the depositing device is displaced transversely to the pivot axis to the side, gently placing the sheet on the substrate. The surface of this placing arrangement is formed by a plurality of parallel cables which are spanned over a transversely displaceable guide.

3,704,884
STACKING DEVICE FOR FLEXIBLE WORKPIECES

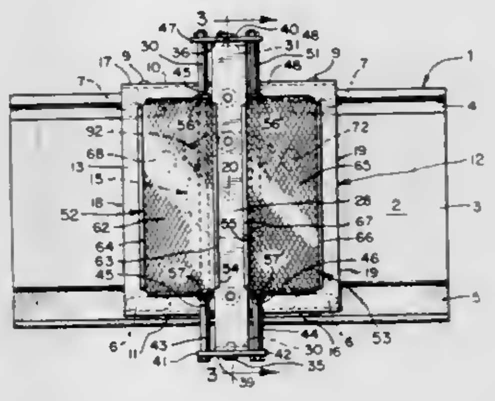
Karl Nicolay, and Konrad Pollmeier, both of Bielefeld, Germany, assignors to Durkoppwerke GmbH, Bielefeld, Germany
Division of Ser. No. 739,733, June 25, 1968, abandoned. This application March 5, 1970, Ser. No. 26,458
Int. Cl. B65n *29/10*
U.S. Cl. 271—85 **1 Claim**

A succession of work pieces, moving along a work table past a sewing machine, are stacked on a rail beyond a transverse discharge edge of the work table by being allowed to depend from that edge between the table and the rail for at least half of their length, the leading end of each workpiece being clamped in position while the trailing end is thrown across the rail so as to be draped symmetrically therearound.



3,704,885
SKIING TEACHING DEVICE

Kazys Raciunas, 1404 49th Ct., Cicero, Ill.
Filed Nov. 2, 1970, Ser. No. 85,970
Int. Cl. A63b *23/04*
U.S. Cl. 272—57 B **16 Claims**

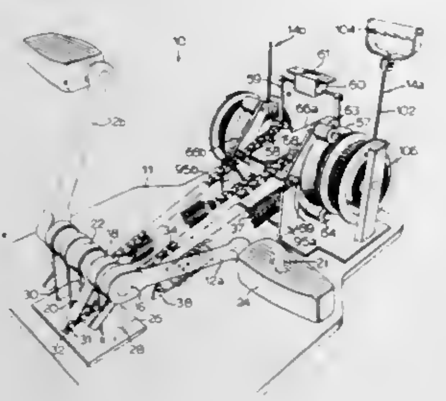


A skiing teaching device having a base slidably supporting a platform for transverse movement. A pair of side foot rests are slidable on a pair of parallel rods which are pivotally interconnected at their ends to each other and to the ends of a spring support which in turn is rotatably supported intermediate its ends from a turntable on the platform. The spring has a depending pin operating in an arcuate slot concentric with the turntable and the pin is slidable within a slot in a control arm pivoted at one end on a fixed axis to the sliding platform and guided at its other end by an adjustable pin mounted on the base and controlling the length of the platform travel relative to the base.

3,704,886
EXERCISING MACHINE WITH SPRING-RETURN PEDALS AND PULL LINES

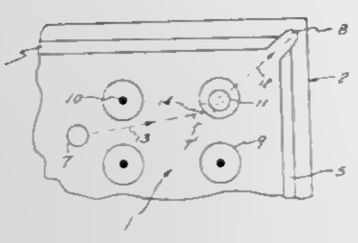
George Kay, 837 Kipling Avenue, Toronto 18, Ontario, and Alexander Elimov, 21 Heatherglen Road, Rexdale, Ontario, both of Canada
Filed Oct. 26, 1970, Ser. No. 83,970
Int. Cl. A63b *21/02*
U.S. Cl. 272—73 **8 Claims**

An exercising machine having a pair of pedals and a pair of sheaves both mounted for rotation upon a base. A line is wound around each sheave and a handle is connected to the end of each line. The pedals and sheaves are operatively connected to a friction mechanism which opposes turning of the pedals in one direction and unwinding of the lines from the sheaves. A spring is provided for turning the pedals in the opposite direction and for winding the lines on to the sheaves and a clutch serves to disengage the friction mechanism when the pedals and sprockets are being turned by the spring. The force exerted by the spring mechanism opposing turning of the pedals and sprockets may be manually adjusted. The pedals are restricted from rotating fully about their axis by a pair of stop points formed by the base.



3,704,887
GUIDE FOR AIMING A CUE BALL AT AN OBJECT BALL

Dudley Thorton, 421 S. Morgan, Warrenton, Mo.
Filed June 15, 1970, Ser. No. 46,232
Int. Cl. A63d *15/00*
U.S. Cl. 273—6 **1 Claim**

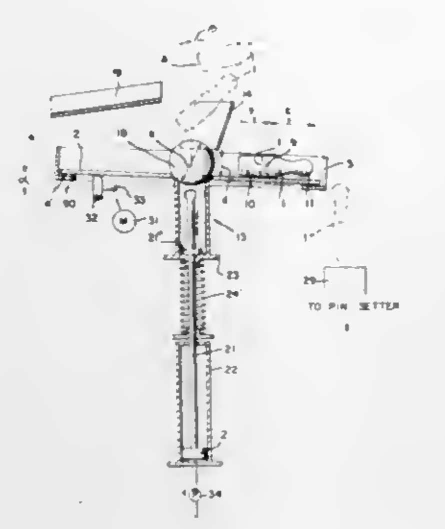


The present invention relates to a pool and billiard table cover for use in playing and teaching pool and billiards comprising, a table cover constructed of appropriate material, the cover being provided with "spots" and "rings" as best shown in the drawings to assist a player and student in aiming. Each ring concentrically surrounds a spot and is twice the diameter of a standard pool ball.

3,704,888
APPARATUS FOR ORIENTING BOWLING PINS AND SEPARATING THE BALL AND PINS

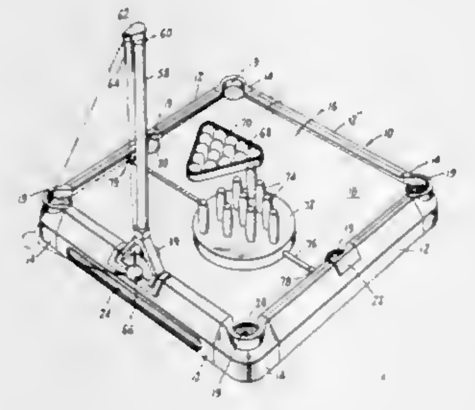
Josef Kleineaschoff, and Brunhilde Kleineaschoff, both of Sendenhorst, Germany, assignors to Getex Consult AG, Chur, Switzerland
Filed July 22, 1971, Ser. No. 165,289
Claims priority, application Germany, July 24, 1970, P 20 36 849.4
Int. Cl. A63d *5/02*
U.S. Cl. 273—43 R **10 Claims**

An apparatus for orienting bowling pins and separating the ball from the pins has a rotating disk which lies at a slight angle to the horizontal and which is surrounded by a non-rotatable collar formed at the low side of the disk with an aperture. The width of the aperture is less than the distance from the light pin end to the pin's center of gravity and less than the distance from this center of gravity to the heavy pin end so that pins traveling around the inside of the collar due to the disk rotation will fall out through the aperture if they are traveling heavy end first. For the other pins a catch plate is provided which reverses their leading ends so that they can drop out on their next passage past the aperture. A deflector is provided spaced above the disk by a distance smaller than the ball diameter and greater than the pin thickness to guide balls into a raisable seat in the disk's center. A hydraulic cylinder can raise this seat and displace the ball from the seat in the raised condition into a ball-return chute.



3,704,889
BOWLING AND POOL GAME APPARATUS

Donald Huffman, and Richard M. Majewski, both of Westmount, Montreal, Canada, assignors to Coleco Industries, Inc., Hartford, Conn.
Filed Aug. 12, 1971, Ser. No. 171,205
Int. Cl. A63d *3/02*
U.S. Cl. 273—119 R **6 Claims**

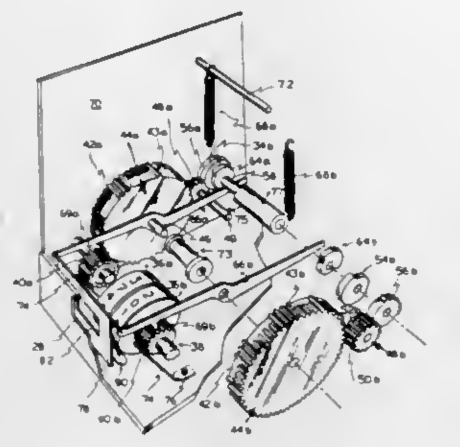


A combination pool and bowling game employs a guide member that is pivotally mounted on a table having ball-receiving pockets at spaced locations thereabout. The guide member is provided with an open-ended chute adjacent to one end thereof on which a movable cue ball may be supported. Additionally a tethered impact member is suspended from a stanchion on the guide member. When properly swung, the impact member may collide directly with the cue ball to propel it onto the playing surface through the chute, and the angular position of the chute will determine the direction of movement of the cue ball onto the playing surface. The tethered impact member may be used in bowling by pivoting the guide member.

3,704,890
DEVICE FOR DISPLAYING SYMBOLS IN A PSEUDO-RANDOM SEQUENCE

Fredric E. Zucker; Joseph Kaswer, Jr., both of Stamford, Conn., and Thomas S. Wilczynski, Trumbell, Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

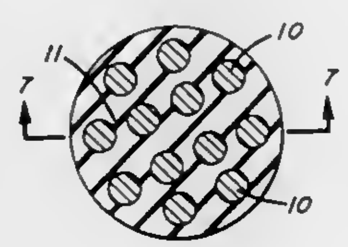
Filed Dec. 28, 1970, Ser. No. 102,005
Int. Cl. A63f *5/04*
U.S. Cl. 273—143 R **3 Claims**



A device for displaying numbers of a pseudo-random sequence. For each change in the number to be displayed, a mutilated gear is rotated by a suitable mechanism through a predetermined angular displacement. For each such rotation, a variable number of teeth of the mutilated gear drive a number wheel through a variable number of numeral display positions. Two different locking elements prevent rotation between actuations. One of the locking elements carries a window shutter which in combination with a second window blocks observation of the number wheel during actuation and reveals the wheel when indexed.

3,704,891
PUCK FOR ICE HOCKEY

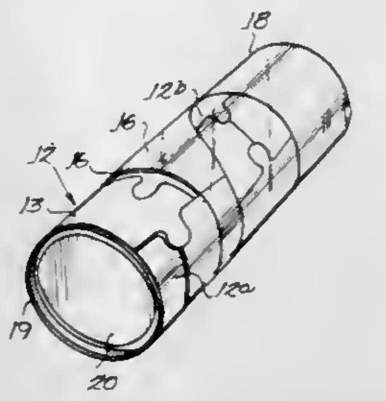
Ronald L. Chiarelli, 625 Somerset St. West, Ottawa, Ontario, Canada
Filed Feb. 20, 1970, Ser. No. 16,627
Claims priority, application Canada, Aug. 29, 1969, 060,793
Int. Cl. A63b *67/00*
U.S. Cl. 273—128 R **1 Claim**



The invention relates to a hockey puck which is weighted to provide a practice puck to improve the player's shooting strength and accuracy and his passing and puck control. This is accomplished by incorporating into the resilient body material of the puck a material having a specific gravity greater than that of the resilient material to provide the finished puck with a weight greater than 5.5 to 6.0 ounces. The resilient body material may be rubber or like material and the material incorporated may be in the form of a core, or plates or discs or spheres, or may be particulate or granular.

3,704,892
JIGSAW PUZZLE

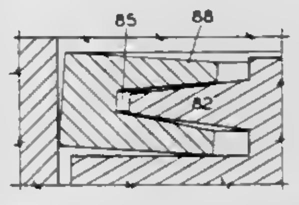
Donald W. Moravick, 625 N. Michigan Ave., Chicago, Ill., and Leon M. Levy, 2047 N. Dayton St., Chicago, Ill.
Filed April 22, 1971, Ser. No. 136,360
Int. Cl. A63f *9/10*
U.S. Cl. 273—157 R **12 Claims**



A jigsaw puzzle is provided comprising a generally cylindrical support, a jigsaw puzzle formed into the shape of a cylindrical sleeve overlying the support and divided into a plurality of interrelated jigsaw puzzle elements and a transparent plastic sleeve in overlying and sliding engagement to said puzzle and underlying support. A process for forming and assembling the puzzle is also provided which includes the steps of applying a puzzle in sheet form to the surface of a cylindrical support member, the puzzle being applied in conjunction with a transparent plastic sleeve element which overlies and retains the puzzle in overlying and conforming relationship to the support element.

3,704,893
PISTON RING

Donald C. Hill, Concord Township, St. Louis County, Mo., assignor to Eaton Corportion, Cleveland, Ohio
Continuation-in-part of Ser. No. 865,593, Oct. 13, 1969, abandoned. This application Sept. 4, 1970, Ser. No. 69,737
Int. Cl. F16j *9/20*
U.S. Cl. 277—171 **17 Claims**

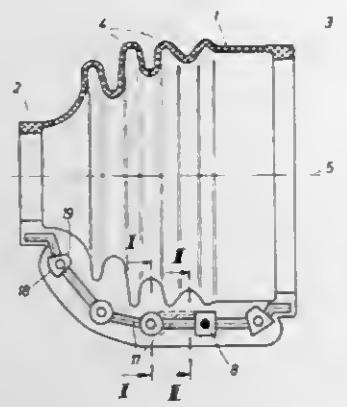


An internal combustion engine piston having a live headland ring whose cross-section is imbalanced by differentiating it from a circumscribing circle whose diameter equals the maximum diagonal dimension to exterior corner points (which, in the case of a ring having a blunted corner or tapered face, will be the virtual corner point) of the ring when free and unconfined, so that more material is omitted within the inner-upper and outer-lower quadrants than within the inner-lower and outer-upper quadrants, or vice versa, depending upon the sense in which torsional twist is desired when the ring is contracted to cylinder diameter.

3,704,894
BELLOWS SLEEVE

Wolfgang Didszuhn, Weckenweg 44, 8081 Oberhaunstadt, Germany
Filed Nov. 1, 1971, Ser. No. 194,670
Claims priority, application Germany, Nov. 4, 1970, P 20 54 207.8
Int. Cl. F16j *3/00*
U.S. Cl. 277—212 FB **12 Claims**

The bellows sleeve is provided with a slot extending at least partially and longitudinally there through. Adjacent to the slot there are provided flanges which comprise one or more tongues with a wedge shaped cross-section as well as wedge-shaped grooves into which the tongues fit. The flanges are clamped together, for example, by means of screws extending with a press fit through bores in respective material accumulations or lands provided in one of the flanges and respective recesses into which the lands fit in the other flange. Preferably, the lands fit into the recesses also with a press fit.



3,704,895

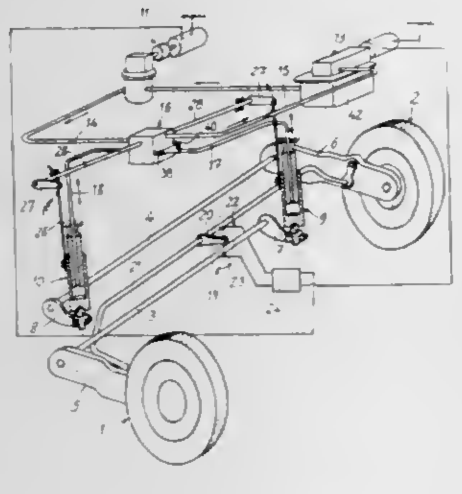
TRIM-CORRECTING DEVICES FOR VEHICLES

Jacques Remaud, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France and Automobiles Peugeot, Paris, France

Filed Oct. 21, 1970, Ser. No. 82,696

Int. Cl. B60g *21/06*

U.S. Cl. 280—124 F **7 Claims**



A trim-correcting device for automobile vehicles, in which each wheel suspension of at least one of the front or rear sets of wheels is coupled to the vehicle body through the intermediary of a hydraulic jack, while a detection device for the height of the chassis with respect to the ground, with a time-delay action, co-operates with means for supplying fluid under pressure to the jacks and with means for discharging said jacks, and a distributor for fluid under pressure is provided between the said supply means and the said jacks, characterized by the fact that the distributor of fluid under pressure comprises a control responsive to the differential state of the said jacks.

3,704,896

AUXILIARY STEERABLE WHEELS FOR VEHICLES

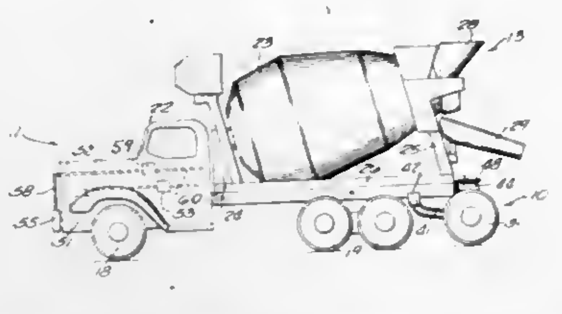
William H. Buelow, Brookfield, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis.

Filed May 7, 1969, Ser. No. 829,155

Int. Cl. B62d *61/12*

U.S. Cl. 280—81 A **6 Claims**

A truck mixer, having a concentrated load and including conventional forward steering wheels and rear drive wheels, is provided with additional wheels on an auxiliary axle below the frame of the truck. A contained fluid at a preselected constant pressure determines the auxiliary support of the truck on said axle to provide the desired distribution of the truck load in a known manner. The wheels are castered for following the forward directions of the truck. Fluid pressure means provides for raising the axle when the wheels are not in use.



3,704,897

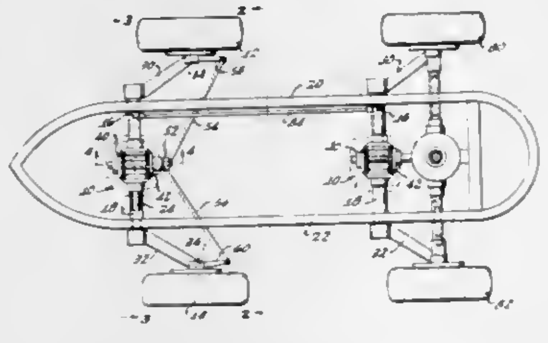
COMBINDED STEERING AND ROLL STABILIZING MEANS FOR VEHICLES

Walter Bagge, 837 East Almond Avenue, Orange, Calif.; George F. Bagge, 3500 West Manchester Blvd., No. 298, Inglewood, Calif., and Wilbur J. Hank, 1861 Omega Drive, Santa Ana, Calif.

Filed Oct. 9, 1970, Ser. No. 79,534

Int. Cl. B62d *3/02*

U.S. Cl. 280—91 **3 Claims**



A vehicle is shown with spaced pairs of coaxial torque rods at right angles to its longitudinal axis and located forwardly of the front wheels and rear wheels. The outer ends of the front rods carry respective arms connected to the front wheels, and the outer ends of the other rods carry arms that are connected to the rear wheels. The opposed ends of each pair of rods carry segment gears which mesh with respective gears of a gear box. For the front wheels, the torque rods are operated through the gear box from the steering wheel. The torque rods for the back wheels are operable via arms that are linked by a rod and which are operatively connected to the respective gear boxes. When the steering wheel is turned so the vehicle negotiates a curve, the torque rods are operated in directions to tilt or lean the chassis and wheels inwardly so as to offset the outward sway and leaning that occurs due to the centrifugal force. The angle of the turn is controlled through the front gear box via a shaft connected to one of the gears and to which are connected the inner ends of steering rod links. The weight of the vehicle is distributed on all four wheels at all times.

3,704,898

VEHICLE AXLE SUSPENSION

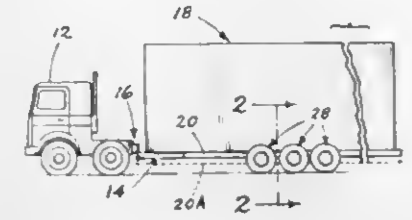
Kenneth J. Schmidt, Thurston, Oreg., assignor to General Trailer Co., Inc., Springfield, Oreg.

Filed Feb. 3, 1971, Ser. No. 112,135

Int. Cl. B60g *3/12*

U.S. Cl. 280—124 R **5 Claims**

An axle suspension in a vehicle including a rock structure pivoted to the vehicle's frame, which structure, adjacent its free end, carries an axle. An extensible-contractible air bag in the suspension acts between the free end of the rock structure and the vehicle frame. The air bag is mounted in such a way that minimal (although some) relative angular movement occurs between its opposite ends with the extension and contraction of the bag that accompanies rocking of the rock structure.



3,704,899

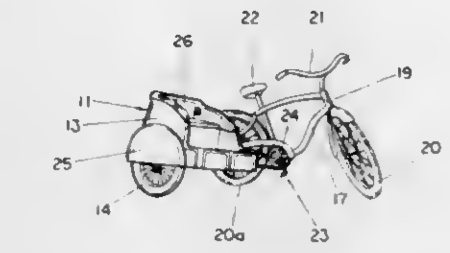
BICYCLE SIDE CAR

Eldred L. Clem, II, 174 Westwood Road, Columbus, Ohio

Filed July 23, 1970, Ser. No. 57,483

Int. Cl. B62k *27/04*

U.S. Cl. 280—203 **3 Claims**



A side car for a bicycle. This side car is supported by a frame that mounts to the frame of a bicycle and not to the bicycle axle, thus because the frame of the side car is hinged to the mounting frame which is attached to the bicycle, the bicycle can tilt independently of the side car. The axle does not extend through the side car. The outer wheel of the side car is supported on a stub axle secured only to the outer part of the side car frame. The moulded body of the side car is supported by the frame. Moulded integrally with the side car is a fender for the side car wheel. The side car when constructed of a fiber glass layup is moulded in two parts; the lower part, including the fender for the side car wheel, has an opening through the bottom and back of the seat portion thereof, and a separately moulded seat fits snugly into and covers the opening in the main portion of the side car. In the vacuform moulding process, a single unitary piece of moulded material forms the entire side car including the seat.

3,704,900

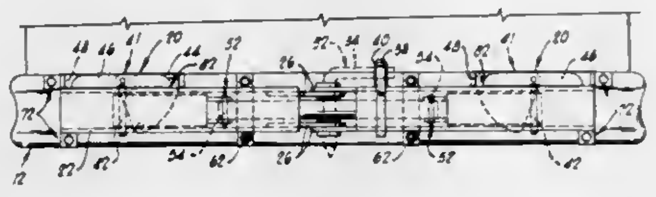
TOW HITCH

Jerome J. Gerber, Murdock, Kans.

Filed Aug. 24, 1970, Ser. No. 66,461

Int. Cl. B60d *1/00*

U.S. Cl. 280—491 D **3 Claims**



This invention is a tow hitch structure mountable on the front end portion of a vehicle. More particularly, this invention is a tow hitch structure having a pair of jointed arm members mounted on the front of a vehicle and having a locking means to hold the arms fixed in position, either extended for use or retracted for stowing.

3,704,901

PIPE JOINT CONNECTOR

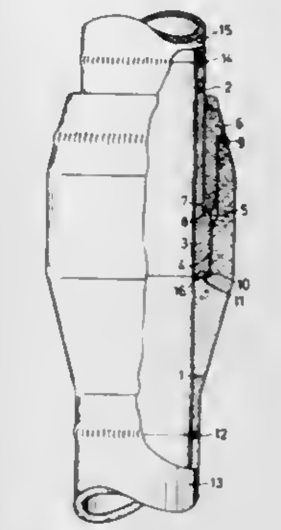
Fritz Borner, Kelsterbach, Germany, assignor to Messer Griesheim GmbH, Frankfurt/Main, Germany

Filed Feb. 16, 1971, Ser. No. 115,418

Claims priority, application Germany, March 4, 1970, P 20 10 013.4

Int. Cl. F16l *13/02*

U.S. Cl. 285—173 **8 Claims**



Pipes of varying material are connected together by a connection wherein a ring on one pipe extends beyond a collar on the other pipe with a slot created between the ring and the other pipe. An intermediate ring, preferably of the same or similar material as the outer ring, is slipped into the slot.

3,704,902

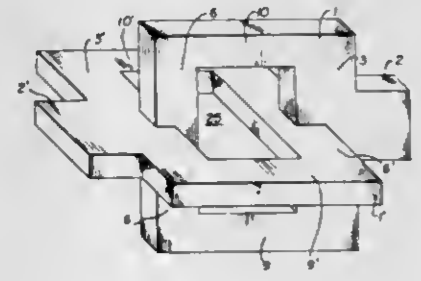
COLLAPSIBLE LINK

George Edward Moore, Sr., and George Edward Moore, Jr., both of 398 Mundy Street, Coquitlam, British Columbia, Canada

Filed Nov. 25, 1970, Ser. No. 92,654

Int. Cl. F16d *19/00*

U.S. Cl. 287—64 **11 Claims**



A collapsible link of simple construction wherein transverse members have axial recesses which interengage with one another at separated points along the axis of the link. A key member insertable into the link, is adapted to prevent the accidental disengagement of the elements of the link.

3,704,903

SOCKET MOUNTING STRUCTURE OF BALL-AND-SOCKET JOINT USED FOR COUPLING LINK MEMBERS FOR DRIVING A WINDSHIELD WIPER FOR VEHICLES

Isao Ito, Handa, Japan, assignor to Nippondenso Kabushiki Kaisha, Aichi-ken, Japan

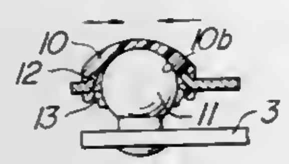
Filed April 8, 1971, Ser. No. 132,506

Claims priority, application Japan, April 10, 1970, 45/35082

Int. Cl. F16c *11/06*

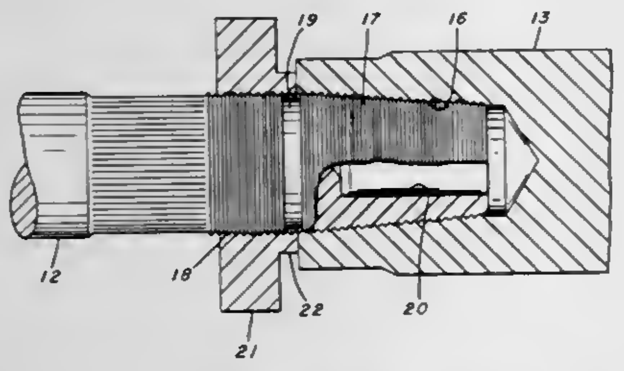
U.S. Cl. 287—90 R **1 Claim**

An improved socket mounting structure of a link member in a ball-and-socket joint used for coupling link members for driving a windshield wiper for vehicles. An integral annular projection is formed along the peripheral edge of a socket mounting hole formed in the link member, and the socket is mounted in said mounting hole concurrently with molding of said socket and tightly secured therein by said annular projection.



3,704,904
PISTON ROD JOINT

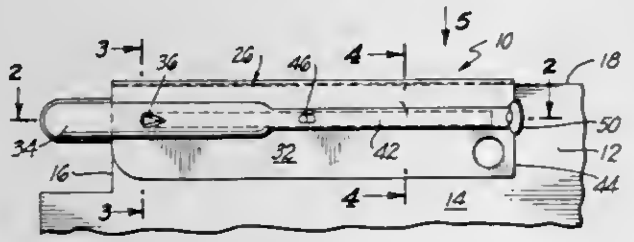
Michael L. Rizzone, Dallas, Tex., assignor to United States Steel Corporation
Filed Jan. 24, 1972, Ser. No. 220,122
Int. Cl. F16d *1/00*
U.S. Cl. 287—125 **3 Claims**



A joint for connecting a crosshead extension rod to a piston rod end-to-end. The piston rod has an integral tapered threaded pin at its end, a straight threaded portion inwardly of the pin, and an undercut section between the pin and the straight threads. The extension rod has a tapered threaded bore receiving the pin. A lock nut is engaged with the straight threads and tightened against the end face of the extension rod to maintain the undercut section under tension throughout the working cycle.

3,704,905
SPRING LATCH STRUCTURE

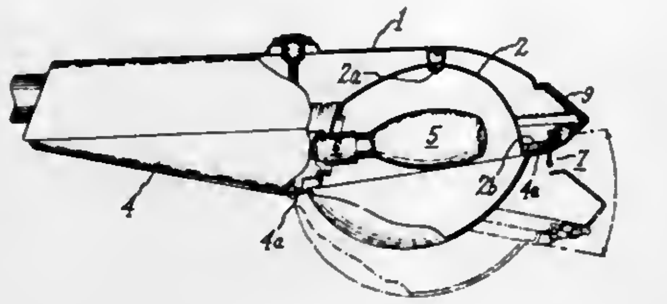
Leonard Rosenblatt, Pacific Palisades; Chris C. Horn, Gardena, and Mario S. Gallo, La Mirada, all of Calif., assignors to Globe Illumination Company, Gardena, Calif.
Filed June 4, 1971, Ser. No. 149,991
Int. Cl. E05c *1/10*
U.S. Cl. 292—175 **6 Claims**



A spring latch structure may be constructed utilizing as a part of the structure a support having a corner and a slot extending between its surfaces adjacent to the corner. With this structure a combination bolt or latch spring retainer fits around the support. This retainer has projections extending int o the slot so that the slot serves to guide the movement of the retainer. A spring is located within the slot between an end of the slot and at least one of these projections so as to normally bias the retainer to an extended position in which a latch element on the retainer extends from the support.

3,704,906
LATCH DEVICE

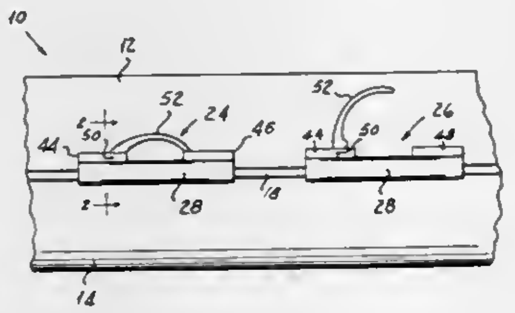
Jonathan C. Abercrombie, East Flat Rock, N.C., assignor to General Electric Company
Filed Sept. 14, 1970, Ser. No. 71,906
Int. Cl. E05c *5/04*
U.S. Cl. 292—247 **10 Claims**



Latch device for street lighting luminaires for latching a refractor closure to the luminaire housing. Latch lever arm extending through opening in front of closure member has latch spring detachably connected to it. The spring engages an integrally formed catch on the front surface of the luminaire housing. The lever arm has pivot pins cooperating with spaced upper and lower journal bearings formed on the closure member. The lever arm can be removed through the inner side of the closure member only after the latch spring is detached from the lever arm.

3,704,907
CONTAINER LATCH SYSTEM

Paul R. Gley, Hillsdale, N.J., assignor to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Jan. 19, 1971, Ser. No. 107,789
Int. Cl. B25b *5/02, 5/08*
U.S. Cl. 292—257 **7 Claims**

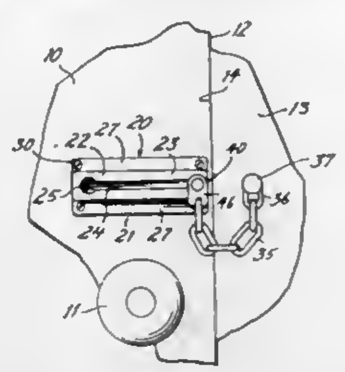


A latch assembly for releasably clamping elongated edge flanges of a container in which a support formed with a stationary elongated jaw for engaging one of the edge flanges carries a movable elongated jaw for engaging the other edge flange and a toggle lever handle for pivotal movement between an open position at which said movable jaw is released and a closed position at which a cam pin on the lever engages the movable jaw to urge it into proximity to the stationary jaw to clamp the container edges together between the jaws.

3,704,908
DOOR CHAIN LOCK

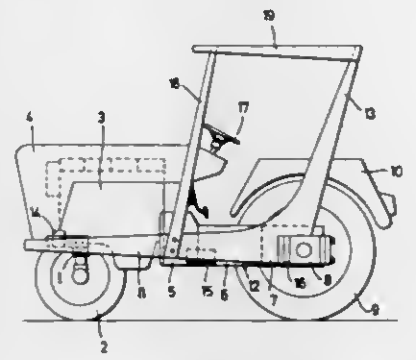
Jerome Schwartz, Philadelphia, Pa., assignor to Taylor Lock Company, Philadelphia, Pa.
Filed April 15, 1971, Ser. No. 134,360
Int. Cl. E05c *17/36*
U.S. Cl. 292—264 **6 Claims**

A door chain lock wherein a headed connector is detachably engageable with its head passing removably through an enlarged portion of a receiver slot, there being provided a guard for occupying the space adjacent to the connector to prevent entry of a tampering tool.



3,704,909
TRACTOR

Oswald May, Bonn, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Koln-Deutz, Germany
Filed March 3, 1970, Ser. No. 16,172
Int. Cl. B62d *25/06*
U.S. Cl. 296—102 **10 Claims**

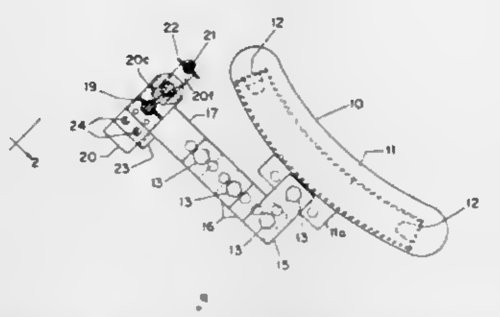


A tractor type vehicle in which frame parts along the sides of the vehicle have upstanding arms at the sides of the driver's position to protect the driver if the vehicle capsizes.

The frame parts are resiliently mounted on the vehicle and fluid operable bolts are provided responsive to fluid pressure to lock the frame parts to the vehicle. The vehicle may carry a loading implement with lift cylinders and a single pressure source is provided for actuating the bolts and the lift cylinders. A valve between the source and the bolts controls the bolts and another valve between the bolts and the lift cylinders provides for actuation of the lift cylinders only when the bolts are actuated.

3,704,910
ADJUSTABLE TORSO SUPPORT ATTACHMENT FOR WHEEL CHAIRS AND THE LIKE

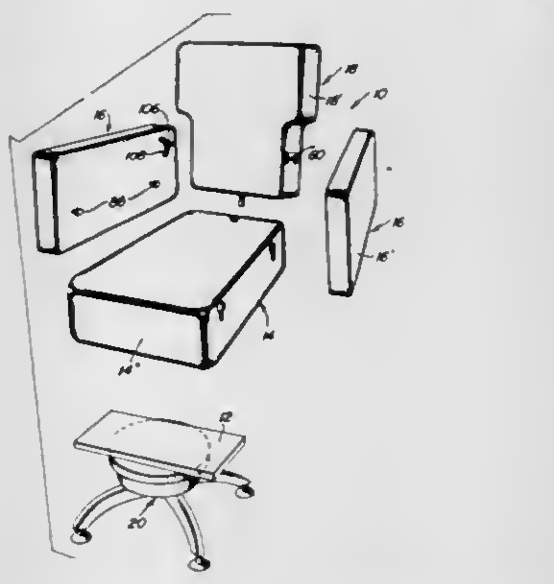
Walter F. Willcott, 631 Kickapoo, Leavenworth, Kans.
Filed Aug. 27, 1969, Ser. No. 853,551
Int. Cl. A47c *7/54;* **A47l** *5/00*
U.S. Cl. 297—411 **3 Claims**



A cushioned torso engaging member is adapted to be mounted to one or the other of the handles of a conventional wheel chair or the like either alone on in pairs, by means of an assembly of a handle clamp and linked arms which provide both for angular, elevational and dimensional adjustment of the position of the torso engaging member relative to the wheel chair handle.

3,704,911
KNOCKDOWN CHAIR

Joseph Milakovich, 5120 Comanche, N.E., Albuquerque, N. Mex.
Continuation-in-part of Ser. No. 858,489, Sept. 16, 1969, Pat. No. 3,615,154. This application March 18, 1971, Ser. No. 125,720
Int. Cl. A47c *7/00, 4/02*
U.S. Cl. 297—440 **7 Claims**

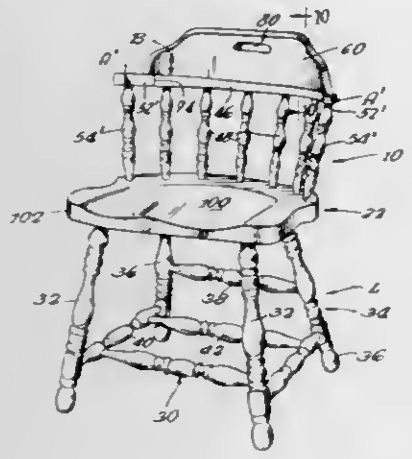


A seating structure including readily assembled and disassembled components with each of the components to be upholstered provided with upholstered portions consisting of suitably cushioned upholstery covers secured on the upholstered portions by means of coacting "Velcro" strips completely hidden from view when the components of the seating structure are in assembled relation. The components of the seating structure include a base supported horizontal seat cushion assembly, an upstanding backrest assembly and a pair of upstanding opposite side arm assemblies. The backrest and cushion assemblies include coacting latching means for releasably latching the backrest to the cushion assembly upon movement of the former toward the latter along a predetermined path to a position operably juxtaposition said cushion assembly and the cushion and side arm assemblies include coacting support means for stationarily releasably supporting the arm assemblies from the cushion assembly in operative juxtaposition relative thereto. In addition, the arm assemblies and the backrest assembly include coacting structure releasably anchoring a position of the backrest assembly spaced above its lower end to the rear end portions of the arm assemblies against rearward movement relative to the latter. A first form of the invention further includes coacting locking structure carried by the seat cushion assembly, the arm assemblies and the backrest assembly for locking the arm assemblies in their supported positions juxtaposition the seat cushion in response to movement of the backrest portion toward its supported position operably juxtaposition the seat cushion assembly.

3,704,912
MULTI-COMPONENT MOLDED PLASTIC CHAIR

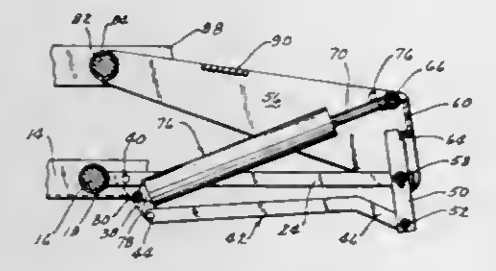
Richard S. Bezark, 190 South Avenue, Glencoe, Ill.
Filed Jan. 12, 1971, Ser. No. 105,897
Int. Cl. A47c *4/02, 7/00*
U.S. Cl. 297—445 **17 Claims**

A plastic chair assembled from injection molded parts and having the appearance of a chair fabricated of wood. The chair includes integrally molded multi-component parts. The chair includes a seat molded to define bores to receive molded leg ends and molded to define bores to receive molded spindle ends. A plurality of the spindles are integrally molded with a rail and provide pins which enter the spindle bores simultaneously and at an angle different from that at which the spindles



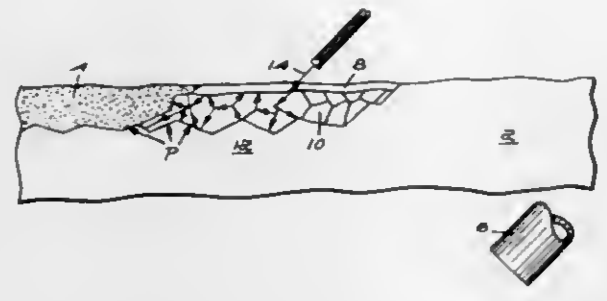
project upwardly from the seat. Parts are molded to be quickly keyed and assembled to each other. The number of parts necessary to assemble a plastic chair, such as a Captain's chair, are substantially fewer than the parts necessary to make a comparable wooden chair and are molded to simulate the appearance of wood thereby to eliminate the finishing steps required for wooden chairs.

3,704,913
BOLSTER HOIST FOR A DUMP VEHICLE
Donald E. Schuster, 805 S. 9th Street, Humboldt, Iowa
Filed July 28, 1971, Ser. No. 166,840
Int. Cl. B60p *1/20*
U.S. Cl. 298—22 J **7 Claims**



A bolster hoist for a dump vehicle comprising a first support pivotally secured to the vehicle frame and having first and second arms extending rearwardly therefrom. Third and fourth arms are pivotally secured at their rearward ends to the rearward ends of the first and second arms and are secured at their forward ends to a second support pivotally secured to the dump body. First and second links are pivotally secured at their upper ends to the first and second arms at the forward ends thereof respectively and have the forward ends of first and second bars pivotally secured at their lower ends. First and second levers are pivotally secured at their lower ends to the rearward ends of the first and second bars and are pivotally connected intermediate their ends to the pivotal connection of the first, third and second, fourth arms. A hydraulic cylinder is pivotally connected at its base end to the first and second links intermediate the ends thereof and is pivotally connected at its rod end to the upper rearward ends of the third and fourth arms. A cross bar extends between the rearward ends of the third and fourth arms and is engaged by the upper ends of the first and second levers during the initial extension of the rod from the cylinder to increase the leverage applied to the third and fourth arms.

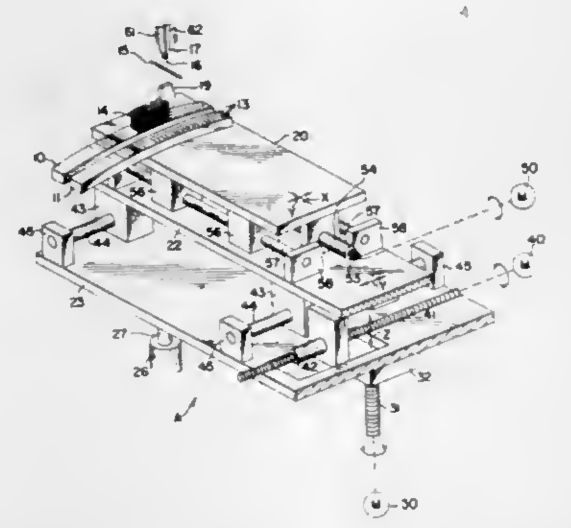
3,704,914
METHOD OF FLUID JET CUTTING FOR MATERIALS INCLUDING ROCK AND COMPOSITIONS CONTAINING ROCK AGGREGATES
Ralph Andrew Fletcher, Jr., Harvard, Mass., assignor to H. E. Fletcher Co., Westford, Mass.
Filed Nov. 27, 1970, Ser. No. 93,366
Int. Cl. E21c *37/16*
U.S. Cl. 299—14 **17 Claims**



Materials including rock and compositions containing rock aggregates are subjected to a fluid jet cutting operation utilizing a first stage high-temperature, high-flux heat source and a second stage high-pressure hydraulic jet of water. The preferred heat source is a flame. In the first stage, the flame impinges upon a surface to be cut and material at the surface is rapidly heated by the flame to a state of massive incandescence. As heat penetrates and the heat front advances, there is also produced beneath the zone of incandescence a substrate of thermally fractured material. Fractures in the substrate define planes of weakness which extend generally parallel to the incandesced surface portions of the material.

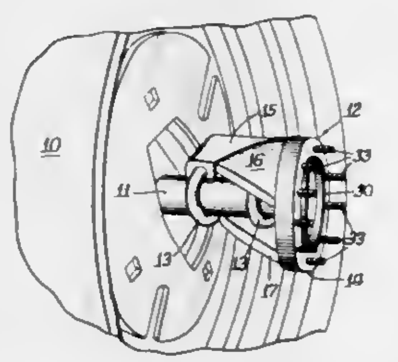
In the second stage of the fluid jet cutting method, a hydraulic jet of water of a diameter small in relation to the area of impingement of the flame is directed against the incandesced surface, preferably while the substrate is in a thermally activated state. The minute fluid jet stream when applied with its impact force suitably controlled is found to be capable of penetrating the thermally fractured substrate and reaching into the planes of weakness above indicated. Water thus injected into the substrate and moving along the planes of weakness almost instantly exerts a hydraulic pressure from within outwardly to remove substrate material in a novel manner.

3,704,915
METHOD AND APPARATUS FOR ANCHORING BRISTLE BUNDLES IN A BRUSH BLOCK
Arthur T. Schofield, Becksville, Ohio, assignor to The Manufacturers Brush Company, Guyahoga County, Ohio
Filed March 4, 1971, Ser. No. 121,061
Int. Cl. A46d *3/04*
U.S. Cl. 300—21 **8 Claims**



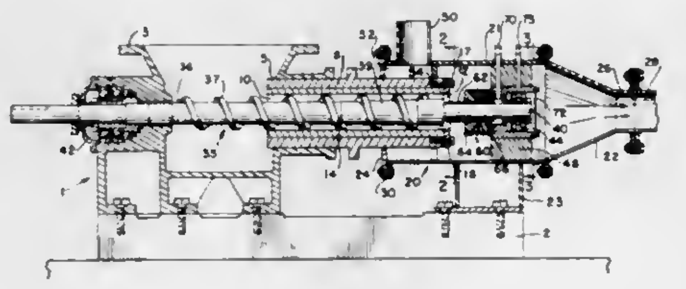
A method and apparatus for locating and indexing brush blocks relative to an operating head, the blocks having a plurality of holes formed therein for anchoring bristle bundles or tufts. Each block is moved intermittently at spaced time intervals to locate each hole therein sequentially in a predetermined position in spatial registration with an operating head and bristle bundle to be anchored. The holder for the brush block or blocks is capable of compound or three dimensional movement to accommodate a plurality of locations within a space defined by three dimensional spatial limits along three mutually perpendicular axes. This serves to accommodate brush blocks having curved bristle anchoring faces. The movement of the holder along the three mutually perpendicular axes is controlled by three pulse motors and by means for generating sequential groups of predetermined numbers of driving pulses for operating the motors intermittently at spaced time intervals so as to move the holder between anchoring operations through a predetermined two or three dimensional plot corresponding to the hole locations.

3,704,916
FLANGELESS HUB FOR TRACTOR
William J. Dietrich, Congerville, Ill., assignor to Dietrich Manufacturing Company, Goodfield, Ill.
Filed Oct. 2, 1970, Ser. No. 77,424
Int. Cl. B60b *27/06*
U.S. Cl. 301—1 **2 Claims**



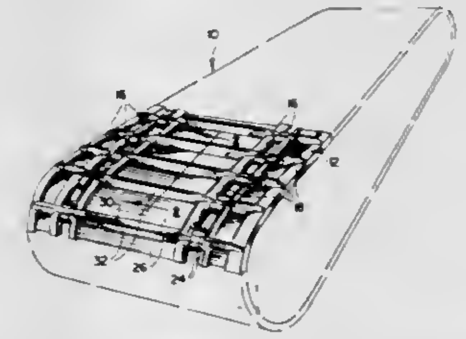
An improved structure for attaching an additional wheel to the axle of a tractor is disclosed wherein two side strengthening ribs are provided extending between an annular connecting collar to which the additional wheel is mounted and a mounting block having a bearing surface for receiving the axle and mounting the hub to it. The ribs add strength and bulk to the hub and prevent fracture.

3,704,917
PULVERULENT MATERIAL CONVEYING APPARATUS
Donald S. Boyhont, Nazareth, and Marvyn L. Souders, Allentown, both of Pa., assignors to Fuller Company
Filed Oct. 14, 1970, Ser. No. 80,727
Int. Cl. B65g *53/08, 53/48*
U.S. Cl. 302—50 **8 Claims**



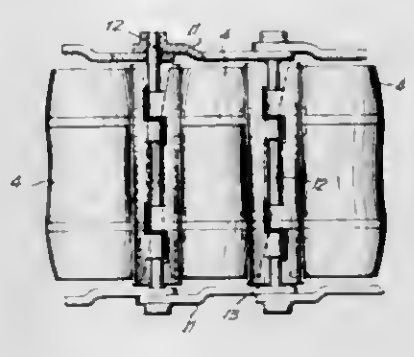
A pulverulent material conveying apparatus which includes a hollow barrel having an inlet which is adapted to be connected to a source of pulverulent material and an outlet for discharging material into a manifold chamber. A screw conveyor is rotatably mounted in the barrel for advancing the material through the barrel. Each end of the screw is mounted in bearings. The end of the screw near the outlet of the barrel is tapered so that the pulverulent material is compressed to form a fluid seal at the outlet of the barrel. A check valve is slideably mounted on the screw shaft to restrict the flow of material from the barrel into the manifold chamber. Air under pressure is supplied to the manifold chamber where it aerates the pulverulent material and entrains the material to the outlet of the manifold chamber and the conveying line. The outlet of the manifold chamber is coaxial with the barrel, and the air under pressure is supplied to the manifold chamber so that a substantially complete circle of air under pressure is formed around the outlet of the barrel.

3,704,918
ENDLESS TRACK
Jules Perreault, Sherbrooke, Quebec, Canada, assignor to Bombardier Limited, Valcourt, Quebec, Canada
Filed Jan. 22, 1970, Ser. No. 4,896
Int. Cl. B62d *55/24*
U.S. Cl. 305—38 **7 Claims**



An improved endless track for use on track laying vehicles particularly snowmobiles, the track consists of an endless belt of rubber or the like with a large number of transverse traction ribs whose active faces present an elongated planar surface at an angle with respect to the normal to the plane of the endless belt.

3,704,919
AXIAL ANTIFRICTION BEARING
Georg Titt, Obere Vorstadt 9, D-8358 Vilsholen, Germany
Filed Dec. 7, 1970, Ser. No. 95,807
Claims priority, application Germany, Dec. 8, 1969, P 19 61 468.7
Int. Cl. F16c *29/06, 33/50, 33/36*
U.S. Cl. 308—6 C **11 Claims**

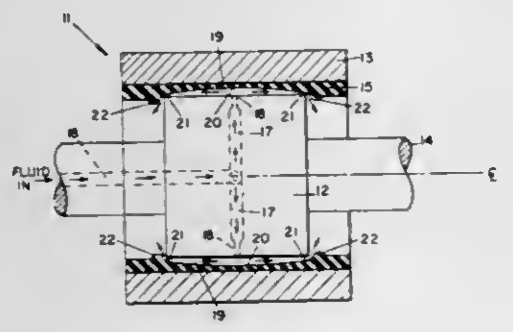


An axial roller bearing assembly adapted to move parallel to the axis of a shaft which carries the assembly. The shaft is circumferentially enclosed at least in part by a sleeve member which extends more than half way around the shaft and which is spaced therefrom to define between the sleeve member and the shaft longitudinal paths of movement for a plurality of rows of roller bodies. Each row of roller bodies is guided for movement along an endless path extending between the sleeve member and the shaft, around the ends of the sleeve member, and along the exterior of the sleeve member. The endless path of movement for each row of roller bodies has a load-carrying zone situated between the sleeve member and the shaft and a return zone situated at the exterior of the sleeve member. Each of the roller bodies has a central elongated portion of hourglass configuration conforming substantially to the circumferential curvature of the shaft, and this central elongated portion is situated between a pair of tapered end portions of each roller body, these end portions being symmetrically arranged with respect to the central elongated portion. The end portions and the central elongated portion of each roller body are interconnected by a pair of symmetrically arranged cylindrical portions which directly engage the external surface of the shaft and the internal surface of sleeve member at the loadcarrying zone of each endless path for each row of roller bodies.

3,704,920

COMBINATION CLAMPING AND BEARING SYSTEM

Coda Hoong-Tao Pan, Latham, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.
Filed Jan. 25, 1971, Ser. No. 109,483
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **11 Claims**



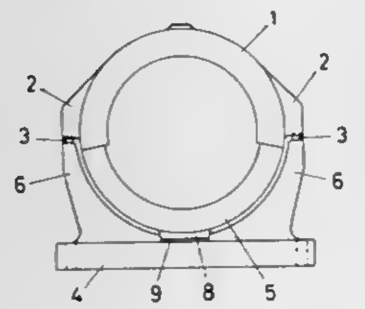
A self-acting combination clamping and bearing system is provided which comprises two members having confronting bearing surfaces, one of which is a bearing surface of suitable elastomeric material. The confronting surfaces of the two members are arranged in self-opposed relationship to constrain relative movement of the members. Passages are provided for the supply of fluid lubricant under pressure to the interface of the confronting surfaces. The lubricant pressure deforms the surface of the elastomeric member and forms a bearing profile so that the members are thereafter supported for relative movement on a load supporting film of fluid lubricant.

There is also disclosed a particular application of the invention in which the combination clamping and bearing system is used to support the two-degrees-of-freedom rotor on the shaft of a directional gyroscope of an assault weapon.

3,704,921

BEARING BOX SUPPORT FOR THE SHAFT OF A DRYING CYLINDER IN A PAPER MACHINE

Osmo Skytta, Kauppakatu 27 C, Jyvaskyla, Finland
Filed June 25, 1970, Ser. No. 49,679
Int. Cl. F16c *29/00*
U.S. Cl. 308—22 **1 Claim**

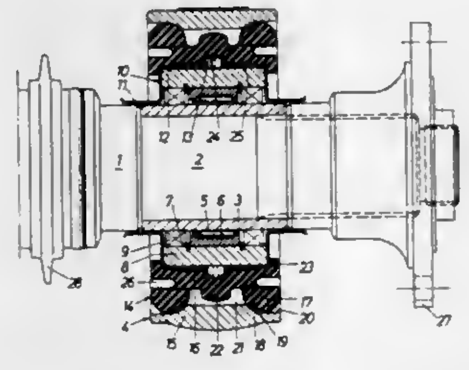


A bearing box support for a paper machine is shown. The structure includes a pair of upwardly extending support arms which carry the bearing box. Upon the mating surfaces of the support arm and bearing box a self-lubricating coating is provided. Structure is provided to permit the bearing box to move in an axial direction but not in a rotatable manner.

3,704,922

INTERMEDIATE BEARING FOR SUPPORTING A DIVIDED LINE OF DRIVE SHAFTS IN A MOTOR VEHICLE

Hans-Joachim Kleinschmidt, Im Schee 10, 43 Essen-Steele, and Josef Schultenkampger, Steubenstrasse 69, 43 Essen, both of Germany
Filed Aug. 31, 1970, Ser. No. 68,110
Claims priority, application Germany, Sept. 4, 1969, P 19 44 919.5
Int. Cl. F16c *35/04*
U.S. Cl. 308—26 **7 Claims**

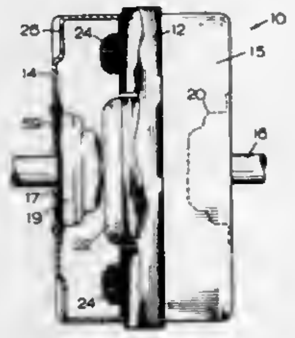


Intermediate bearing for supporting a divided line of drive shafts between gearbox and driving axle of a motor vehicle includes an elastic ring supporting, in a bearing casing securable to the vehicle, a bearing holder ring, which accommodates a pair of packing rings and an inner bearing ring pressable onto a lay shaft of the divided line of shafts, the elastic ring being formed of elastomeric material for affording axial, radial and angular movements of the bearing holder ring relative to the bearing casing, the elastic ring being shaped as a tire having a substantially cylindrical main body enclosing the bearing holder ring and having at both axial ends thereof a respective ring of radially extending bracing projections prestressed by the bearing casing, and an annular rib located between the rings of bracing projections and being radially spaced from the casing.

3,704,923

BEARING ASSEMBLY FOR ELECTRIC MOTORS

Andrew Rajna, Kitchener, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada
Filed Oct. 18, 1971, Ser. No. 190,053
Int. Cl. F16c *35/00, 33/66*
U.S. Cl. 308—132 **7 Claims**

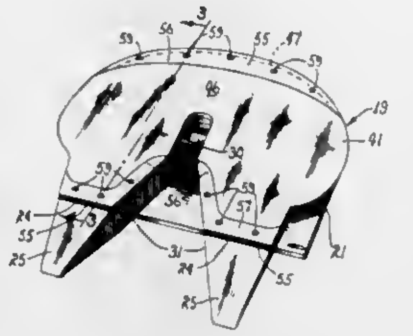


A spherical bearing assembly for an electric motor is disclosed, constructed such that the axial location of the shaft is not dependent upon the end bell or end wall of the electric motor. By affixing the bearing assembly to the end bell or end wall of the motor after all other operations have been performed on the latter, a true axial alignment of the shaft with the field core can be attained without the risk that subsequent operations will cause misalignment.

3,704,924

REMOVABLE WEAR PLATE FOR FIFTH WHEEL

Randy W. Lowry, 3373 E. Fairmont, Fresno, Calif.
Filed March 12, 1971, Ser. No. 123,578
Int. Cl. B62d *53/08*
U.S. Cl. 308—136 **3 Claims**

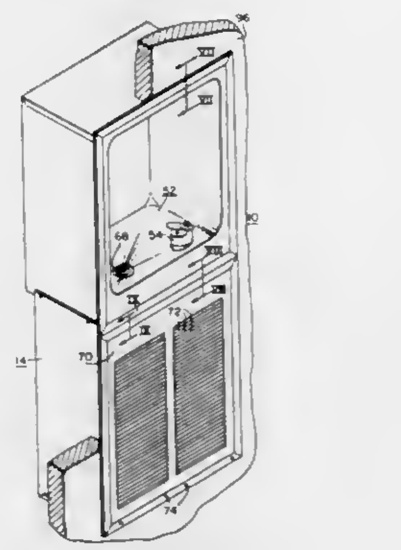


A replaceable wear plate for the fifth wheels of automotive vehicles having engaged bearing surfaces. The wear plate is a substantially flat sheet of disposable material having a low coefficient of friction releasably secured in fixed position on one of the bearing surfaces for engagement with the other bearing surface and is removable from its respective surface for replacement.

3,704,925

REVERSIBLE WALL BOX FOR RECESSED WATER COOLER

Eugene W. Scott, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Feb. 26, 1971, Ser. No. 119,147
Int. Cl. A47b *77/06, 77/08, 67/02*
U.S. Cl. 312—228 **6 Claims**

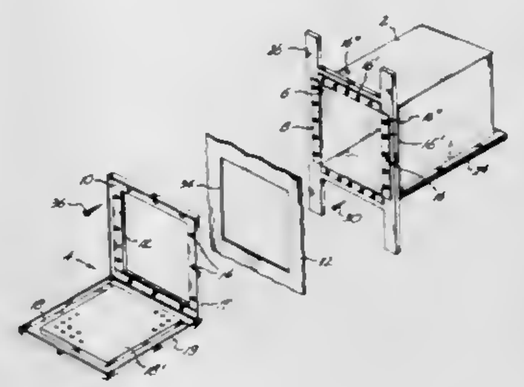


The invention provides a recessed water cooler for installation in the wall of a building, with that portion of the box like cabinet structure that houses the refrigeration components such as the condenser and compressor being mounted in the assemblage for the water cooler in a manner so that it may be reversed and then either mounted flush with the back side of the remainder of the water cooler cabinet, or alternately, spacially displaced outwardly therefrom to permit the remainder of the water cooler to be recessed in a back wall.

3,704,926

WATER HEATER HOUSING FOR TRAVEL TRAILERS AND METHOD OF INSTALLING SAME

Derek C. Wariner, Fremont, Calif., assignor to National Steel Construction Co., Newark, Calif.
Filed May 17, 1971, Ser. No. 143,996
Int. Cl. A47b *67/02;* **B60r** *5/00*
U.S. Cl. 312—242 **9 Claims**

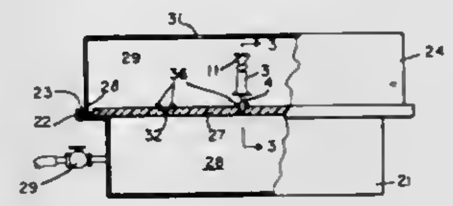


After the trailer has a wall in place for the enclosure thereof, an open-ended casing for the heater is installed in an opening in the wall, with the open end of the casing adjacent to the relatively outside face of the wall. Also, a structural frame is formed on the body of the trailer about the opening, adjacent the aforesaid outside face of the wall, and an outer wall for the enclosure is juxtaposed on the opposite side of the frame from the first mentioned wall, with an opening in the outer wall that registers with the open end of the casing. Then, an apertured cover is registered with the open end of the casing, adjacent the opening in the outer wall, and the casing and cover are secured to the frame.

3,704,927

APPARATUS FOR MAKING FLUORESCENT LAMPS

Charles L. Toomey, and Gerald D. Butler, both of c/o Sylvania Electric Products, Inc., Danvers, Mass.
Division of Ser. No. 562,736, July 5, 1966, abandoned. This application May 27, 1968, Ser. No. 739,943
Int. Cl. H01j *7/20*
U.S. Cl. 316—30 **3 Claims**



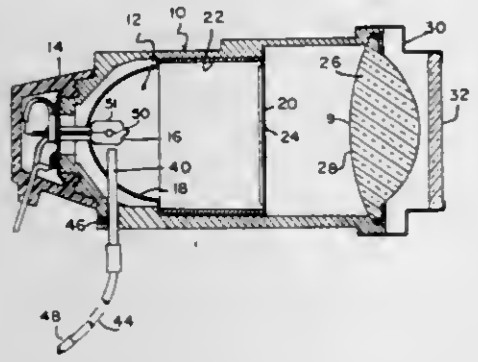
A chamber for processing fluorescent lamp cathodes has a dividing wall with openings receiving the unsealed exhaust tube of the glass stem on which the cathode is supported. Adjacent each opening are conductors connecting the cathode leads to an adjustable source of heating current. While heating the cathodes at scheduled currents, a controlled flow of inert gas, e.g. nitrogen, enters the inlet portion of the chamber on one side of the wall thence through the exhaust tube of each stem past the cathode on the stem in the outlet portion of the chamber on the other side of the wall. The controlled flow of gas allows a carbon dioxide atmosphere at the cathode during reduction of alkaline earth metal carbonate on the cathode to its oxide, while the gas flow provides an otherwise inert environment.

3,704,928
DENTAL LIGHT WITH DICHROIC AND INFRARED FILTERS

Peter M. Coombs, Newton, N.H.; Ernest Davey, Lyon, and Conrad Edward Kowalski, Marblehead, both of Mass., assignors to Sylvania Electric Products, Inc.

Filed Nov. 9, 1970, Ser. No. 87,792
Int. Cl. G02b *5/22*

U.S. Cl. 350—1 **1 Claim**



A fixture for dental illumination, in which an elliptical reflector and light source is used with a light gate and projection lens, these being set in an enclosing canister with the light emerging through the lens, an infrared filter in the path of the light rays to absorb unwanted heat radiation, and a dichroic filter on the surface of the lens facing the reflector to correct the light-rendering index of the emitted light. Without any filter, neither infrared nor visible, the color rendering index of the light from the device is 97.5. When the infrared filter is added, this drops to 88.0, but the addition of the dichroic visible-light filter brings this back to 97.5, which is very good.

3,704,929
LARGE CAPACITY ASSOCIATIVE MEMORY EMPLOYING HOLOGRAPHY

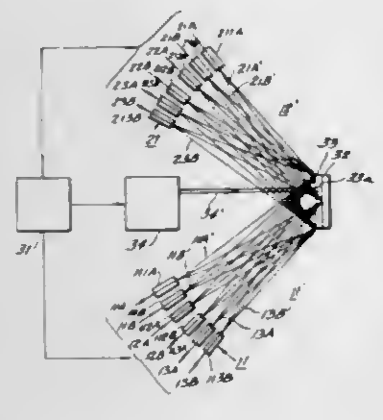
Mitsuhito Sakaguchi, and Nobuo Nishida, both of Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Minato-ku, Japan

Filed Nov. 12, 1970, Ser. No. 88,745

Claims priority, application Japan, Dec. 6, 1969, 44/97/996. The portion of the term of this patent subsequent to March 30, 1988, has been disclaimed.

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **9 Claims**



A large capacity associative memory of the holographic type. Coded information uniquely identifying first data and in the form of spatially modulated coherent light rays, forms an interference pattern with coded information representing second data in the form of spatially modulated coherent light rays and which are related to the first data in a predetermined fashion, as well as with a coherent light beam of relatively narrow cross-section whereby said interference pattern is recorded upon a record plate of photosensitive material in a direction transverse to the surface of the plate. Only that portion of the plate which is exposed to the small cross-section light beam develops the interference pattern, as a result of the use of a saturable die plate positioned in front of the photographic plate to prevent passage of light therethrough except at that area (or those areas) in which the coherent light exceeds a predetermined threshold value. The plate is filled with inter-related first and second data in a point-by-point basis by sequentially scanning the plate with the narrow cross-section beam.

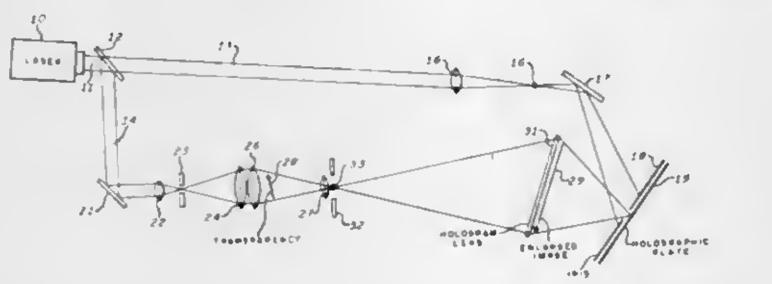
Retrieval of data is brought about by directing spatially modulated coherent light beams, representative of the binary information upon the record plate. A first detector array identifies those positions on the record plate which fail to generate primary diffraction images. Using this information, the narrow cross-section coherent light beam is deflected to each of the positions storing a retrieved pattern. Second and third detector arrays detect light spots generated by Braggs reflection which spots respectively represent the interrogation information and the retrieval information related thereto.

3,704,930
MICRO-HOLOGRAPHIC RECORDING AND READING APPARATUS

Donald H. McMahon, Carlisle, Mass., assignor to Sperry Rand Corporation

Filed March 31, 1971, Ser. No. 129,737
Int. Cl. G02b *27/22*

U.S. Cl. 350—3.5 **10 Claims**



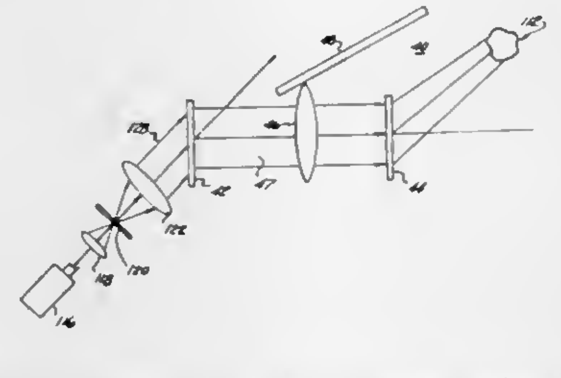
Micro-holographic Fourier transform recorder apparatus arranged and constructed so as to provide, with suitable reader apparatus reproduced images of a sufficient size for direct viewing and compensated for aberration and laser speckle. The recorder includes means for providing an enlarged image of the transparency to be recorded prior to making the hologram whereby an enlarged image is produced on reconstruction. The appearance of laser speckle is eliminated in the reader apparatus by means of an appropriate vibratory motion applied to the diffusing screen on which the image is presented.

3,704,931
METHOD AND APPARATUS FOR PROVIDING AN ENHANCED IMAGE OF AN OBJECT

Rolf K. Mueller, Brighton, Mich., assignor to The Bendix Corporation

Filed Aug. 30, 1971, Ser. No. 175,907
Int. Cl. G02b *27/22*

U.S. Cl. 350—3.5 **15 Claims**



An enhanced image of an object is formed using a multicomponent signal having a weak signal component representing the object that is mixed with a strong signal component representing a localized source that tends to mask the weak signal component by multiplying the multicomponent signal by the intensity distribution of the high-frequency portion of that signal. This multiplication provides a multicomponent output signal having one component separate from all other components that provides a clear image of the object. Embodiment for providing images from multicomponent optic signals and from lower frequency multicomponent signals such as acoustic signals are described herein.

3,704,932
STEREOMICROSCOPE

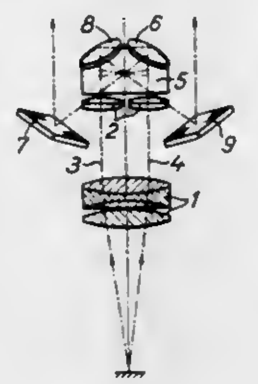
Dieter Schick, Giessen, Germany, assignor to Ernst Leitz GmbH

Filed Nov. 22, 1971, Ser. No. 200,676

Claims priority, application Germany, Nov. 28, 1970, P 20 58 675.8

Int. Cl. G02b *21/22, 23/04*

U.S. Cl. 350—35 **3 Claims**



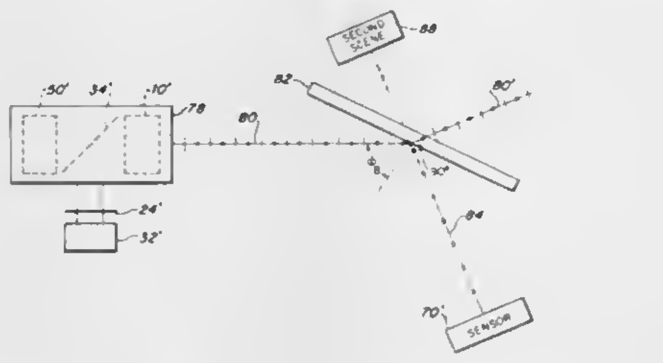
In a stereomicroscope with two parallel image-forming bundles of light beams and oblique image viewing a Schmidt prism is so arranged that either bundle of light beams impinges completely on only one respective roof surface of the Schmidt prism. Two sets of reflectors in Rhombus arrangement are provided behind the Schmidt prism in the direction of light travel so as to deflect a respective one of the beams emerging from the prism to the eyepieces. The arrangement allows a distortion-free adjustment of the eye distance; and in the manufacture of the component parts of the system less accuracy may be observed compared with prior art systems.

3,704,933
SEE-THROUGH READOUT OF ELECTRO-OPTIC MEDIUM

William R. Buchan, Lincoln, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed May 4, 1971, Ser. No. 140,088
Int. Cl. G02f *1/26*

U.S. Cl. 350—150 **12 Claims**



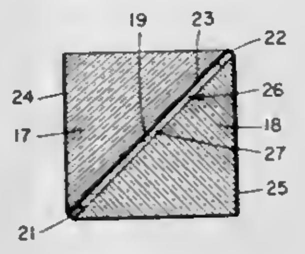
An apparatus and a method for reading out information present in the form of variations in electric field intensity including applying an electric field whose intensity varies in a predetermined pattern to a birefringent electro-optic medium whose birefringence varies as a function of the intensity of an applied electric field; providing to the medium polarized radiation whose polarization is modulated by the birefringence of the medium in accordance with the intensity of an applied electric field; and submitting that radiation to a transparent element at Brewster's angle to detect the modulation of the radiation representative of that predetermined pattern.

3,704,934
LASER POLARIZING BEAM SPLITTER

Samuel J. Holmes, Santa Monica, and Frank Joseph Woodberry, Playa Del Ray, both of Calif., assignors to Union Carbide Corporation, New York, N.Y.

Filed Aug. 16, 1971, Ser. No. 172,130
Int. Cl. G02b *27/28*

U.S. Cl. 350—152 **4 Claims**



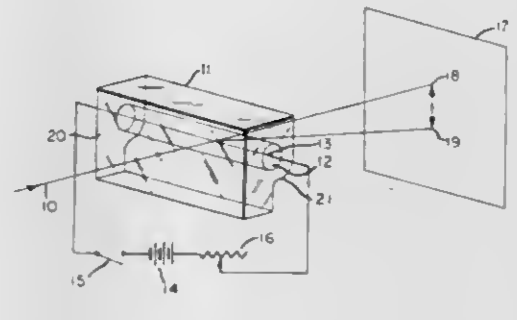
The beam splitter comprises first and second prisms having diagonal surfaces placed together in juxtaposed relationship with means on the opposing edge portions of the surfaces holding the surfaces in spaced relationship to define a thin chamber therebetween. A fluorinated hydro-carbon liquid fills this chamber and one diagonal surface is provided with a multi-layered di-electric coating. High reflectance is provided for the S component of a laser beam and high transmittance for the P component for both ruby and neodymium laser wave lengths of 0.694 and 1.06 microns respectively. The use of the liquid interface avoids the necessity of cement or glue to hold the prisms together so that the beam splitter may be used with high power laser beams without the risk of deterioration.

3,704,935
LIGHT BEAM DEFLECTION METHOD AND APPARATUS

Karl W. Boer, Buck Toe Hills, Kennett Square, Pa.

Filed Nov. 13, 1970, Ser. No. 89,302
Int. Cl. G02f *1/32*

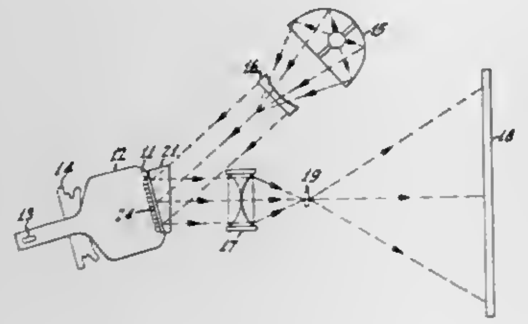
U.S. Cl. 350—160 R **34 Claims**



Method and apparatus for variably deflecting a beam of light in a predetermined manner by creating and controllably varying an index of refraction gradient within the medium through which the light beam passes.

3,704,936
ACHROMATIC DEPTH-OF-FIELD CORRECTION FOR OFF-AXIS OPTICAL SYSTEM

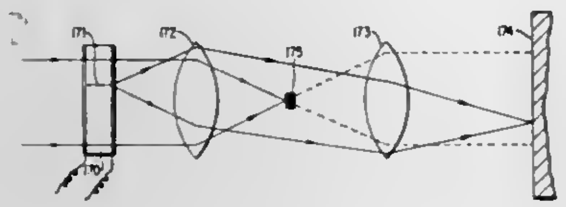
Walter Joseph Gorkiewicz, New York, N.Y., and John A. van Raalte, Princeton, N.J., assignors to RCA Corporation
Filed March 9, 1970, Ser. No. 17,671
Int. Cl. G02f *1/28;* **G02b** *13/10;* **G03b** *21/00*
U.S. Cl. 350—161 **9 Claims**



Unmodulated, collimated white light is angularly directed to a target reflecting surface which is deformable to represent a subject, and the subject-modulated light reflected from the target surface is directed to a viewing screen by a schlieren optical system including a projection lens and a stop at the focal point of the lens. A prism is located adjacent the real subject-bearing target surface for rendering the apparent target surface parallel, and the light reflected therefrom orthogonal, to the principal plane of the lens and the screen; and for so reducing any color dispersion of the reflected light as to obtain adequate resolution of the image of the subject projected onto the screen.

3,704,937
OPTICAL LINE SCANNER USING A COUPLED FERROELASTIC-FERROELECTRIC CRYSTAL PLATE

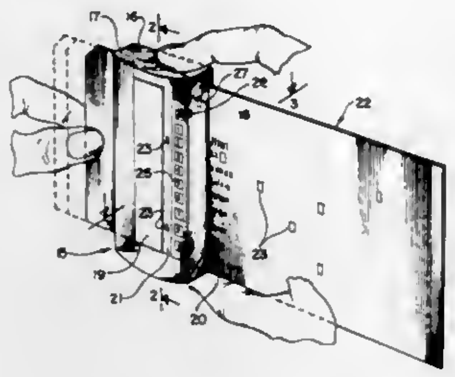
Robert K. Warlog, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 26, 1971, Ser. No. 119,238
Int. Cl. G02b *27/38;* **G02f** *1/28*
U.S. Cl. 350—162 SF **36 Claims**



When collimated light is passed through a coupled ferroelectric-ferroelastic crystal plate cut perpendicular to possible domain walls and divided into domains by one or more walls, the light exiting the crystal from the region of the domain wall diverges. A field lens brings the light passing through the domains to a first focus differing from the second focus of light passing through the domain wall region. By use of a suitable stop at the first focus, an image of an optical line (light on a dark field or dark on a light field) can be obtained at the second focus. The domain walls can be moved in response to electrical or mechanical stress to provide an optical line scanner. The differing polarization properties of the region of the domain wall and the adjacent domains can also be used to supplement the spatial filtering.

3,704,938
PUNCH CARD VIEWER

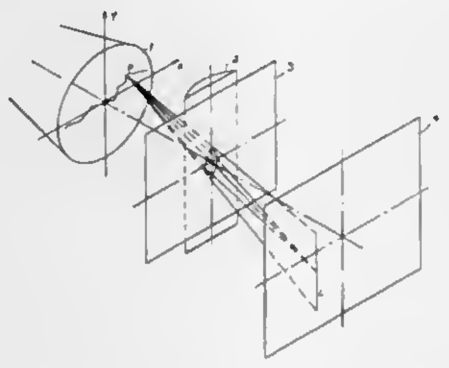
Hyman Fanselow, 978 E. 105th Street, Brooklyn, N.Y.
Filed Oct. 1, 1970, Ser. No. 77,173
Int. Cl. G02b *27/02*
U.S. Cl. 350—241 **5 Claims**



A Punch Card Viewer is provided in the form of a magnifying glass having a flat rear face and a rounded magnifying top face and a vertically extending leading slot adapted to block out all data and holes when the viewer is maintained flush with the bottom edge of the punch card. The viewer can be guided upon the lower edge of the punch card by the thumb while grasping the viewer and extending it over the card or by a ledge extending rearwardly from the rear face of the viewer. The viewer has a pocket clip so as to keep the viewer in the pocket of the card reader. Horizontal line designations are provided upon the viewer adjacent to the vertically extending reading slot. There is also provided a card viewer which may extend over the full face of the punch card and which has rearwardly extending ledges at the upper and lower edges of the viewer to keep the card confined against vertical displacement and also has lines to box in the horizontal rows of holes and data upon the card. This full viewer has a vertically extending reading slot on an extension thereof at one end which can be aligned with any vertical row of holes or data upon the card. The viewer can also be provided with space for the displaying of essential data, which aids the reader of the card in making his deductions therefrom.

3,704,939
OPTICAL SIGNAL AVERAGING APPARATUS

Ejler Baastrup Neergaard, Lystrup, Denmark, assignor to Niels Erik Guldbaek Kaiser, Vanlose, Denmark
Filed June 10, 1970, Ser. No. 45,178
Claims priority, application Denmark, June 10, 1969, 3124/69
Int. Cl. G02b *27/00*
U.S. Cl. 350—321 **7 Claims**



An apparatus for optical data processing which conducts a series of computation operations on data, which have an optical representation.

The apparatus provides, by means of optical components, a photographic registration of the mean value or median value of several processes or functions, (signal averaging).

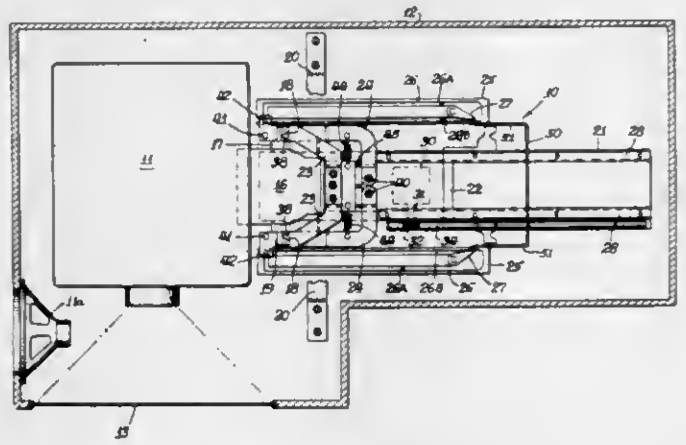
The treatment is based on the use of means for controlled spreading of the luminance in the direction of the amplitude axis, corresponding to the individual amplitude values. The use of controlled unidirectional spreading of luminance is known e.g. in photographic processing of light emission spectra, in the Eindhoven string-galvanometer and sound reproduction cameras.

ERRATUM

For Class 352—129 see:
Patent No. 3,705,105

3,704,940
UNITARY PROJECTOR PLAYER

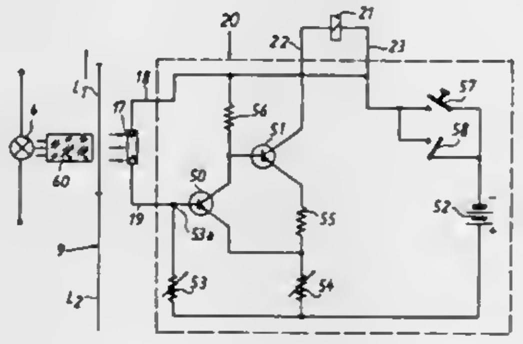
Ray C. Anderson, 3700 15th Street, Rock Island, Ill.
Filed Aug. 12, 1971, Ser. No. 171,130
Int. Cl. G03b *23/02*
U.S. Cl. 352—72 **8 Claims**



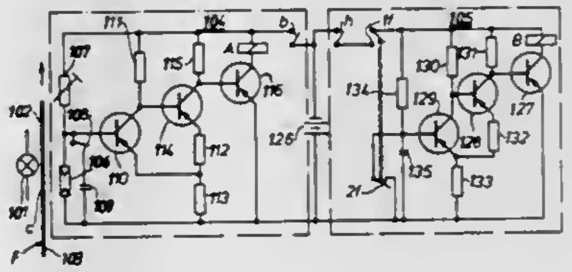
A self-contained unitary projector-player unit to provide a complete entertainment center within itself including a housing, a projector in the housing, a rear projector screen formed in the sidewall of the housing and including a film cartridge change mechanism for handling a plurality of film cartridges and sequentially inserting a cartridge from a stack of cartridges into the projector-player, withdrawing the cartridge after play has been completed, stacking the used cartridge in a receiving receptacle, and inserting the next cartridge in sequence into the projector player.

3,704,941
MOTION PICTURE PROJECTOR

Alfred Winkler, Munich; Johann Zanner, Unterbaching; Bernhard V. Fischern, and Klaus Fuchsle, both of Munich, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 17, 1970, Ser. No. 99,179
Claims priority, application Germany, Dec. 20, 1969, P 19 64 011.0
Int. Cl. G03b *21/50*
U.S. Cl. 352—92 **29 Claims**

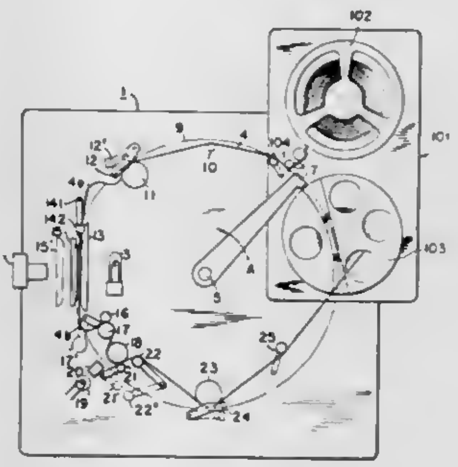


A motion picture projector for use with film wherein the light transmissivity of the leading and trailing film portions is less than the light transmissivity of the median or main film portion. The film is scanned by one or more photoelectric receivers which produce signals in response to detection of the main film portion while the film is moved forwardly whereby such signals cause the film transporting mechanism to reduce the speed of forward transport of the film to normal speed. The receiver or receivers can also produce signals in response to detection of the trailing film portion whereby such signals initiate automatic reversal in the direction of film transport so that the film is collected by the supply reel. The signals which are produced in response to detection of the main film portion can also cause the claw pull-down to begin with stepwise transport of film past the gate, a shutter to permit entry of light into the projection lens system, a film threading mechanism to move away from the supply reel, a pressure plate to move against the film, and/or a deflecting mechanism for the tip of the leading film portion to assume an inoperative position. Signals which are produced in response to detection of the trailing portion of the film can further cause a shutter to move between the lens system and the light source, to automatically arrest the rewinding drive with a desired delay, and/or to open the circuit of the light source.



3,704,942
AUTOMATIC FILM-LOADING PROJECTOR

Satoshi Tsunoda, Tokyo, Japan, assignor to Hokushin Electric Works, Ltd., Tokyo, Japan
Filed March 5, 1971, Ser. No. 121,393
Int. Cl. G03b *1/58*
U.S. Cl. 352—158 **7 Claims**



An automatic film-loading projector including means for automatically effecting all loading operations, including leading a cartridge selected from a plurality of stored film cartridges into a predetermined position in the projector, and actuating the projector to automatically project a picture on the film in the cartridge.

3,704,943
SLIDE PROJECTOR FOR USE WITH STRAIGHT AND CIRCULAR SLIDE TRAYS

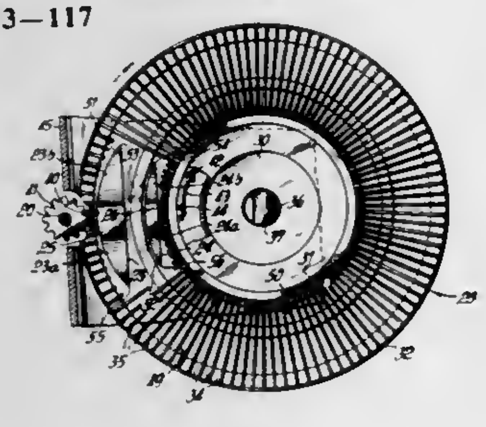
Helmut Rube, Endersbach, Germany, assignor to Robert Bosch Elektronik und Photokino GmbH, Stuttgart-Unterturkheun, Germany

Filed July 19, 1968, Ser. No. 746,123

Claims priority, application Germany, Aug. 18, 1967, P 15 72 584.5

Int. Cl. G03b *23/06*

U.S. Cl. 353—117 **9 Claims**



A slide projector whose housing is formed with a tunnel extending in parallelism with the optical axis of the projection lens for reception of stepwise advancing straight slide trays, and with a pocket which communicates with a median portion of the tunnel and permits insertion of a circular slide tray upon removal of a straight tray. The bottom wall of the tunnel is provided with two segment-shaped cams which can enter parallel channels provided in the undersides of straight trays or concentric annular channels in the undersides of circular trays to lift slides from a lower level to a higher level. The thus raised slides are located at a level above a straight or cylindrical panel of a straight or circular tray over which the slide changer must transport the slides toward viewing position. The circular trays are indexible about a vertical axis.

3,704,944
COPYING DEVICE HAVING A SLIT-EXPOSURE SYSTEM

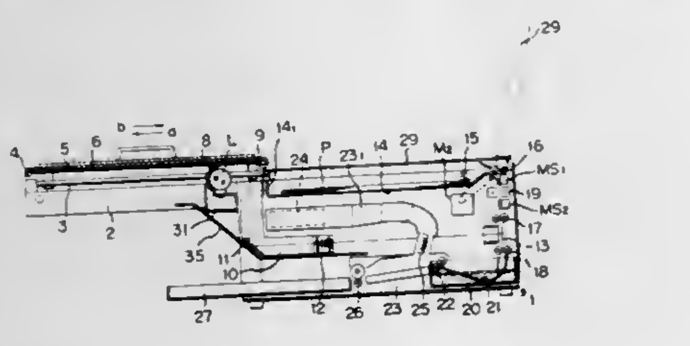
Shigehiro Komori, Kawasaki; Akira Kurahashi, and Jiro Sato, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha Co. Ltd.

Continuation of Ser. No. 688,213, Dec. 5, 1967, abandoned. This application March 30, 1970, Ser. No. 22,115

Claims priority, application Japan, Dec. 10, 1966, 41/112995; May 24, 1967, 42/33030; Aug. 10, 1967, 42/51514

Int. Cl. G03g *15/00*

U.S. Cl. 355—8 **10 Claims**



A compact, electrophotographic copying device in which the copy stand is horizontally moveable over the top of the copier housing. Copy on the copy stand is illuminated through a slit exposure system at one end of the housing, and the reflected image passes through an L-shaped optical system to the exposure portion at the other end of the housing. Photosensitive copy paper moves downwardly across this portion synchronously with movement of the copy stand. The copy paper is fed from a feed position between the copy stand and the optical system.

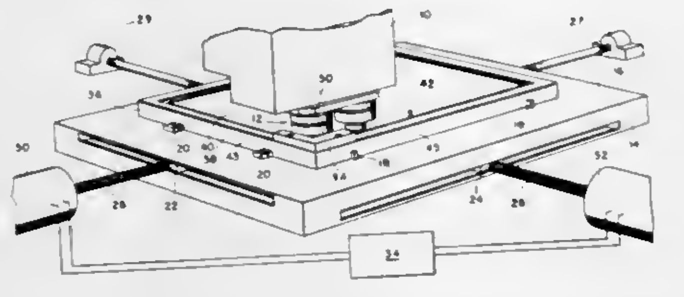
3,704,945
PHOTOPLOTTER ACCURATE FILM LOCATING MECHANISM

Richard E. Denis, Beverly; Joseph J. Sliwkowski, Framingham, and Gilbert Fryklund, Winchester, all of Mass., assignors to Computervision Corporation, Burlington, Mass.

Filed May 5, 1971, Ser. No. 140,349

Int. Cl. G03b *27/52*

U.S. Cl. 355—40 **9 Claims**



A mechanism for precisely determining the location coordinates of the photographic film sheet carried by a removable cassette mounted on the movable bed of a photoplotting machine. The cassette has registration pins which engage the prepunched film. The cassette also has a corner mount which has two right angled, upstanding, vertical faces that are square with the plane of the registration pins. A computer interfaced drive means horizontally moves the table holding the cassette so that the corner mount vertical faces sequentially contact the optical head of the photoplotter. A sensor in the optical head registers the contact data which is used by the computer to determine the coordinates of the film located relative to its underlying table.

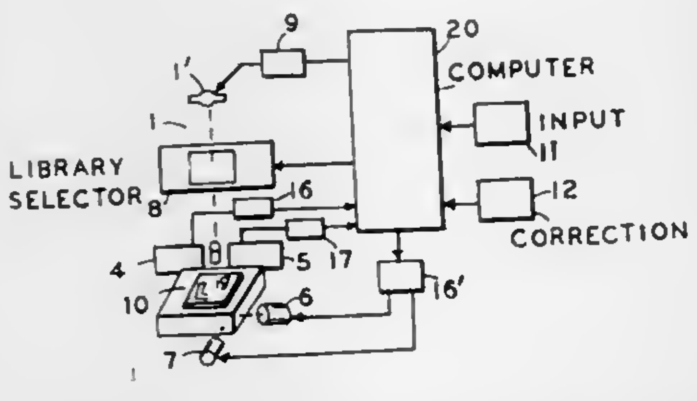
3,704,946
MICROCIRCUIT ART GENERATING MEANS

Andre R. Brault, Armand Court, Head of the Harbor, St. James, N.Y.; Anwar K. Chitayat, 8 Gilbert Lane, Plainview, N.Y., and Ronald C. M. Beeb, Engineers Hill, Brentwood, L.I., N.Y.

Filed Feb. 20, 1969, Ser. No. 812,943

Int. Cl. G03b *27/46, 27/50*

U.S. Cl. 355—46 **10 Claims**



A machine to generate the art work in making photomasks for microcircuits. A photoplate is mounted on a precision X and Y coordinate table underneath a microflash camera having a master reticle holder holding a master reticle plate. The master plate has a plurality of apertures of different sizes, shapes and configurations. Lines and designs are traced on the receiving plate by scanning it and flashing the camera lamp through the aperture.

The positions of the X and Y table is measured by interferometer means and the movement of X and Y tables is controlled by servo motors. The operation of the servo motors, the microflash camera, and the aperture plate selector may be automatically controlled by computer program input means.

Master plates may be made on this machine.

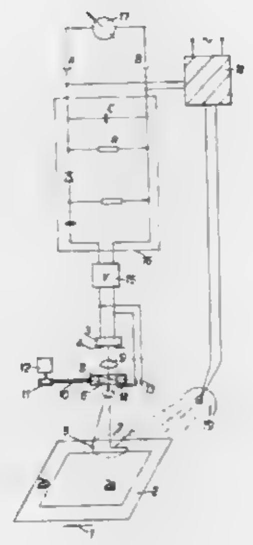
3,704,947
MICRO-FILM CAMERA

Hubertus Reimann, Dresden, Germany, assignor to VEB Pentacon Dresden Kamera-und Kinowierke, Dresden, Germany

Filed Jan. 4, 1971, Ser. No. 103,672

Int. Cl. G03b *27/78*

U.S. Cl. 355—68 **4 Claims**



A microfilm camera for reproducing documents is provided with a photo receiver mounted on its housing. An optical system mounted on the housing directs light reflected by a punctiform area near the edge of the document to be photographed onto the photo receiver. A wedge prism is rotatably mounted on the housing in the light path between the photo receiver and the document to enable the puntiform portion scanned by the photo-receiver to be varied over the document and its border during a rotation of the wedge prism. Mounted on the housing is a drive means which rotates the wedge at a constant speed. Provision is made for reducing the output from the photo-electric device to a zero illumination level once during each revolution of the wedge prism. Mounted on the housing is a measuring circuit which includes a rectifier connected with an output of the photo-receiver and a storage device having a time constant long compared with the time for one rotation of the wedge prism and effective to store a voltage indicative of the brightness of the document. A control device is influenced by the output of the storage device provides a controlled voltage which influences the illumination of the lamp in dependence on the brightness of the document border.

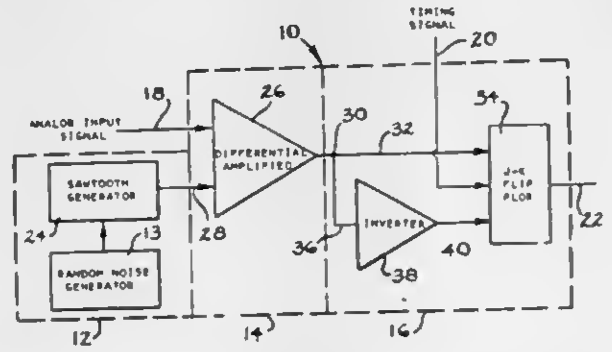
3,704,948
METHOD AND APPARATUS FOR TRANSMITTING INFORMATION

Iben Browning, Sunnyvale, Calif., assignor to Longshots, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 523,114, Jan. 26, 1966, abandoned. This application Oct. 7, 1966, Ser. No. 585,098

Int. Cl. G03b *27/72*

U.S. Cl. 355—80 **9 Claims**



An analog-to-digital conversion method and apparatus is disclosed wherein a random noise signal is mixed with an analog signal to produce an output signal of binary pulses, the probability of occurrence of which pulses is proportional to the waveform of the analog signal. More generally, a random information matrix is modulated with an analog information matrix such as a photograph to reduce contrast and produce a continuous "gray scale" with greater definition in the output.

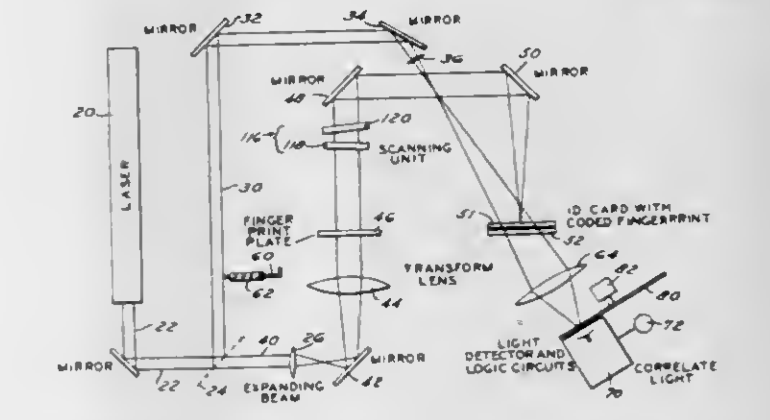
3,704,949
METHOD AND APPARATUS FOR PERSONAL IDENTIFICATION

Carlton E. Thomas, Van Nuys, Calif., and Gary D. Cochran, Ann Arbor, Mich., assignors to RMS Industries, Inc., Ann Arbor, Mich.

Filed June 22, 1970, Ser. No. 48,373

Int. Cl. G06k *9/08*

U.S. Cl. 356—71 **9 Claims**



A method and apparatus for creating an encoded fingerprint card which consists of a hologram of a fingerprint created by a main illuminating beam and a reference beam on a sensitive photographic plate and the use of the encoded fingerprint in a matched filter correlator in real time wherein the fingerprint of a subject can be introduced into the system and correlated with the encoded information to verify identity between the original encoded information and the person claiming identity therewith. The system includes a means for creating relative motion between the fingerprint transform image and the transform plane filter in the form of a hologram to insure proper alignment at some place between said image and said filter to produce light output correlation peaks even when the image or the filter or both are mechanically misaligned.

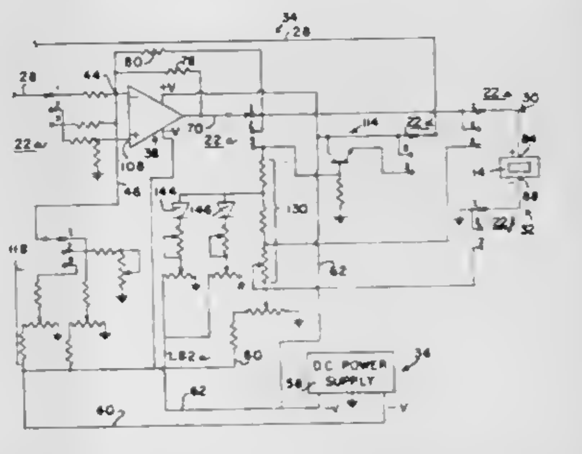
3,704,950
ELECTRICAL SYSTEM FOR USE IN OPTICAL DENSITOMETRY

Robert Rosencranz, Highland Park, Ill., assignor to Sargent-Welch Scientific Company, Skokie, Ill.

Filed Feb. 22, 1971, Ser. No. 117,541

Int. Cl. G01n *21/00;* **G01j** *3/42, 1/44*

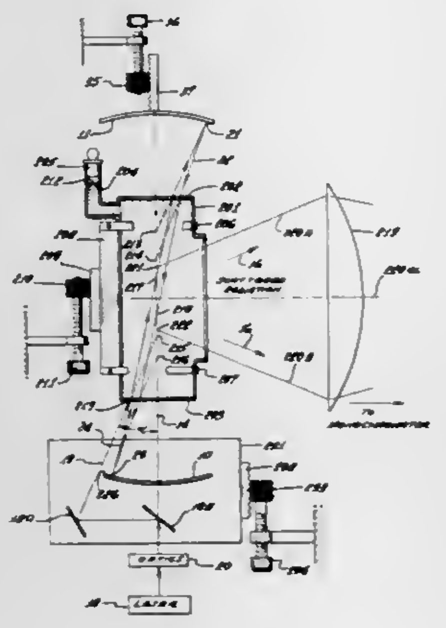
U.S. Cl. 356—73 **8 Claims**



An electrical system for use in optical densitometry. The system includes a plurality of separately operable electrical circuits contained in a single unit, and each circuit is adapted to produce response characteristics in a single voltmeter or other associated readable instrument which characterize one selected property or characteristic of the specimen being analyzed. In use, with the electrical system operatively associated with a photometer and a voltmeter or the like, the user, by merely manipulating a single control, may select a circuit which will produce a readable signal indicative of the characteristic he wishes to measure, and such indication or measurement may then be read directly from the voltmeter, for example, while moving the switch to other positions will select other circuits and cause the voltmeter reading to indicate measurements of other characteristics of the same sample. All these operations may be carried out without the necessity of changing the sample, the photometer, the connections thereto, or the character of the voltmeter or other instrument providing the reading. The characteristics typically able to be read include (a) percent dot area of a half tone specimen, (b) the percent of light transmitted through or reflected from the specimen, and (c) the optical density of the specimen. The electrical circuits are arranged so that the signal furnished to the meter for indicating percent dot area is inversely proportional to the strength of the incident light, so that for indicating light transmission percentage, the signal furnished to the meter is directly proportional to the strength of the incident light, and so that for indicating optical density, the signal furnished to the meter is inversely proportional to the logarithm of the strength of the incident light.

3,704,951
MULTIPASS LIGHT CELL FOR INCREASING THE INTENSITY LEVEL OF RAMAN LIGHT EMISSION FROM A SAMPLE

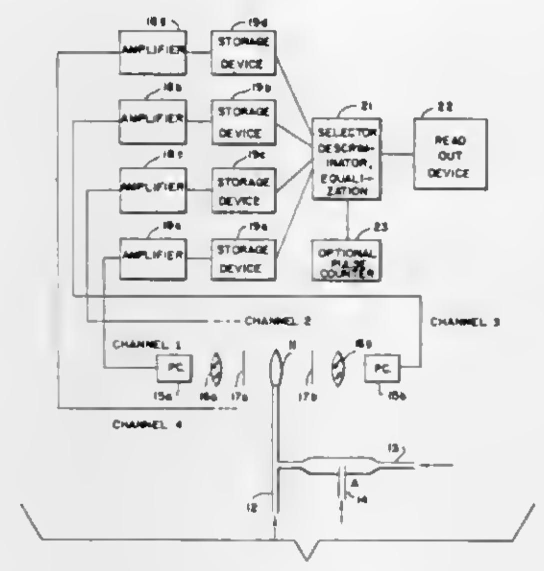
Vernon L. Chupp, San Dimas, Calif., assignor to Cary Instruments, Monrovia, Calif.
Continuation of Ser. No. 832,102, June 11, 1969, abandoned. This application , Ser. No. 130,478
Int. Cl. G01j *3/44*
U.S. Cl. 356—75 **33 Claims**



The invention concerns the use of mirrors and a source of sample exciting light arranged in such relation to a sample zone that source light is caused to pass many times through a sample in that zone for increasing substantially the intensity level of Raman light emission from the sample.

3,704,952
FLUID MEDIUM SOURCE TRACER METHOD

Douglas Bird, Schenectady, N.Y., assignor to Environment/One Corporation, Latham, N.Y.
Filed Dec. 29, 1969, Ser. No. 888,747
Int. Cl. C08f *27/04;* **G01j** *3/30*
U.S. Cl. 356—87 **7 Claims**



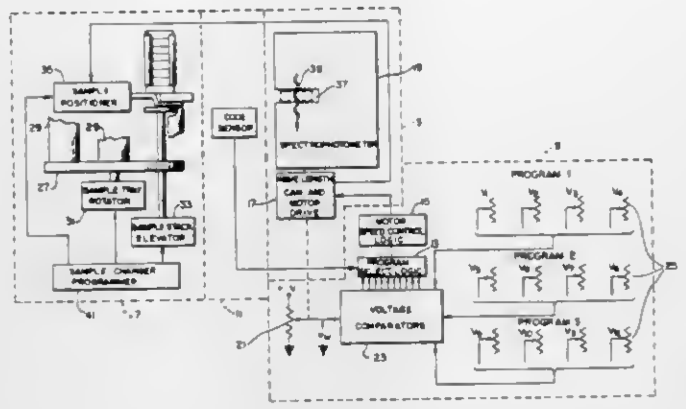
A fluid medium source tracer method and materials is described which employs specially prepared particulate materials containing bound identifier elements in known fixed ratios and dispersed in a fluid medium to be labeled. Test samples of a fluid medium (either liquid or gas) are burned in a flame emission spectrometer which measures simultaneously one principal spectral emission band from each of the bound elements in any single particle that passes through the flame of the spectrometer. The method is applicable to studies in water, air contamination, or other liquids and in studies of air flow. It allows a number of different unique, characteristic "finger prints" to be dispersed into fluid mediums to be identified at some subsequent point in space and/or time as a suspected source of contamination by use of the specially prepared particulate material containing bound elements in known fixed ratios as the "finger prints." In liquids, the additive particulate materials can be used at average levels as dilute as 1 part per billion by weight (and possibly less), and yet the technique is capable of deriving spectral emission signals generated in the flame emission spectrometer by the labeling particulate materials which are at least one or two orders of magnitude greater than emission signals produced by background noise or other naturally occurring interference. The labeling particulate materials and the method of their preparation also is disclosed.

3,704,953
AUTOMATIC RADIANT ENERGY ANALYZER WITH PROGRAMMED SAMPLE SELECTION AND ANALYSIS

Dale K. Carter, Arcadia, and Carel H. Ronkes, Garden Grove, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.
Filed Dec. 7, 1970, Ser. No. 95,493
Int. Cl. G01j *3/42, 3/12;* **G01n** *21/16*
U.S. Cl. 356—96 **8 Claims**

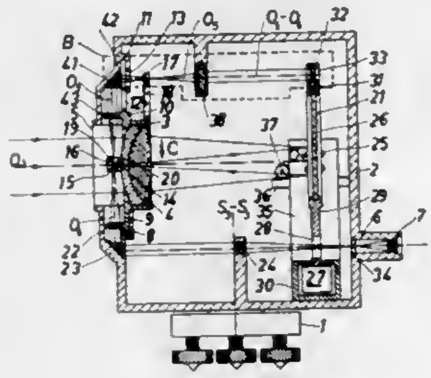
A radiant energy analyzer is connected to a sample changer for selecting and positioning samples automatically in the analyzer for analysis according to sample selection programs. A wavelength programmer is attached to the analyzer to select a sequence of wavelength scanning intervals by which the

samples are analyzed. A code sensing device is connected to the wavelength programmer for sensing an arrangement of coding elements associated with each sample location to select a wavelength scanning program.



3,704,954
LEVELING INSTRUMENT

Gerhard Huther; Rolf Roder, and Ulrich Schmidt, all of Jena, Germany, assignors to Jenoptik Jena G.m.b.H., Jena, Gera, Germany
Filed Dec. 7, 1970, Ser. No. 93,279
Int. Cl. G01c *1/06, 9/02, 9/12*
U.S. Cl. 356—143 **3 Claims**

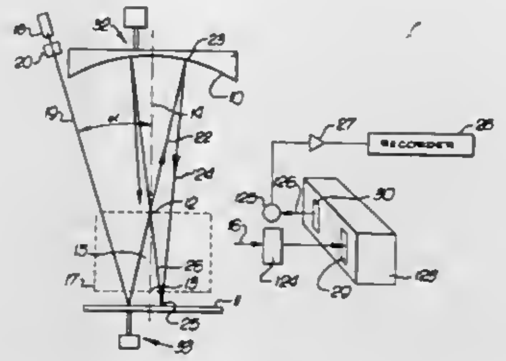


A leveling instrument comprises a sighting telescope and an optical micrometer. The anallactic point, or telescope point of tilt, decisive for the height measurement is exterior to the vertical axis of rotation of the telescope. By means of the micrometer, the collimating mark and the leveling staff are so displaced relatively to one another in the telescope field of vision that the mark and a full interval of the leveling staff coincide. The relative displacement is indicated by an index on a scale and read through an optical reading system. The reading system includes an optical compensator for balancing the effect which the distance between the anallactic point and the vertical axis of rotation of the telescope produces on the height measurement.

3,704,955
RADIATION ENTRAPPING, MULTI-REFLECTION RAMAN SAMPLE CELL EMPLOYING A SINGLE CONCAVE MIRROR

Edouard Horace Siegler, Jr., Claremont, Calif., assignor to Cary Instruments, Monrovia, Calif.
Filed Feb. 19, 1970, Ser. No. 12,628
Int. Cl. G01n *21/24*
U.S. Cl. 356—244 **15 Claims**

Apparatus for passing light repeatedly through a sample in a sample space comprises two longitudinally separated reflectors one of which is concave and the other of which is planar, the reflectors located to repeatedly reflect a light beam therebetween for passage repeatedly through the sample space.

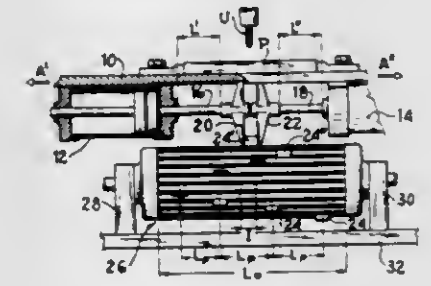


ERRATUM

For Class 408—26 see:
Patent No. 3,704,517

3,704,956
DEVICE FOR POSITIONING WORKPIECES IN A PRE-ESTABLISHED SEQUENCE OF MACHINING POSITIONS

Emilio Poss, Verbania, Italy, assignor to FIMI S.p.A., Milan, Italy
Filed Sept. 21, 1970, Ser. No. 73,815
Claims priority, application Italy, April 11, 1970, 23176 A/70
Int. Cl. B23q *7/02*
U.S. Cl. 408—91 **13 Claims**

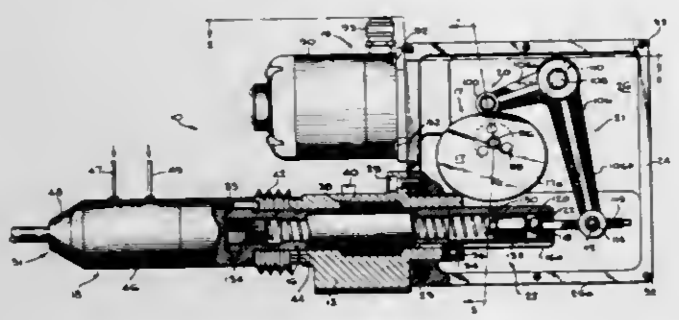


A device for sequentially positioning a workpiece in respect of one or more tools according to a scheduled plurality of positions, said device comprising a movable assembly and a stationary assembly respectively connected to a workpiece and to the tool(s), or vice versa. The movable assembly comprises two oppositely directed and powered pushers movably operated in opposite directions along a straightpath, between a minimum spacing position and a maximum spacing position thereof, said pushers being operated by cylinder-piston assemblies rigidly connected to a worktable or the like slidingly movable in a direction parallel to said pusher path. The stationary assembly comprises a programming means adapted to successively bring a plurality of projections, having a length equal to said pusher minimum spacing, along said pusher path and between said pushers in their maximum spacing position, in order to carry-out a required worktable positioning step during a subsequent motion of said pushers to their minimum spacing position. The device comprises also a system of control, interlocking and consent means to ensure an accomplishment of said motions according to a pre-established operational sequence and without any inconsistent condition.

3,704,957

CAM OPERATED DRILL UNIT

Robert J. Petroff, 1703 S. Main St., Lombard, Ill.
Filed Aug. 17, 1970, Ser. No. 64,164
Int. Cl. B23b *47/18*
U.S. Cl. 408—129 **6 Claims**

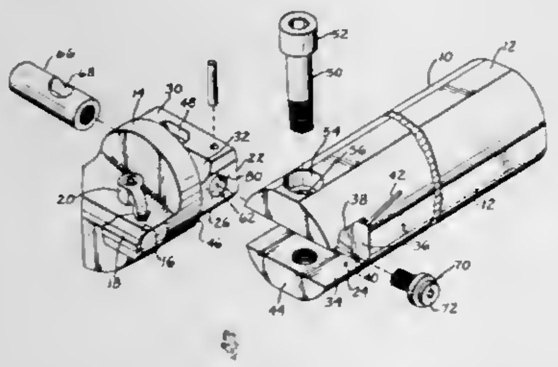


A drill unit adapted for controlled axial advancement of a drill from a retracted position toward a workpiece includes a quill axially movable within a housing. A cam follower operated by a rotatable cam provides reciprocating movement. Linkage between the cam follower and the drill allows the quill to accurately axially advance toward the workpiece and retract. Motor means for rotating the drill at high speed is mounted at the outer end of the drill and is axially movable therewith, the drill being operatively associated with the motor means. Biasing means between the linkage and the quill establish a preselected maximum axial force applicable to the quill by the linkage.

3,704,958

ADJUSTABLE BORING BAR

Robert S. Gulibon, Mt. Pleasant, and James W. Heaton, Greensburg, both of Pa., assignors to Kennametal Inc., Latrobe, Pa.
Filed April 1, 1971, Ser. No. 130,190
Int. Cl. B23b *29/08*
U.S. Cl. 408—153 **3 Claims**



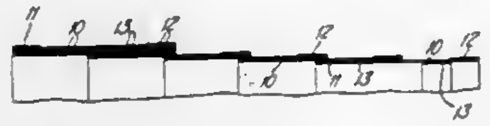
The specification discloses a boring bar having a shank with a head mounted on one end thereof by means of a dovetail tongue and groove arrangement. A clamp screw extends transversely through the groove and also through the tongue for clamping the shank and head together. A positive adjustment is provided for adjusting the head in both directions along the direction of the length of the groove.

3,704,959

GUARDS

Ronald John, London, England, assignor to Molins Machine Company Limited, London, England
Filed Oct. 13, 1970, Ser. No. 80,337
Int. Cl. B23b *47/00;* **B23q** *11/08*
U.S. Cl. 408—241 G **5 Claims**

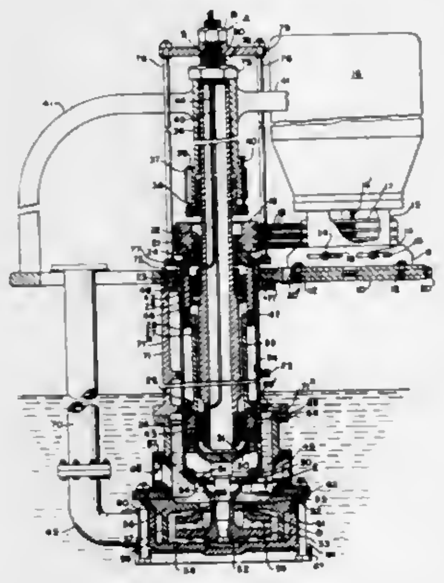
A retractable guard, more particularly for an axially movable cutting tool spindle of a machine tool to prevent ingress of swarf, and consisting of a stainless steel strip wound as a helical spiral with adjacent turns partially overlapping so that the axial movement varies the amount of overlap and the conicity of the guard.



3,704,960

VERTICAL CENTRIFUGAL PUMP

Irvin Frank Zagar, Lakewood, Colo., assignor to A. R. Wilfley and Sons, Inc., Denver, Colo.
Filed Feb. 26, 1971, Ser. No. 119,233
Int. Cl. F04d *1/00, 29/40, 13/02*
U.S. Cl. 415—131 **30 Claims**



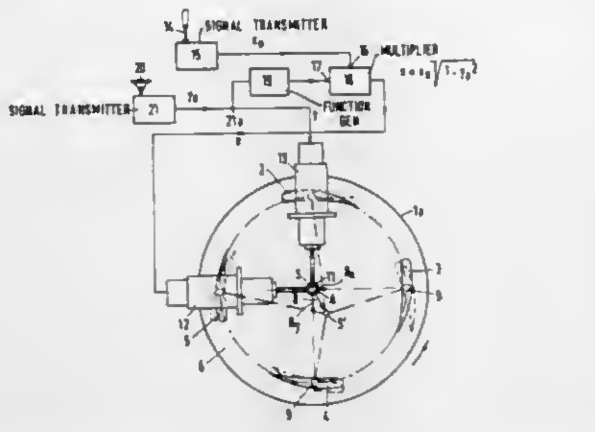
A vertical centrifugal pump having a stationary shaft and a rotating shaft and means associated with said shafts for adjusting the clearance between the pump impeller and pump casing. Means are also provided for adjusting the clearance between the expeller and a die ring which is secured in a position to form a labyrinth passage for protecting the bearing means for the shaft. The stationary and rotating shafts are coaxially arranged in a manner to provide an effective seal for the shaft bearings.

3,704,961

CONTROL SYSTEM FOR A CYCLOID PROPELLER FOR SHIPS

Kurt Fork, Frauenaurach, and Werner Fork, Bremen-Arsten, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin, Munich, Germany
Filed June 15, 1971, Ser. No. 153,210
Claims priority, application Germany, June 18, 1970, P 20 29 995.0
Int. Cl. B63h *1/10*
U.S. Cl. 416—111 **4 Claims**

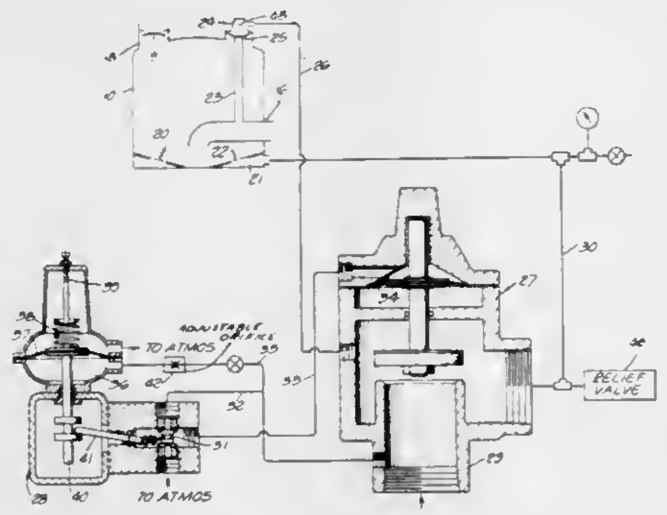
A servo motor controlled by a speed control lever and a servo motor controlled by a steering wheel adjust the position of the control point of the pivoted blades of a cycloid propeller in two directions. The control connection between the lever and the servo motor controlled thereby includes a first signal transmitter and the control connection between the wheel and the servo motor controlled thereby includes a second signal transmitter. The signal provided by the first signal transmitter is controlled as a function of a function generator supplied with the signal provided by the second transmitter.



3,704,962

FLUIDIZED MATERIAL PUMP

Wyatt Weeks, Houston, Tex., assignor to N. L. Industries, Inc., New York, N.Y.
Filed Aug. 30, 1971, Ser. No. 176,080
Int. Cl. F04f *1/06, 3/00*
U.S. Cl. 417—143 **2 Claims**



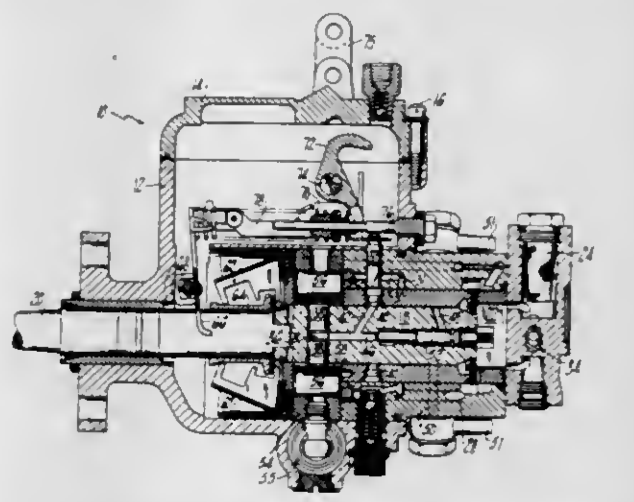
A pump for pumping fluidized pulverulent material such as clay or barite from a point of supply to a point of discharge, the pump undergoing a cycle comprising a filling cycle and a discharge cycle, the cycling being self-automated, being actuated by pneumatic controls and control valves solely by the air used for pressurizing the entire device. The changeover from the filling portion of the cycle to the discharge portion of the cycle and thence back to the filling portion of the cycle when the discharge portion has been completed, and so on repeatedly, is self-regulated by the device itself, so that no other source of power such as electricity is needed. The rate at which the pump cycles may be regulated by the operator, this regulation involving again a strictly pneumatic control.

3,704,963

FUEL PUMP

Leonard N. Baxter, Windsor, Conn., assignor to Stanadyne, Inc., Windsor, Conn.
Continuation-in-part of Ser. No. 805,415, March 10, 1969, abandoned. This application Feb. 3, 1971, Ser. No. 112,370
Int. Cl. F04b *49/00, 13/02*
U.S. Cl. 417—274 **14 Claims**

A fuel pump including a charge pump for delivering discrete pulses of high pressure fuel sequentially to the several cylinders of an engine has an automatic system, effective at low loads, to improve combustion efficiency and decrease air pollution. A reciprocable shuttle piston is disposed between the high pressure generating chamber of the charge pump and a second chamber which is selectively connected to a supply conduit past a by-pass restriction provided by the metering valve. The metering valve passes a measured charge of fuel to the pressure chamber prior to each pumping stroke, and at low engine loads, connects the second chamber with the supply conduit during alternate pumping strokes so that the shuttle piston is free to move to increase the volume of the pressure chamber to store the charge of fuel, prevent pressure build-up and delivery of the charge to the engine. Prior to the next pumping stroke, another charge is delivered to the pressure chamber, and continued communication of the second chamber with the supply conduit moves the shuttle piston to reduce the volume of the pressure chamber an amount equal to the stored charge so that a double charge of fuel is pressurized and delivered to the engine. As engine load increases, and the metering valve opens to increase the measured charge to the pressure chamber, the by-pass restriction becomes smaller and the charges of fuel delivered during successive pumping strokes become equal when the by-pass restriction is closed.

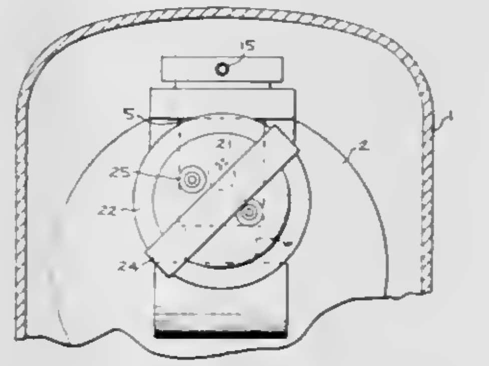


In a variant, the second chamber for the shuttle is selectively connected to a supply conduit by a passage which by-passes the metering valve so that the pump may be used for an engine having one-half the number of cylinders for which the pump is designed. A valve in the by-pass passage is closed when the pump is used for an engine having the designed number of cylinders and opened when used with an engine having one-half that number.

3,704,964

HERMETIC REFRIGERATION COMPRESSOR

Dolphus H. Phelps, Louisville, Ky., assignor to General Electric Company
Filed Aug. 9, 1971, Ser. No. 170,113
Int. Cl. F04b *21/00, 39/00, 17/00, 35/00*
U.S. Cl. 417—312 **4 Claims**



A hermetic refrigeration compressor of the low-side type is provided with an improved, low-cost low-side or intake muffler having tubular inlets particularly effective for eliminating noise frequencies of 100 cycles per second and up.

3,704,965
VALVE-CONTROLLED DIFFERENTIAL PUMP SYSTEM AND METHOD OF OPERATION

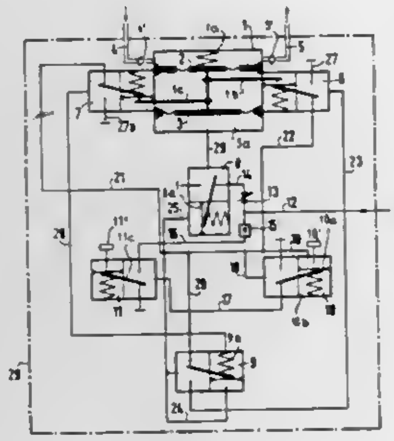
Hellmut Mentschel, 22 Hertleinstrasse, and Jahs-Joachim Henkel, 31 Friedrich-Bauer-Str., both of Erlangen, Germany

Filed June 5, 1969, Ser. No. 830,832

Claims priority, application Germany, June 7, 1968, P 17 03 545.9

Int. Cl. F04b *43/06, 45/00;* **F16k** *31/44*

U.S. Cl. 417—395 **5 Claims**



Valve-controlled differential pump system for advancing and metering liquids including a differential pump, and means for controlling the pump comprising a plurality of mechanically actuable or mechanically and pneumatically actuable three-way valves operatively connected to the pump; and method of operating the same.

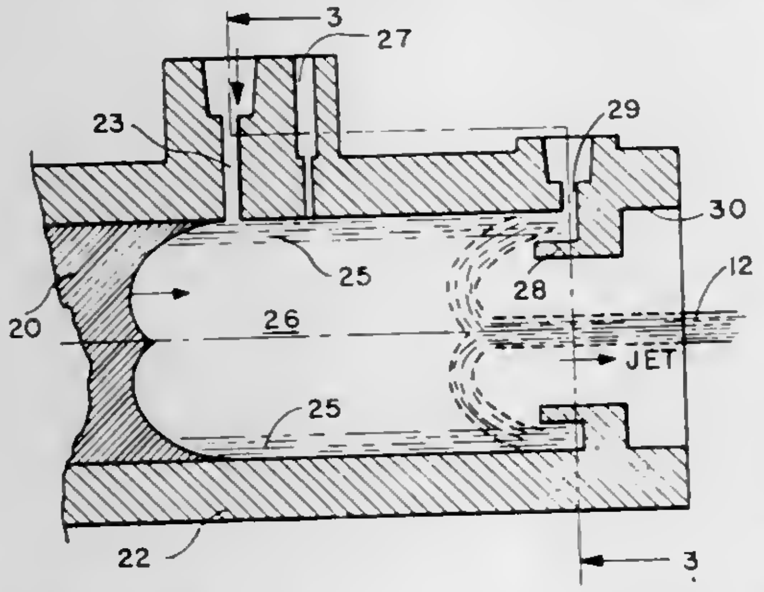
3,704,966
METHOD AND APPARATUS FOR ROCK EXCAVATION

Earl J. Beck, Jr., Ventura, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 13, 1971, Ser. No. 179,736

Int. Cl. F04b *7/04;* **F04f** *7/00;* **B05b** *1/08*

U.S. Cl. 417—490 **8 Claims**



An apparatus and method for producing a slug of water to be delivered at high impact velocity against a surface to be eroded. It includes a cylinder containing a reciprocable ram having a shaped end. Introduction of fluid tangentially into the cylinder forms a stable annulus of fluid and reciprocation of the ram rapidly expels the fluid as a jet out an end opening of the cylinder into contact with the work to be eroded.

3,704,967
RECIPROCATING PUMP FOR CONCRETE

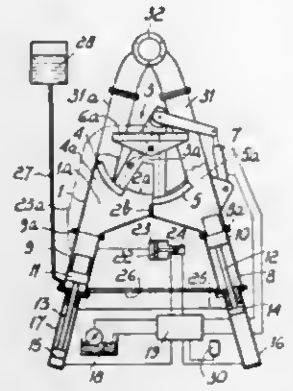
Luigi Tarulli, Viale Bovio 123, Teramo, Italy

Filed Dec. 14, 1970, Ser. No. 98,004

Claims priority, application Italy, Dec. 22, 1969, 49804 A/69

Int. Cl. F04b *7/00, 15/02*

U.S. Cl. 417—519 **5 Claims**



A reciprocating pump for concrete comprising a hollow body defining a concrete collection chamber with an inlet opening, concrete delivery pipes having a delivery opening communicating with said collection chamber, and pumping cylinders to pump concrete from a part of said collection chamber to said delivery pipes, and oscillating valve means to open and close alternatingly said inlet and delivery openings.

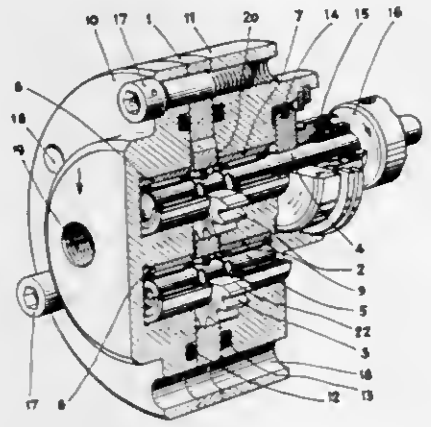
3,704,968
GEAR PUMP

Fritz Haupt, Zurich, Switzerland, assignor to Maag Gear Wheel & Machine Co., Ltd., Zurich, Switzerland

Filed March 4, 1970, Ser. No. 16,310

Int. Cl. F01c *17/00;* **F03c** *3/00;* **F04c** *15/00*

U.S. Cl. 418—178 **4 Claims**



A gear pump, particularly for pumping gasoline under high pressures, comprises two intermeshed gears on substantially parallel shafts and an annular casing of substantially the same thickness as the gears surrounding the periphery of the gears and held between two casing covers arranged on respective sides of the gears which carry bores for receiving and rotatably supporting the shafts. The gears of the pump each include a bore having a raised or crowned central portion which bear on the gear mounting shaft and they are secured for rotation with the shaft by a bolt or connecting pin which extends diametrically through the shaft and engages at its projecting ends in cross-grooves defined in the gear bores. The gears are held against lateral displacement by lock washers secured to the shaft on each side of the gear.

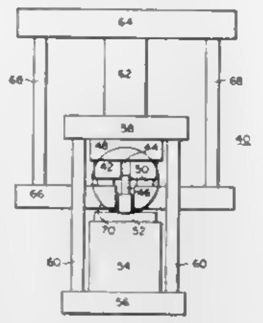
3,704,969
APPARATUS FOR MANUFACTURING DIAMONDS

George C. Kennedy, Los Angeles, Calif., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Aug. 13, 1970, Ser. No. 63,356

Int. Cl. B30b *11/32*

U.S. Cl. 425—77 **10 Claims**



A machine is disclosed for converting graphite to diamond which includes a cylindrical reaction chamber and a reaction vessel positioned in the reaction chamber for holding the charge of graphite to be converted to diamond. A piston having a fixed length and fixed diameter is positioned in the reaction chamber with its first end contacting the reaction vessel and its second end extending out of the reaction chamber. Means are provided for applying a force to the second end of the piston, thereby generating high pressure within the reaction chamber. Further means are provided for maintaining the ratio of the unsupported length to the diameter of the piston at a value less than the ratio of the fixed length to the fixed diameter of the piston.

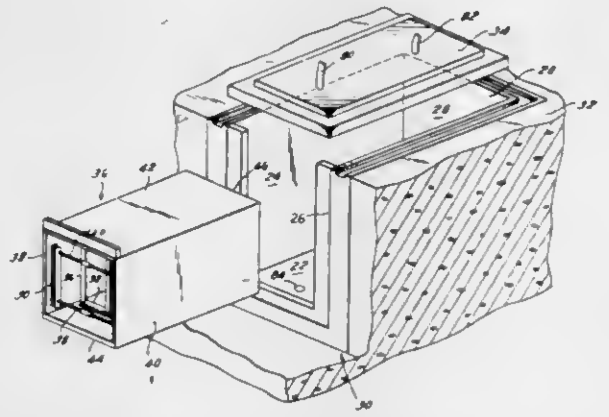
3,704,970
APPARATUS FOR REINFORCED PLASTIC MOLDING

John F. Reeves, 4162 N. Lake Drive, Milwaukee, Wis.

Division of Ser. No. 808,372, March 13, 1969. This application May 12, 1970, Ser. No. 36,641

Int. Cl. B29c *5/00*

U.S. Cl. 425—128 **14 Claims**



An apparatus for molding insulated reinforced plastic structures for use as refrigerated cargo containers and truck or trailer bodies. The insulated reinforced plastic structures have substantially parallel opposed sides and are molded as a unitary structure in a single molding operation. Glass fiber reinforcing materials, which include an insulating core material, are placed in the bottom of a female mold and up against the sides. A somewhat loose fitting mandrel braced vertically but which may later be expanded laterally, is lowered down in between the materials at the sides and on top of materials at the bottom. Further glass fiber reinforcing materials, including a core material, are placed on top of the mandrel. A male mold is lowered in place on top of these materials but somewhat short of full final closing. A free flowing liquid plastic resin is pumped within the space defined by the male and female molds and the mandrel. The free flowing liquid plastic resin impregnates the glass fiber reinforcing and wets the surfaces of the core material. The male mold is closed fully downward and the mandrel expanded fully laterally, compressing the glass fiber reinforcing and compacting the entire material assembly in its final form. The liquid plastic resin then hardens, the molds are opened, and the molding is removed from the mold.

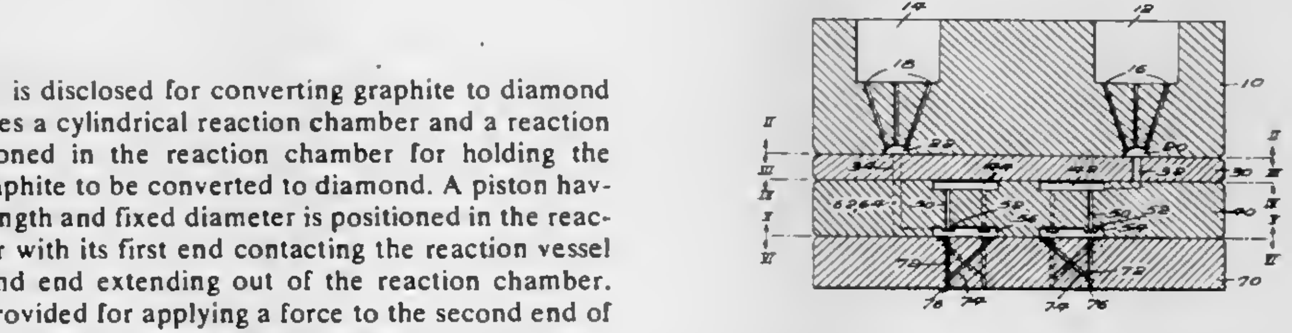
3,704,971
SPINNERET ASSEMBLY

Eugene M. Baird, and John G. Ullman, both of Martinsville, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 16, 1969, Ser. No. 833,535

Int. Cl. D01d *3/00*

U.S. Cl. 425—131 **5 Claims**



A spinneret assembly comprising sandwiched filter block, distribution plates and a spinneret plate is designed to produce a plurality of uniform sheath-core filaments with accurate regulation of sheath thickness without overcrowding extrusion orifices. The flow channels and passages are shaped and interconnected to provide uniform pressure and distribution of the sheath and core polymers across the plurality of extrusion orifices.

3,704,972
SELF-REGULATING EXTRUDER

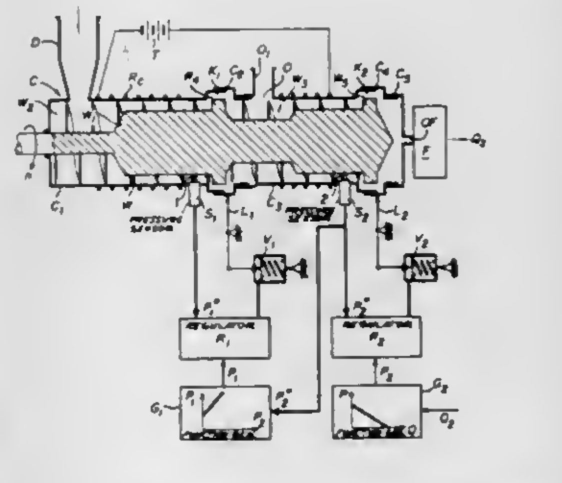
Klaus Kneller, 8303 Nurensdorf; Daniel Poncet-Montange, 2900 Porrentruy; Jean-Louis Prost, 1205 Geneva, and Jean Trub, 1212 Grand-Lancy/Geneva, all of Switzerland, assignors to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

Filed May 3, 1971, Ser. No. 139,517

Claims priority, application Switzerland, May 8, 1970, 6860/70

Int. Cl. B29f *3/02, 3/03*

U.S. Cl. 425—145 **7 Claims**



A screw-type extruder for plastic material has a cylindrical housing axially divided into two externally heated compartments provided at their upstream ends with a hopper and a venting aperture, respectively; at its downstream end each compartment terminates in a mobile housing section for adjustment of the back pressure prevailing therein and, consequently, of the flow rate of plastic mass discharged from the compartment. To equalize the two flow rates, a pair of hydraulic jacks serving to shift these mobile sections are controlled by respective regulators which respond to associated function generators and to the corresponding back pressure as measured just ahead of these mobile sections; the first function generator receives at its input the back pressure of the second compartment whereas the second function generator is adjusted to deliver a constant output dependent upon the desired flow rate at the extrusion nozzle and upon the speed of rotation of the screw.

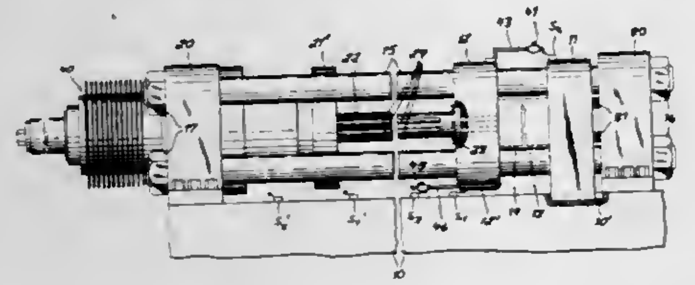
3,704,973
ELECTRO-HYDRAULIC MEANS FOR OPENING AND CLOSING INJECTION MOLDS

Robert Morrison Renfrew, Bramalea, Ontario, and Peter Leon Rees, Don Mills, Ontario, both of Canada, assignors to Husky Manufacturing & Toolworks, Ltd., Bolton, Ontario, Canada

Filed June 8, 1971, Ser. No. 151,107

Int. Cl. B29f *1/00*

U.S. Cl. 425—150 **10 Claims**



The movable platen of an injection-molding machine is rigid with a nonrotatable lead screw engaged by a rotatable drive nut which is splined to a tubular input shaft surrounding the rear end of the lead screw. A cylinder on the machine frame carries an axially movable piston which, upon a stopping of shaft rotation in the mold-closed position, is brought to bear under hydraulic pressure against the nut to clamp the mold between the platens against the tie bars anchored to the frame. The input shaft is powered by a reversible two-speed motor which is switched to low-speed operation in a terminal phase of a lead-screw stroke to absorb excess energy in a nondissipative manner.

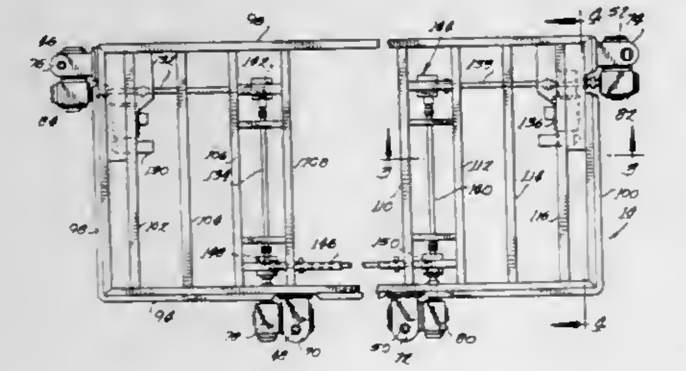
3,704,974
MOLDING MACHINE

Robert E. Kostur, Oak Brook, Ill., assignor to Comet Industries, Inc., Bensenville, Ill.

Filed April 20, 1970, Ser. No. 29,901

Int. Cl. B29c *3/02;* **B30b** *15/06, 15/10*

U.S. Cl. 425—214 **2 Claims**



The four pinions that are mounted to a platen and engage four vertical racks in the molding station to position the platen of a molding machine vertically are driven by two motors with each motor driving a shaft that is connected at one end to a speed reducer with which it drives one pinion and is connected at its other end to a transverse shaft through a bevel gear, the transverse shaft being connected to another speed reducer by which the second pinion is driven. With two motors driving high rpm shafts that extend close to the four pinions, the platen has a better weight distribution, greater efficiency, greater torque at the pinions, more accurate positioning, more accurate braking and a longer stroke.

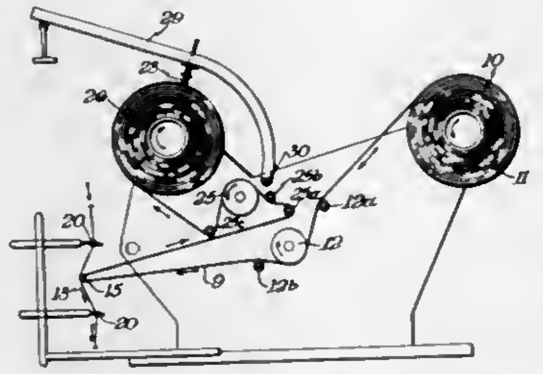
3,704,975
THERMOPLASTIC FILM SLITTING

William W. Bunting, Jr., Wilmington, Del.; Robert E. Buskirk, Pennsville, N.J.; John P. Hogan, and Elbert M. Mahla, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed April 7, 1971, Ser. No. 131,931

Int. Cl. B29h *3/00*

U.S. Cl. 425—305 **5 Claims**



Process and apparatus for the scoring of thermoplastic sheet material, and the scored product thereof, wherein the sheet material is advanced relative to a polymeric filament scoring means at a differential speed effecting scoring.

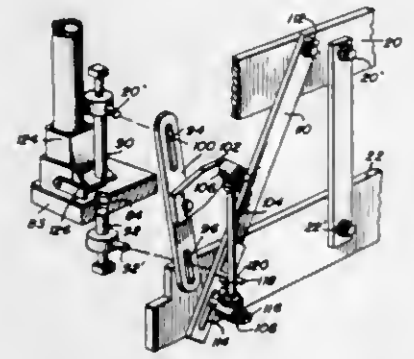
3,704,976
TABLET PRESS

Ross Petersen, Route 3, Box 230, Astoria, Oreg.

Filed April 15, 1970, Ser. No. 28,825

Int. Cl. B41f *17/36*

U.S. Cl. 425—352 **10 Claims**



A pair of generally horizontal beams pivotally supported intermediate their opposite ends for oscillation about vertically spaced generally horizontal transverse axes and including one pair of ends swingable toward and away from a horizontal plane disposed therebetween and in which a die body is stationarily supported. The die body has an upright cylindrical mold passage formed therethrough and the one pair of ends of the beams support mold pistons projecting toward each other and reciprocal in the mold passage. The upper piston is oscillatable from an upper position spaced above the upper end of the mold passage to a lower position projecting downwardly into the upper end of the mold passage and the lower piston is oscillatable between a lower position spaced below the upper end of the mold passage and an upper position substantially flush with the upper end of the mold passage. Operating structure is provided for sequentially raising the upper piston to its upper position and lowering the lower piston to its lower position, registering the discharge end of a granular material chute with the upper end of the mold passage in order to fill the latter with material from which a tablet is to be pressed, swinging the chute out of registry with the upper end of the mold passage, lowering the upper piston to a position just entering the upper end of the mold passage, forcing the upper and lower pistons downwardly and upwardly, respectively, to press the material into a tablet while simultaneously rotating the pistons at least slightly in opposite directions, raising the upper and lower pistons to their upper positions, and then swinging the discharge end of the chute back into registry with the upper end of the mold passage, which last step also functions to brush or sweep the last formed tablet press from above the upper end of the lower piston. As the chute moves into final registry with the mold passage, the lower piston is lowered to its lower position in order that the mold cavity or passage thereabove may be again filled with granular material to be pressed into a tablet.

3,704,977
APPARATUS FOR MAKING HOLLOW ARTICLES

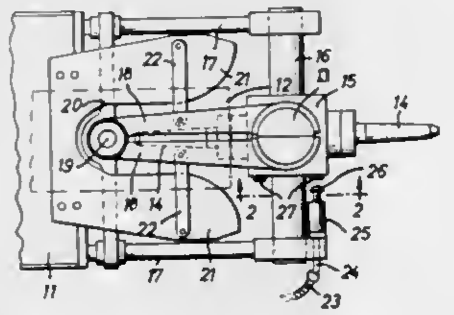
Stefan Fischer, Im Korresgarten 21, Beruf:Fabrikant, Lohmar, Germany

Filed Oct. 6, 1970, Ser. No. 78,394

Claims priority, application Germany, Oct. 9, 1969, P 19 50 911.6

Int. Cl. B29f *1/00*

U.S. Cl. 425—326 **6 Claims**



This invention relates to an apparatus for the production of hollow articles, especially bottles and the like, from thermoplastic synthetic plastic material, having an injection mould for the formation of a pre-moulding, a blow mould for the blowing of the pre-moulding into the finished hollow article and blow mandrels serving as transport device between injection mould and blow mould and usable as mould core of the injection mould, several of which mandrels are arranged on one common carrier which can be stepped further intermittently in the working sequence of the machine.

3,704,978
APPARATUS FOR MANDREL COLLAPSING AND REASSEMBLING IN TUBE WIDENING EQUIPMENT

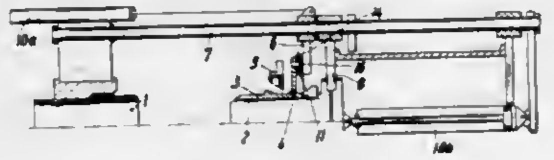
Karl Otto Leier, Mulheim-Ruhr; Hans Werner Spohr, Witten-Stockum, and Johannes von Riegen, Krefeld, all of Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed Nov. 12, 1970, Ser. No. 88,720

Claims priority, application Germany, Nov. 14, 1969, P 19 58 838.6

Int. Cl. B29c *17/00*

U.S. Cl. 425—393 **12 Claims**



A collapsible mandrel, having core and segmented collar, is collapsed and reassembled through rotating positioning means. The collar segments are divided in two groups, whereby the smaller segments have radially outwardly tapering surfaces for engagement with the respectively interspaced, larger segments. The rotating positioning means control radial displacement of the two groups of segments in sequential operation, either through appropriate camming and a single control ring, or through two, independently operated control rings.

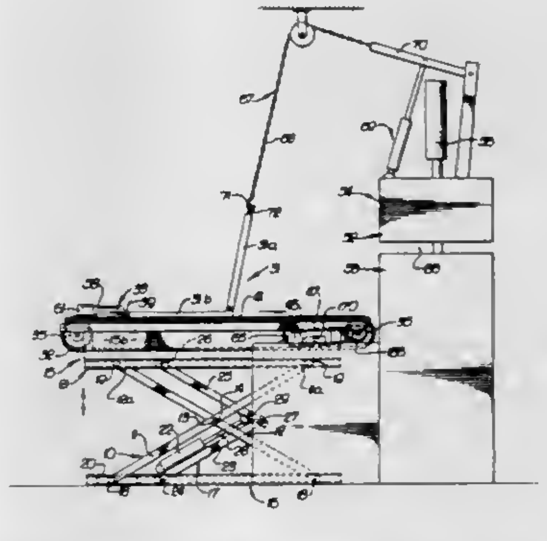
3,704,979
MOLD SECTION ELEVATING, CONVEYING AND OPENING MEANS

Walter H. Thiessen, Long Beach, Calif., assignor to Darnell Corporation, Ltd., Downey, Calif.

Division of Ser. No. 774,423, Nov. 8, 1968, Pat. No. 3,635,327. This application Jan. 14, 1971, Ser. No. 106,585

Int. Cl. B29c *1/16*

U.S. Cl. 425—451 **6 Claims**



The disclosure concerns equipment for rapidly loading and unloading loads (such as molds with respect to presses), and utilizing a load actuator movable on a load conveyor carried by a scissors linkage enabling precise and rapid movement of the load between positions on and off the conveyor.

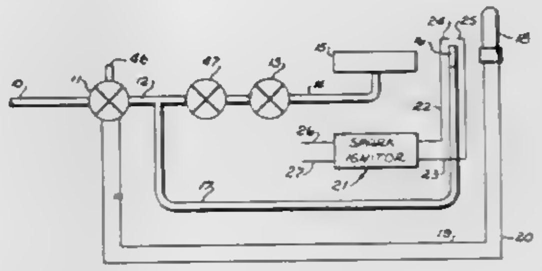
3,704,980
HEATING SYSTEM

Hendricus Johannes Lokkart, Arleta, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed March 25, 1971, Ser. No. 127,884

Int. Cl. F23q *9/08*

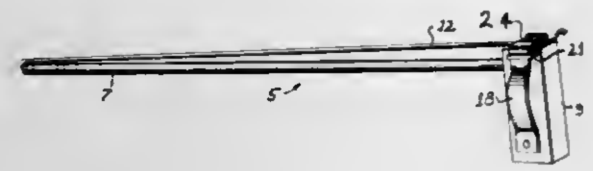
U.S. Cl. 431—43 **5 Claims**



A heating system including a spark ignitor for a pilot burner which utilizes a safety shut off valve operated by the pilot thermocouple when the pilot goes out, wherein the ignitor is connected in parallel with the thermostat. If an air or gas disturbance causes the pilot to go out, the same disturbance or a temporary electric power failure may prevent or delay pilot reignition. If the safety valve closed before reignition, no hazard exists. However, if the safety valve is still open while initially no reignition occurs, the thermostat opens the main valve and reignition is thus prevented for a relatively long time, e.g., several seconds, a large amount of gas can be dumped into the combustion chamber, mixed with air therein and exploded by delayed ignition. In the unique hook-up where the ignitor is connected in parallel with the thermostat, no delayed ignition can take place. If the pilot has not been reignited prior to the thermostat switch closing, i.e., calling for heat, the ignitor will be disabled by the thermostat switch thus preventing ignition.

3,704,981
FLY GUN

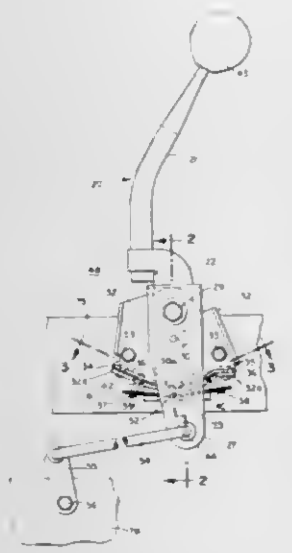
Jack Pohr, 12 Garden Drive, El Paso County, Colo.
Filed Dec. 31, 1970, Ser. No. 103,057
Int. Cl. A01m *3/00*
U.S. Cl. 43—135 **2 Claims**



A pistol shaped insect gun having an elongated barrel and a depending handle attached to one end thereof and with an elastic member attached to the other end of the barrel and having means on the handle for releasably securing the free end of the elastic member when the said member is in a stretched condition.

3,704,982
STICK SHIFTER CONTROL FOR AUTOMATIC TRANSMISSION

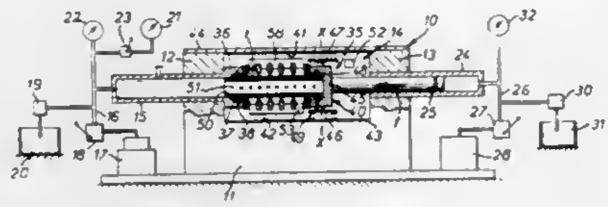
James F. Hobbins, Philadelphia, Pa., assignor to Hurst Performance, Inc., Warminster, Pa.
Filed Feb. 12, 1971, Ser. No. 114,837
Int. Cl. G05g *7/00*
U.S. Cl. 74—473 R **7 Claims**



A stick control for use with an automatic transmission is disclosed in which a stick-operated shift lever is provided for manual selection of the various control valve positions of the automatic transmission. The stick bottom projects through a fixed gate opening, which gate cooperates with a spring-held cam, said gate and cam providing a series of fixed stops, guides, sloped surfaces, barriers and a locking pocket. One of said slopes provides a deflectable barrier which divides the gate so that forward gears are arranged on one side for positive and accurate upshifting and downshifting, and the gear positions used in automatic driving are located on a second side. A lock arrangement is provided for the park position.

3,704,983
METHOD OF AND APPARATUS FOR THE FORMATION OF TUBULAR ARTICLES

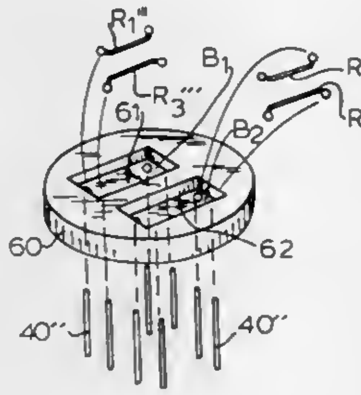
Raymond Jean Bernard Tellot, Paris, France, assignor to Etablissements Butin-Gillet, Pantin, France
Filed Dec. 4, 1970, Ser. No. 95,195
Int. Cl. B21d *15/10*
U.S. Cl. 72—59 **4 Claims**



In the formation of corrugated tubes, forming members are arranged around the periphery of the tube at spaced axial intervals. The forming members are first locked in their axial positions and hydraulic pressure is applied internally of the tube to form initial corrugations in the tube between the forming members. The forming members are then released for axial movement and the internal pressure is continued simultaneously with the application of axial pressure through the forming members.

3,704,984
CHAMBER AND FILAMENT STRUCTURE AND METHOD FOR FLOW THROUGH THERMAL CONDUCTIVITY MICRO SIZE MEASURING CHAMBERS

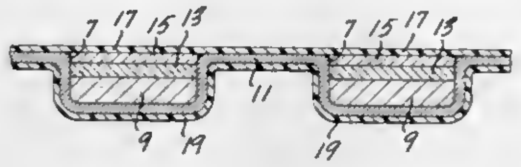
Michael Edward Kiefer, Raleigh, N.C., assignor to Triangle Environmental Corporation, Raleigh, N.C.
Filed May 17, 1971, Ser. No. 143,836
Int. Cl. G01n *27/18*
U.S. Cl. 73—27 R **10 Claims**



A chamber and filament structure and method of chamber formation and filament support for micro size, i.e. 10 microliters or less, thermal conductivity measuring chambers are based on supporting the detecting filaments on a suitable relatively thin electrically and thermally insulating substrate, e.g. mica, and utilizing the wall support surface of the substrate as a significant portion of the total wall surface of the detecting chamber thereby mechanically stabilizing the filaments, minimizing the chamber size and dramatically increasing the ability of the chamber to detect the presence and concentration of minute quantities of unknowns, e.g. insecticide on a lettuce leaf.

3,704,985
TEMPERATURE INDICATOR

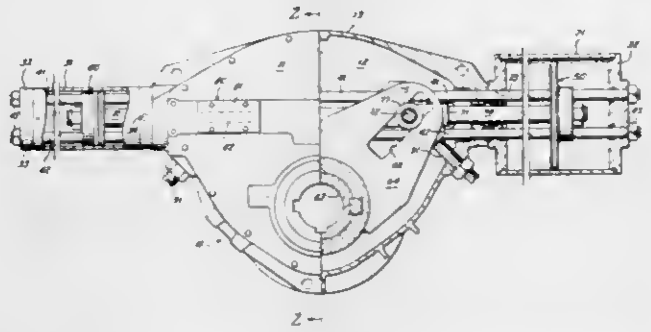
Charles G. Pickett, Andover, and Desh D. Chadha, Dover, both of N.J., assignors to Bio-Medical Sciences, Inc., Fairfield, N.J.
Filed March 4, 1971, Ser. No. 120,891
Int. Cl. G01k *11/06, 11/12*
U.S. Cl. 73—356 **13 Claims**



Temperature indicators are provided comprising a heat-conductive carrier having at least one, but preferably a plurality of regions (cavities) thereon, each region containing a thermally responsive substance which undergoes a change of state at a precise and predetermined temperature different from the temperature of the change of state of the thermally responsive substance in any other region. The temperatures at which such changes of state occur are detected visually by an indicator system which is intimately associated with the thermally responsive materials in these regions. The incorporation of certain organic compounds into the indicator system accelerates visual detection of such change of state, thus permitting rapid measurement of the temperature corresponding to the incipient fusion of the thermally responsive material in each region.

3,704,986
ACTUATOR

John M. Sheesley, Houston, and Ronald A. Gulick, Sugarland, both of Tex., assignors to Research Engineering Company, Houston, Tex.
Filed Dec. 9, 1970, Ser. No. 96,461
Int. Cl. F01b *9/00*
U.S. Cl. 92—138 **3 Claims**

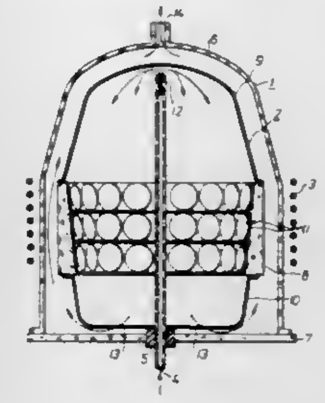


A device for translating longitudinal motion into rotational movement. Combination guide and tie rods are provided, along which one or more pistons run, which pistons are linked to a rotatable yoke member by removable linking means. Removal of such linking means permits piston movement without resultant yoke rotation.

3,704,987
DEVICE FOR THE EPITAXIALY DEPOSITION OF SEMICONDUCTOR MATERIAL

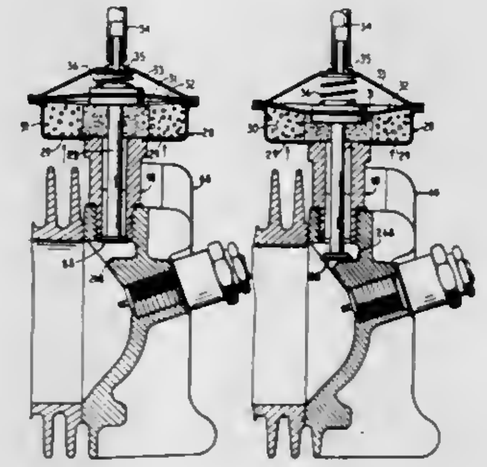
Heinz-Herbert Arndt, and Edwin Nosch, both of Heilbronn, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H, Frankfurt am Main, Germany
Filed June 5, 1970, Ser. No. 43,776
Claims priority, application Germany, June 10, 1969, P 19 29 422.5
Int. Cl. C23c *13/08*
U.S. Cl. 118—48 **12 Claims**

A device for the epitaxial deposition of semiconductor material on a substrate, which device comprises two containers one located inside the other, the substrate being provided inside one of the containers and gas necessary for the epitaxial deposition being introduced into the containers in such a manner that a substantially vertical flow of gas is formed in each of the containers but the direction of flow of the gas in one container is opposite to the direction of flow of the gas in the other container.



3,704,988
ENGINE DECOMPRESSION DEVICE

William Henry Steele, Milperra, New South Wales, Australia, assignor to Victa Limited, New South Wales, Australia
Filed Sept. 3, 1970, Ser. No. 69,383
Int. Cl. F01l *13/08;* **F02n** *17/08*
U.S. Cl. 123—182 **8 Claims**

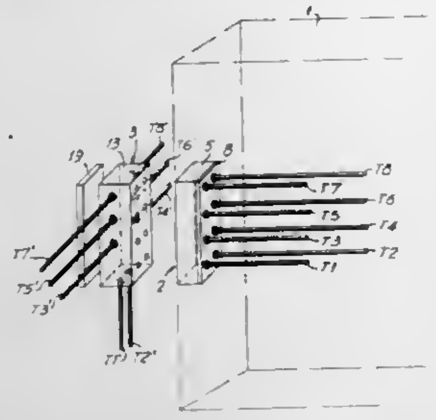


A decompressing device for the firing chamber of an internal combustion engine during only low cranking speed, comprising a venting valve for the chamber, a housing therefor screwed to a port in the chamber, a valve element exposed to compressed gases in the chamber and forced temporarily thereby to a closed condition, and means for damping return opening action of the valve element whereby at and above a predetermined speed of the engine the valve element remains continuously closed.

3,704,989
DEVICE FOR THE SIMULTANEOUS COUPLING AND UNCOUPLING OF A PLURALITY OF FLUID PIPELINES

Claude Jean Maurice Decot, Tarbes, and Jean Eugene Darmagnac, Jullian, both of France, assignors to Etat Francais represente par le Ministre d'Etat charge de la Defense National-Delegation Ministeriell pour de la Porte d'Issy, Paris, France
Filed Feb. 19, 1971, Ser. No. 116,813
Int. Cl. F16k *11/10*
U.S. Cl. 137—595 **7 Claims**

A coupling device for simultaneous coupling or simultaneous uncoupling of a plurality of fluid pipelines at low pressure or high pressure, comprises two blocks connectable with each other and each joined to respective pipelines and having the same number of passages for fluid. Each block has in each passage a spring loaded valve normally in closed position and an external control plate is attachable to one block to depress rods acting on the valves of this block and concurrently the valves pertaining to the other block to open both sets of valves and permit fluid flow in either direction through the passages in the blocks.



3,704,990

PROCESS FOR RECOVERING OIL FROM HETEROGENEOUS RESERVOIRS

Amir M. Sarem, Yorba Linda, and Leroy W. Holm, Fullerton, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Continuation-in-part of Ser. No. 853,483, Aug. 27, 1969, abandoned. This application June 4, 1971, Ser. No. 150,239

Int. Cl. E21b *43/22*

U.S. Cl. 166—273 **15 Claims**

A process for recovering oil from heterogeneous petroleum reservoirs in which there is successively injected into the reservoir through one or more injection wells (1) an aqueous solution of a water-soluble polymer dissolved in substantially salt-free water, (2) a solvent miscible with the reservoir oil, and (3) an aqueous drive fluid; and wherein oil is recovered from one or more production wells spaced apart in the reservoir from the injection well. The polymer is selected to obtain mobility reduction in the more permeable zones without causing plugging of these zones.

3,704,991

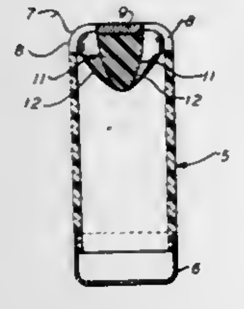
DISPENSING CONTAINER FOR MAGNETIZABLE ARTICLES

Robert M. Leedy, 7 Martindale Road, Short Hills, N.J.

Filed July 7, 1971, Ser. No. 165,813

Int. Cl. A45c *11/00*

U.S. Cl. 206—1 R **4 Claims**



A dispensing container for magnetizable articles, such as paper clips, nails, screws and similar metallic articles, it provided with a magnet at the outlet openings thereof to retain such articles at such openings for ready removal as desired. The container walls are angulated in the direction of such openings, so as to in no way impede the egress of the articles from the container through its openings for removal by a user.

3,704,992

CHARGING APPARATUS CONSTRUCTION FOR A BLAST FURNACE

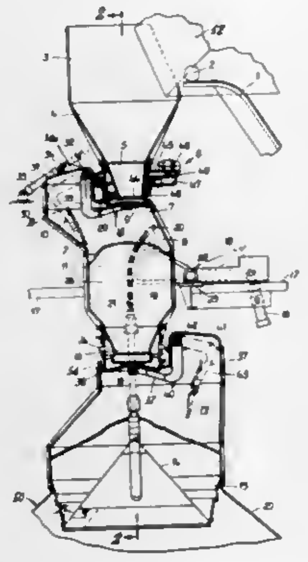
Pieter Hendrik Nieboer, Kapellen, Germany, assignor to DEMAG Aktiengesellschaft, Wolfgand Reuter-Platz, Duisburg, Germany

Filed May 11, 1970, Ser. No. 35,989

Claims priority, application Germany, March 5, 1970, P 20 10 346.2

Int. Cl. F23k *3/00*

U.S. Cl. 214—37 **9 Claims**



A shaft furnace particularly a blast furnace which is operated at high pressures includes a furnace head having a top pan with a distributor bell therein which is movable upwardly to close the top pan to permit an accumulation of charging material thereover and which may be moved downwardly to provide an annular charging opening for the material to drop off the bell into the furnace. The construction includes a charging hopper which may be arranged above the furnace and located to receive a charge of material, for example, by delivery on a carriage which moves over the skip-type conveyor. The charging hopper includes a lowermost portion with a rotatable distributor pipe which has an eccentric opening to permit the rotatable distribution of charging material downwardly into a locking chamber which is arranged between the hopper and the chamber defined by the top pan of the furnace head which is closed by the distributor bell. The lock chamber includes openable and closeable flaps at its lower end which when closed permit the accumulation of a material in the chamber and it is also sealed in a gas tight manner by a displaceable valve member which is mounted on a pivot shaft so that it can be moved to a position offset from the locking chamber to permit the unhindered downward flow of the material from the lock chamber into the furnace above the distributor bell during charging periods. The top of the lock chamber is closed by a valve member which may be opened by displacing it into an offset chamber portion out of the way of the flowing material to open the passage between the hopper and the lock chamber. the inlet valve to the lock chamber, at the top thereof, is opened when the pressure in the lock chamber returns substantially to atmospheric pressure. The inlet opening and the discharge opening of the lock chamber are advantageously arranged in vertical alignment but may be offset if so desired.

3,704,993

DRIVE SYSTEM FOR STRIP MATERIAL

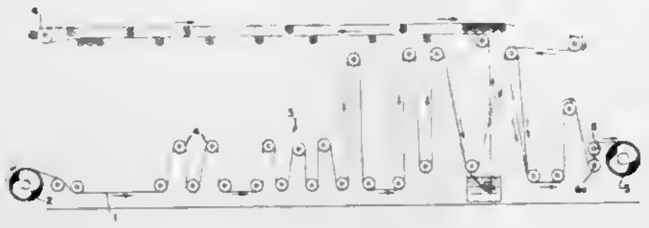
Gaetano Monaco, Hamilton, Ontario, Canada, assignor to The Steel Company of Canada Limited

Filed July 27, 1970, Ser. No. 58,332

Int. Cl. B65h *59/38*

U.S. Cl. 242—75.53 **49 Claims**

The specification and drawings disclose a regenerative drive system for transferring and conserving energy in a process line of a strip steel mill. Coiled steel is unwound from a pay-off reel with the aid of helper rollers and proceeds through different treatments. A pay-off pump is operatively connected to, is driven by, and acts as a drag on the pay-off reel thus creating tension in the strip. A metering motor is driven by the pay-off pump and is directly connected to an electric motor by means of a shaft in order to aid the electric motor in driving a hydraulic helper roller pump. The hydraulic helper drive pump is in fluid communication with and ordinarily drives one or more hydraulic motors in parallel which motivate the helper rollers. The metering motor and the hydraulic pump are mechanically connected to each other through the electric motor. In this manner energy can be redistributed between the pay-off reel and the helper rollers. One way in which the energy can be redistributed is by having at least some of the pumps convert to motors and vise versa in order to aid in driving the other elements.



3,704,994

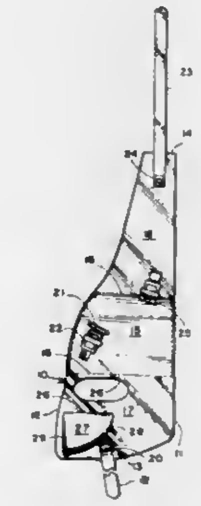
WRIST SUPPORT AND PALM PAD FOR BOWLING

Robert J. Krzewinski, Opa Locka, and Henry J. Kirchgessner, Miramar, both of Fla., assignors to Rev Master Industries, Inc., Pembroke Pines, Fla.

Filed May 24, 1971, Ser. No. 146,397

Int. Cl. A63b *71/14*

U.S. Cl. 273—54 B **1 Claim**



A wrist support for bowling having an arcuate and relatively rigid portion for engaging the back of a bowler's hand and wrist and preventing any relative movement between the bowler's hand and wrist with a first pliable portion extending along one edge of the rigid portion contacting the palm of the bowler's hand and a resilient pad mounted on the pliable portion to engage a bowling ball and a second pliable portion extending along the other edge of the rigid portion for wrapping about the bowler's wrist. Both pliable portions having straps and buckles for fastening the wrist support in firm and relatively tight contact relation with the bowler's hand and wrist.

3,704,995

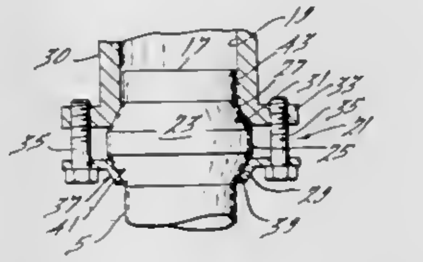
PIPE MANIFOLD FLANGE

Theodore W. Hetherington, Jackson, Mich., assignor to Tenneco Inc., Racine, Wis.

Filed May 5, 1971, Ser. No. 140,501

Int. Cl. F16l *25/00*

U.S. Cl. 285—332 **1 Claim**



Means for attaching an exhaust pipe to an exhaust manifold comprises an annulus having conical sides that is expanded near the end of the exhaust pipe and held tightly against the manifold by an attachment pad that is loosely mounted on the exhaust pipe.

3,704,996

OPTICAL COUPLING ARRANGEMENT

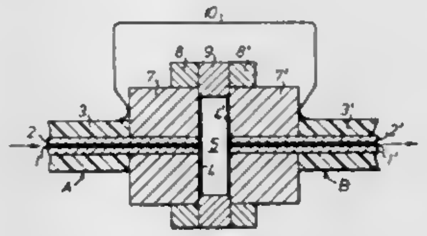
Manfred Borner, D-79 Ulm, Danube; Stefan Maslowski, D-7911 Aufheim, and Oskar Krumpholtz, D-79 Ulm, Danube, all of Germany, assignors to Licentia Patent-Verwaltungs-gesellschaft m.b.H, Frankfurt am Main, Germany

Filed Oct. 22, 1970, Ser. No. 82,937

Claims priority, application Germany, Oct. 23, 1969, P 19 53 283.3; Oct. 23, 1969, G 69 41 157.0

Int. Cl. G02b *5/14*

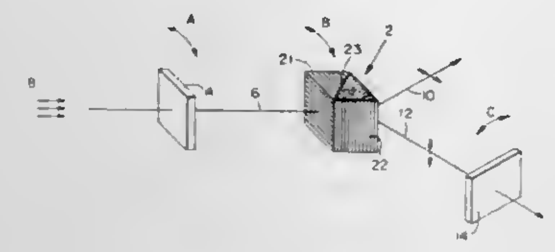
U.S. Cl. 350—96 WG **13 Claims**



An optical coupling arrangement for coupling the data modulated light beam from the output of one optical device to the input of a further optical device which permits transmission of the desired band width but substantially avoids mode mismatching. The desired coupling is achieved by providing a pair of reflective surfaces, i.e. mirrors, which face one another and are spaced with respect to one another so that they define an optical resonator for the wavelength of the light to be transmitted in the coupling medium therebetween, connecting the output of one of the optical devices to a light permeable aperture in one of the reflective surfaces and connecting the input of the other optical device to a light permeable aperture in the other of the reflective surfaces.

3,704,997
VARIABLE AMPLITUDE POLARIZING BEAM SPLITTER

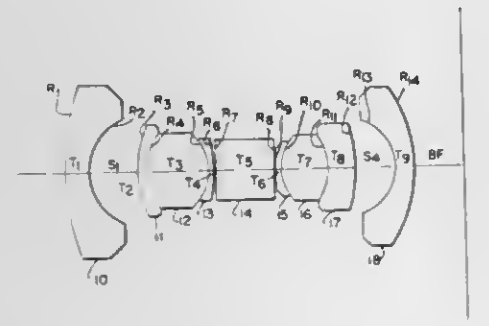
Luther W. Smith, Brimfield, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Filed May 19, 1971, Ser. No. 144,922
Int. Cl. G02f *1/24*
U.S. Cl. 350—157 **4 Claims**



A birefringence polarizer divides incident light into two emergent, mutually perpendicularly polarized beams. The incident light is linearly polarized, its azimuth of polarization being rotatable by a rotatable half-wave retardation plate. A similar plate in the path of one of the emergent beams controls its azimuth of polarization. The emergent light beams are thus controllable as to relative intensity and directions of polarization.

3,704,998
WIDE ANGLE COMPACT PROJECTION LENS ASSEMBLY

John R. Miles, Glenview, Ill., assignor to Microdisplay Systems, Inc., New York, N.Y.
Filed April 19, 1971, Ser. No. 135,071
Int. Cl. G02b *9/58*
U.S. Cl. 350—216 **1 Claim**

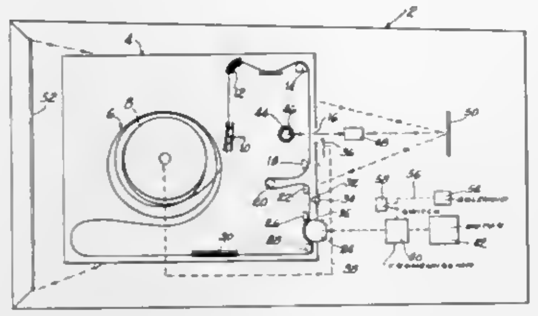


A wide angle lens assembly is symmetrically disposed about a central space wherein a reflecting component is positioned. The lens assembly is folded into a small space by use of a right-angled total reflecting prism in the central space. The lens system has a speed of *f*/ 4 and a total field angle of 90°. The outer lens components are negative to obtain a wide angle of view.

3,704,999
AUTOMATIC STOP CIRCUIT FOR MOTION PICTURE PROJECTOR

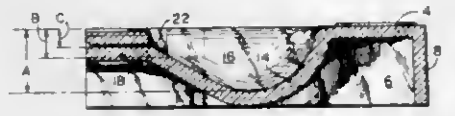
Mark A. Hutner, Glenview, Ill., assignor to Elco Corporation, Jenkintown, Pa.
Filed July 29, 1970, Ser. No. 59,226
Int. Cl. G03b *21/48*
U.S. Cl. 352—92 **6 Claims**

A sound motion picture projector which includes a control circuit responsive to the presence of an audio signal having a predetermined frequency on the sound track of the film being projected to interrupt the film drive means, whereby a particular frame of the film may be automatically projected as a still picture.



3,705,000
LIQUID SAMPLE HOLDER FOR A PHOTOMETER

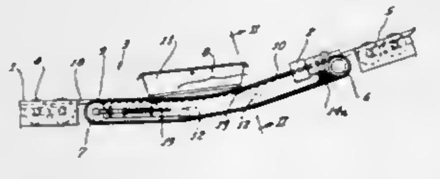
John P. Guerra, Buffalo, N.Y., assignor to American Optical Corporation, Southbridge, Mass.
Filed June 1, 1971, Ser. No. 148,815
Int. Cl. G01n *1/10;* **G02b** *21/34*
U.S. Cl. 356—246 **1 Claim**



A unitary liquid sample chamber of injection-molded transparent material defining a collection well and a capillary space.

3,705,001
TRANSITION RAMP FOR HIGH SPEED ROLLER TRACK CONVEYORS

Gerhard Lingg, Leimen, and Alfred Hirth, Lampertheim, both of Germany, assignors to Mounesmann Aktiengesellschaft, Dusseldorf, Germany
Filed Aug. 9, 1971, Ser. No. 170,051
Claims priority, application Germany, Feb. 17, 1971, P 21 07 491.9
Int. Cl. B65g *47/22*
U.S. Cl. 198—20 **4 Claims**

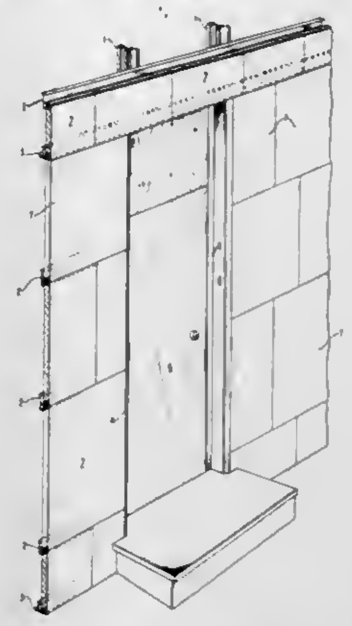


Construction of a lower landing and transition ramp for a high speed roller track conveyor having horizontal and inclined flights and being used for baggage handling in airport terminals or the like. The conveyor moves pallets or the like, each having a pair of sled runners. The transition ramp has a pair of endless conveyor belts, each having a first straight, horizontal track portion, defining the lower landing, a straight inclined portion in line with said inclined flight, and a concave control portion as transition between the two straight portions, whereby the two straight portions each having approximately the length of one of the pallets. Additionally, there are guide rolls on the pallet for maintaining the runners thereof respectively on the belts, and there are bars over which the upper portion of the belts slide, for load support proper.

3,705,002
BEARING SECTIONS FOR THE COVERING WITH MARBLE PLATES, PANELS AND THE LIKE OF WALLS BOTH UNINTERRUPTED AND INTERRUPTED BY DOORS, WINDOWS AND THE LIKE

Giovanni Varlonga, Via B Verro n. 90, Milano, Italy
Filed Aug. 6, 1969, Ser. No. 847,953
Int. Cl. E06b *1/18*
U.S. Cl. 52—213 **5 Claims**

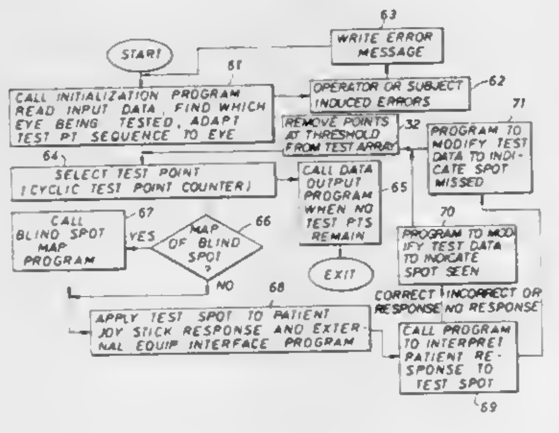
Bearing sections consisting of vertical sections, horizontal sections used when the building walls are not interrupted by frames, horizontal sections used when the building walls are interrupted by frames, and connecting sections. The bearing sections are of particular shapes and have teeth or appendices which allows the sections to be connected together as well as the building walls to be covered by, for example, marble plates in a dry manner.



CHEMICAL

3,705,003
COMPUTER CONTROLLED METHOD FOR AUTOMATIC VISUAL FIELD EXAMINATION

John R. Lynn, Dallas, and George W. Tate, Jr., Fort Sam Houston, Tex., assignors to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare
Filed July 13, 1970, Ser. No. 54,289
Int. Cl. A61b *3/02, 3/10*
U.S. Cl. 351—39 **25 Claims**


63
WRITE ERROR MESSAGE
START
51
OPERATOR OR SUBJECT INDUCED ERRORS
62
CALL INITIALIZATION PROGRAM READ INPUT DATA, FIND WHICH EYE BEING TESTED, ADAPT TEST PT SEQUENCE TO EYE
REMOVE POINTS AT THRESHOLD FROM TEST ARRAY
32
71
PROGRAM TO MODIFY TEST DATA TO INDICATE SPOT MISSED
64
SELECT TEST POINT (CYCLIC TEST POINT COUNTER)
CALL DATA OUTPUT PROGRAM WHEN NO TEST PTS REMAIN
65
67
CALL BLIND SPOT MAP PROGRAM
YES
MAP OF BLIND SPOT ?
66
NO
EXIT
70
PROGRAM TO MODIFY TEST DATA TO INDICATE SPOT SEEN
68
CORRECT RESPONSE
INCORRECT OR NO RESPONSE
APPLY TEST SPOT TO PATIENT JOY STICK RESPONSE AND EXTERNAL EQUIP INTERFACE PROGRAM
CALL PROGRAM TO INTERPRET PATIENT RESPONSE TO TEST SPOT
69

An illustrative embodiment of the present invention includes both method and apparatus for determining the threshold value of visual stimuli presented at selected locations in the visual field of a subject. Programmed automatic data processing equipment is utilized in a unique two way feedback system with an external apparatus to present the stimuli in an unpredictable fashion and a subject response device. The subject communicates with the data processing equipment via the subject response device and the system interprets the responses to dynamically alter the stimulus presentation regime while communicating a feedback to the subject of correct or incorrect perception of a given stimulus.

3,705,004
PAD BATH FORMULATION OF IRON SALT, POTASSIUM PERMANGANATE, AMMONIUM OXALATE AND ZIRCONYL AMMONIUM CARBONATE

Charles J. Conner, Metairie, La., assignor to the United States of America as represented by the Secretary of Agriculture
No Drawing. Original application May 19, 1970, Ser. No. 38,900, now Patent No. 3,671,178. Divided and this application Mar. 21, 1972, Ser. No. 236,590
Int. Cl. C09b *61/00*
U.S. Cl. 8—52 **3 Claims**

Orange to brown mineral dyeings are conventionally prepared from two bath systems, where the fabric is wetted with one bath containing an iron salt, and then wetted with another bath containing alkali, to cause the colored iron oxide to deposit in the fabric as a mineral dye. This has been necessary up to now, since it has been chemically incompatible to have the iron in the same alkaline bath with the alkali. This invention demonstrates that a heat decomposable complex of the iron, with or without manganese, can be compatible with alkaline zirconyl ammonium carbonate solutions in the same bath, when cellulosics can be wetted in this bath, and subsequently mineral dyed by heat curing, when the complex of iron decomposes to deposit iron oxide with zirconia, the zirconyl ammonium carbonate decomposing at the same time to deposit zirconia. When heptavalent manganese ($KMnO_4$) is incorporated into the bath with the complexed iron, it is soluble and compatible, producing manganese dioxide (MnO_2) by reduction products from the iron complex, resulting in various shades or orange to brown with the iron oxide and zirconia also deposited. This process makes it possible to deposit orange to brown wash-fast mineral dyeings from a single bath. The deposited zirconia attributes a degree of water repellency and algaecidal resistance to the fabric, and a copper or phenyl-mercury salt can be incorporated into the zirconyl ammonium carbonate component of the system to deposit a fungicidal mineral dye of orange to brown shade on heat curing, making it possible to apply an iron and/or manganese mineral dye with or without fungicide from a single bath, reducing conventional dyeing procedures from two or more baths, to a single bath requiring only a simple pad, dry, and cure procedure to effect the dyeing. The fabrics are not seriously tendered, and the residual by-product salts may or may not be removed by washing, since the fabric is not stiffened by their presence and the dyed colors are unaffected on standing.

3,705,005

AMINOALKYLENE PHOSPHONATE DERIVATIVES AS CORROSION INHIBITORS IN AQUEOUS SYSTEMS

Frank R. Cervi, Feasterville, Pa., and Richard G. Tonkyn, Frenchtown, N.J., assignors to Betz Laboratories, Inc., Trevose, Pa.

No Drawing. Filed June 21, 1971, Ser. No. 155,303

Int. Cl. C23f *11/16*

U.S. Cl. 21—2.7 **11 Claims**

Aminoalkylene phosphonates containing sulfur, oxygen, sulfoxide or sulfone groups and their use as corrosion inhibitors in aqueous systems. It has been discovered that compounds of this nature not only yield satisfactory anodic inhibition, but also very desirable cathodic corrosion inhibition when added to aqueous systems in an effective amount, e.g. ranging from 1 to 1000 parts per million parts by weight of the aqueous system.

3,705,006

METHOD FOR CARRYING OUT HIGH TEMPERATURE REACTIONS

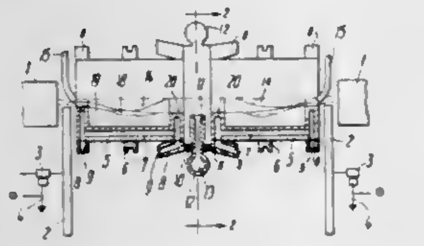
Tibor Kugler, Sins, Switzerland, assignor to Lonza, Ltd., Gampel/Valais, Switzerland

Filed Sept. 1, 1970, Ser. No. 68,628

Claims priority, application Switzerland, Sept. 4, 1969, 13,378/69

Int. Cl. C01g *1/00, 23/04*

U.S. Cl. 423—659 **3 Claims**



The invention is concerned with a method and device for carrying out high temperature reactions which take place with a supply of energy which produces the temperature required for the reaction to take place. The reaction is carried out in a two-part reaction chamber with the reaction components flowing in opposite directions to a separation gap, and the reaction products are chilled and removed at the separation gap by means of a flow component forced into a direction perpendicular to the axis of the reaction chamber.

3,705,007

PROCESS FOR THE PREPARATION OF AMMONIUM BIFLUORIDE FROM AMMONIUM FLUORIDE

Bernard M. Lichstein, Elizabeth, and Cyril Woolf, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 25, 1970, Ser. No. 66,906

Int. Cl. C01c *1/16;* **C01b** *9/08*

U.S. Cl. 423—471 **5 Claims**

Aqueous solutions of ammonium fluoride can be transformed into a substantially anhydrous mixture containing at least 90% ammonium bifluoride and correspondingly 10% or less of ammonium fluoride by distilling off a portion of the aqueous component of the solution at a pot temperature ranging up to about 150° C. until said solution contains from 5 to 30% water based on the original weight of ammonium fluoride, and then continuing heating the solution until at least about 90% of the nonaqueous solution component is ammonium bifluoride, with sufficient water being added to replace that lost during said continued heating so as to maintain the water content of the solution at from about 5% to about 30% and then rendering the mixture substantially anhydrous by removing the residual water at a temperature ranging from about 50° C. up to 130° C. at a pressure of less than about 700 mm. of mercury.

3,705,008

PROCESS FOR THE PRODUCTION OF HYDRAZOIC ACID

William K. Snead, Wheeling, and John F. Knoop, New Martinsville, W. Va., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 24, 1970, Ser. No. 92,374

Int. Cl. C01b *21/08*

U.S. Cl. 423—406 **28 Claims**

Hydrazoic acid is produced by acidifying alkali metal azide or alkaline earth metal azide. In order to repress contamination of the hydrazoic acid vapor with the feed acid, a cascade of stages of decreasing pH is employed. Hydrazoic acid vapor is removed from the cascade under conditions of relatively high pH and by-product solution is removed from the cascade under conditions of relatively low pH.

3,705,009

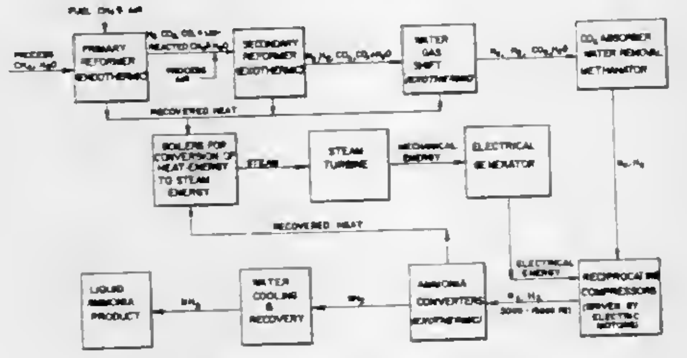
HEAT RECYCLING FOR AMMONIA PREPARATION

Charles Dougherty, Memphis, Tenn., assignor to W. R. Grace & Co., New York, N.Y.

Filed June 12, 1970, Ser. No. 45,685

Int. Cl. C01c *1/04;* **B01j** *9/00*

U.S. Cl. 423—361 **3 Claims**


PRIMARY REFORMER (ENDOTHERMIC)
SECONDARY REFORMER (EXOTHERMIC)
WATER GAS SHIFT (EXOTHERMIC)
CO2 ABSORBER WATER REMOVAL METHANATOR
PROCESS AIR
RECOVERED HEAT
BOILERS FOR CONVERSION OF HEAT-ENERGY TO STEAM ENERGY
STEAM
STEAM TURBINE
MECHANICAL ENERGY
ELECTRICAL GENERATOR
RECOVERED HEAT
ELECTRICAL ENERGY
RECIPROCATING COMPRESSORS DRIVEN BY ELECTRIC MOTORS
AMMONIA CONVERTERS (EXOTHERMIC)
WATER COOLING & RECOVERY
LIQUID AMMONIA PRODUCT
NH3

RECOVERY OF HEAT IN PREPARATION OF AMMONIA SYNTHESIS GAS AND CONVERSION OF HEAT TO ELECTRICAL ENERGY TO ATTAIN VERY HIGH PRESSURES IN CONVERTER

Ammonia synthesis gas is charged to the ammonia converter under high pressure using reciprocating compressors driven by electric motors using electricity derived from steam turbines, which in turn use steam deriving from heat deriving mainly from primary and secondary reformers, shift converters, and ammonia converter in the ammonia synthesis gas preparation. The product ammonia is recovered as liquid by cooling the effluent from the converter with liquid water.

3,705,010

RECOVERY OF BROMINE FROM ORGANIC BROMIDES

Ralph A. Davis, Midland, and Ronald G. Tigner, Coleman, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 7, 1970, Ser. No. 95,881

Int. Cl. C01b *7/10, 7/12*

U.S. Cl. 423—502 **8 Claims**

Disclosed in a process for the recovery of bromine values as Br_2 from organic bromides. The process involves reacting the organic bromide with oxygen at an elevated temperature in the presence of a catalyst. The catalyst is selected from one or more of the oxides of chromium, vanadium, tungsten, molybdenum, cerium, uranium or aluminum.

3,705,011

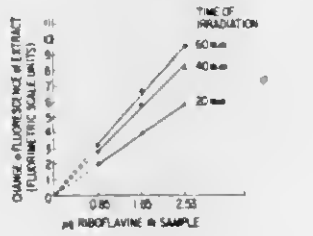
PHOTODECOMPOSITION METHOD AND APPARATUS

Henry Courtenay Neville Clarke, 48 Frederick St., Port of Spain, Trinidad, West Indies

Filed Feb. 27, 1970, Ser. No. 15,094

Int. Cl. A61l *3/00;* **G01n** *21/24, 33/16*

U.S. Cl. 23—230 B **12 Claims**



A photodecomposition method and apparatus for rapidly and dependably evaluating the riboflavin concentration in a large number of whole blood and urine samples as a diagnostic index of the riboflavin nutritive status to clarify the role of riboflavin in metabolic disturbances, and partcularly in liver disease and diabetes mellitus. The apparatus holds rows of samples which are subjected to controlled, incomplete photodecomposition through exposure by parallel overhead tropical daylight fluorescent lamps, at least one lamp disposed longitudinally along each two rows of sample containers, a preselected distance over the samples for a preselected time. The change in fluorescence of the sample and the standard over a given period of exposure is proportional to the riboflavin concentration. The method relating to blood samples comprises determination of the riboflavin concentration by comparison of the rate of photodecomposition of a butanol-pyridine extract of whole blood with a direct internal standard using a conventional photofluorimeter. The method relating to urine samples uses a conversion factor derived from the average change in fluorescence of standard solutions which will convert the rate of photodecomposition of samples directly to riboflavin concentration.

3,705,012

METHOD AND APPARATUS FOR MEASURING THE PEROXIDE CONTENT OF FATS

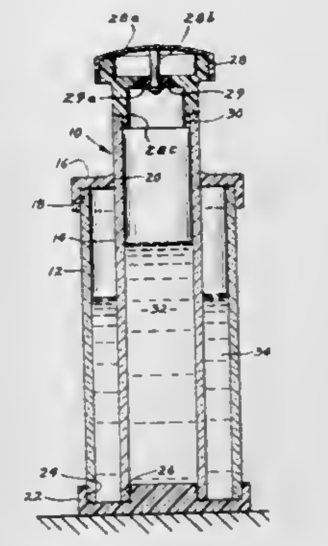
Ralph A. Marmor and Lawrence C. Brandberg, Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed May 18, 1970, Ser. No. 38,284

Int. Cl. G01m *21/06, 31/22, 33/02*

U.S. Cl. 23—230 R **3 Claims**

A fat solvent is placed within one compartment of a test receptacle; a solution of an indicator and sodium thiosulfate is contained in a second compartment. A predetermined amount of potassium iodide is added to the solvent. The fat is then mixed with the solvent. Finally, the mixture of fat and solvent is mixed with the sodium thiosulfate and indicator solution. The presence of a deep blue color indicates a peroxide value above that which is usable.



3,705,013

ANALYTICAL PROCEDURES AND COMPOSITIONS THEREFOR

Peter B. Dewhurst, San Gabriel, Calif., assignor to Xerox Corporation, Rochester, N.Y.

No Drawing. Filed Jan. 5, 1970, Ser. No. 800

Int. Cl. G01n *21/00, 33/16*

U.S. Cl. 23—230 B **14 Claims**

Analytical procedure for the quantitative determination of creatinine in blood serum wherein a neutral or alkaline pH up to about 10.3, preferably about 9.5 to about 10.3, is developed in the sample-reagent blank procedure. A significant advantage of this pH control technique is that it eliminates the need for a protein-free filtrate.

3,705,014

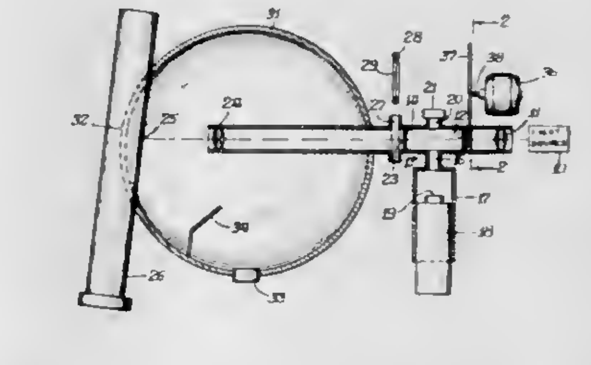
THERMAL OXIDATION TESTER HEATER TUBE DEPOSIT EVALUATOR AND METHOD OF USING

Malcolm G. Townsley, Park Ridge, Ill., assignor to Erdco Engineering Corporation, Addison, Ill.

Filed Aug. 20, 1970, Ser. No. 65,625

Int. Cl. G01n *25/24, 21/24, 21/48*

U.S. Cl. 23—230 PC **11 Claims**

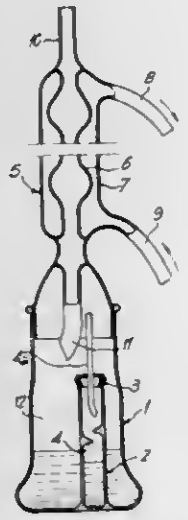


A chopped light beam is divided into a measuring beam and a reference beam. The measuring beam is impinged on a thermal oxidation tester heater tube. After integration of the light reflected from the tube, an electrical signal representative of the intensity of that light is developed and compared with an electrical signal generated from the reference beam. Due to the chopping of the light these are alternating current signals. Initially, the point of impingement on the tube is a clean area and the output indication of the electrical signals is established at zero. Thereafter, a condition of no reflection is established and the output indication is established at a maximum. Thereafter, the point of impingement is established at an area on the tube having a deposit. The output indication reflects the extent to which the reflected light is diminished by the presence of the deposit.

3,705,015

APPARATUS FOR DETERMINATION OF ALCOHOL TITER IN ALCOHOLIC LIQUIDS

David Bono, Maisons-Alfort, and Lucien Prud'hon, Ris-Orangis, France, assignors to Association des Ouvriers en Instruments de Precision, Paris, France
Filed Aug. 5, 1970, Ser. No. 61,234
Claims priority, application France, Aug. 7, 1969, 6927168
Int. Cl. B01n *31/16, 33/14, 25/14*
U.S. Cl. 23—253 R **9 Claims**



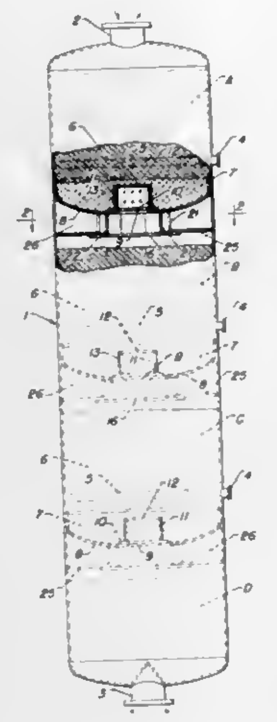
An apparatus for the determination of the alcohol content of an alcoholic liquid, especially alcoholic beverages of the fermentation or distillation types. A small known quantity of the alcoholic beverage is heated to distill the alcohol thereof into a predetermined quantity of a mineral oxidizing agent of known concentration and present in excess. The alcohol is converted to acetic acid and the unreacted oxidizing agent is titrated with a reducing agent of known normality, the endpoint being detected by monitoring the redox potential. Increments of addition of the reducing agent are counted whereby the alcohol titer is read out directly upon a counter.

3,705,016

FLUID-SOLIDS CONTACTING CHAMBER

Orville I. Ludwigsen, Prospect Heights, and Daniel Dudych, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed Nov. 20, 1970, Ser. No. 92,037
Int. Cl. B01j *9/04*
U.S. Cl. 23—283 **3 Claims**

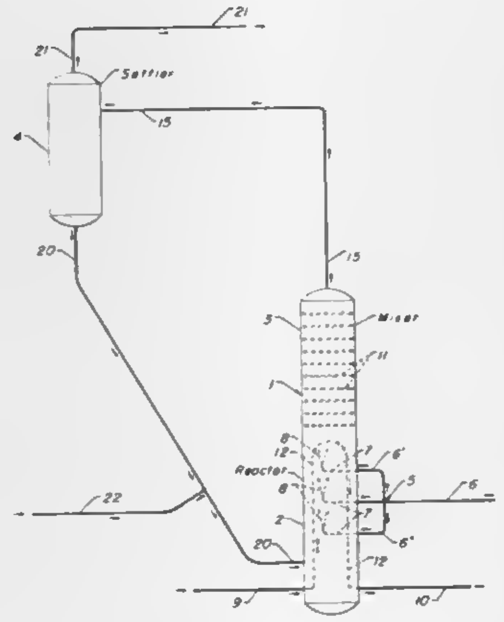
An apparatus for contacting a fluid in a fluid-solid contacting zone such as an adsorption zone or a reaction zone. The apparatus is comprised of an elongated chamber having a horizontally positioned imperforate plate with a centrally disposed opening therein for holding and retaining an upper bed of particulated contact solids. A fluid introduction means such as a perforate conduit extends from centrally disposed opening into the upper bed of contact solids. Spaced below the opening is a second horizontally positioned imperforate plate and vertical baffle means interposed between the first horizontally positioned imperforate plate and the second imperforate plate. A horizontally positioned perforated plate means is spaced below the imperforate plate means.



3,705,017

APPARATUS FOR A CATALYTIC REACTION

Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Nov. 27, 1970, Ser. No. 93,346
Int. Cl. B01j *9/16*
U.S. Cl. 23—288 E **1 Claim**



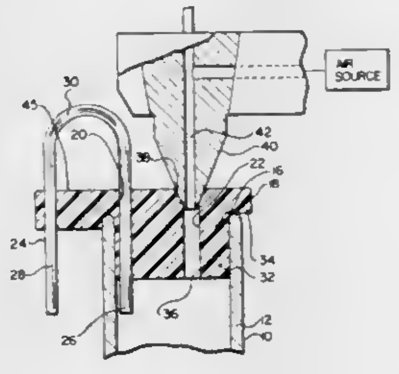
An apparatus comprising the combination of a catalytic reaction chamber, a mixing chamber above the reaction chamber establishing turbulent flow of any unreacted

reactants and the catalyst, and a settling chamber communicating with the downstream end of the mixing chamber and having a product outlet and a catalyst outlet. The settling chamber is disposed above the reaction chamber to thereby establish a continuous circuitous free flow of catalyst between the reaction chamber, mixing chamber and settling chamber.

3,705,018

RESEALABLE TEST TUBE

Billy W. Taylor, 2965 Mi Elaoa Circle, Walnut Creek, Calif. 94598
Filed June 10, 1970, Ser. No. 45,083
Int. Cl. G01n *1/10*
U.S. Cl. 23—292 **16 Claims**

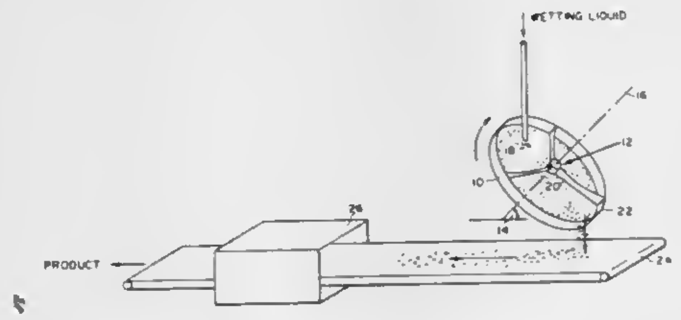


An open ended test tube into which a resilient, sealing plug is inserted. A U-shaped flow tube extends removably through a pair of spaced apart apertures in the plug and maintains the test tube sealed. Withdrawal of one tube end from one of the apertures and application of a negative or positive pressure to the thus opened aperture forces fluid materials via the flow tube into or out of the test tube. The plug includes means for positioning and holding the withdrawn flow tube section exteriorly of the test tube.

3,705,019

AGGLOMERATION OF CYANURIC ACID

Raymond N. Mesiah, Somerset, William F. Beck, Princeton Junction, and David Goldstein, East Brunswick, N.J., assignors to FMC Corporation, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 886,676, Dec. 19, 1969. This application May 11, 1971, Ser. No. 142,374
Int. Cl. A01n *9/22;* **B01j** *2/14;* **C07d** *55/36*
U.S. Cl. 23—313 **9 Claims**



This invention relates to the agglomeration of powdered cyanuric acid to produce larger particles which are free-flowing and which dissolve more easily in water than does the powder. The cyanuric acid particles are wetted and contacted; this causes the particles to agglomerate into larger particles which are then dried.

3,705,020

METALS HAVING IMPROVED MACHINABILITY AND METHOD

Elliot S. Nachtman, Evanston, Ill., assignor to LaSalle Steel Company, Hammond, Ind.
Filed Feb. 2, 1971, Ser. No. 111,916
Int. Cl. B32f *7/00*
U.S. Cl. 29—182.8 **16 Claims**

The improvement in machinability of steels and other metals by the inclusion of foreign bodies having a predetermined size and distribution within the metal.

3,705,021

REINFORCED METAL FIBRIL MATS AND METHODS OF MAKING SAME

Bertil J. Sundberg, Minneapolis, Minn., and Andreas Luksch, deceased, late of Deephaven, Minn., by David R. Johnson, executor, Minneapolis, Minn., assignors to Brunswick Corporation
Original application Aug. 24, 1964, Ser. No. 391,708, now Patent No. 3,505,038, dated Apr. 7, 1970. Divided and this application Aug. 27, 1969, Ser. No. 853,548
Int. Cl. B22f *7/04*
U.S. Cl. 29—182.3 **35 Claims**

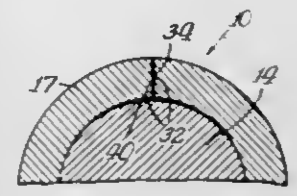
A randomly oriented metal fibril mass is air laid and bound on at least one surface by a metal reinforcement. The porosity or density of the fibril mass may be preselected as desired. The fibrils in the mass and the fibrils adjacent the reinforcement can be attached at their contact points to strengthen the composite. A flat or tubular filter can be fashioned from the reinforcement.

The general method for making the reinforced fibril mass utilizes techniques which provide for, among other things, graded densities.

3,705,022

METALLIC COMPOSITE SHEATHED ELEMENT

Thomas C. Stout, Concord, Mass., and Andrew J. Kaiser, Muskegon, Mich., assignors to Brunswick Corporation
Original application June 13, 1968, Ser. No. 736,649, now Patent No. 3,562,899. Divided and this application Sept. 10, 1970, Ser. No. 71,122
Int. Cl. B21f *17/00*
U.S. Cl. 29—191.6 **2 Claims**



An apparatus for forming clad wire wherein the wire is surrounded by a strip of sheathing material deformed about the wire with the edges thereof being at least partially secured with the securing means not attaching the sheathing material to the wire. The product is of a metallic composite comprising a metal core and a metal sheath surrounding the core with the adjacent edges of the sheath defining a semi-continuous longitudinal seam.

3,705,023

ALUMINUM-STEEL COMPOSITES

Julius C. Fister, Jr., Hamden, Conn., assignor to Olin Corporation
No Drawing. Filed Dec. 18, 1970, Ser. No. 99,672
Int. Cl. B23p *3/00*
U.S. Cl. 29—196.2 **5 Claims**

Composites of aluminum and steel are disclosed which are resistant to intermetallic formation. The composites are characterized by the aluminum component containing from 0.5 to 2.5% silicon and the steel component containing free or soluble nitrogen in an amount from 0.001

to 0.05%. The composite results in a synergistic system exhibiting remarkable resistance to intermetallic formation when the composite is annealed.

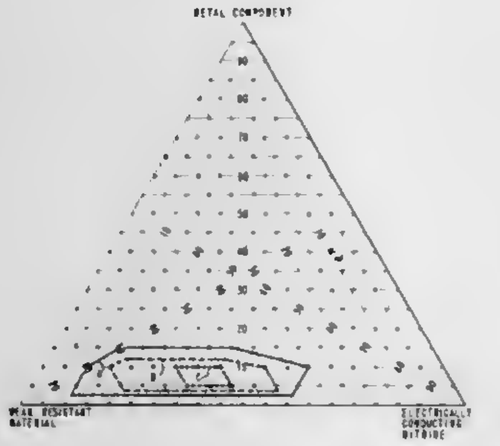
3,705,024
FUEL DISTRIBUTION IN A GASOLINE ENGINE

Abraham A. Zimmerman, New Providence, Louis E. Furlong, Westfield, and Hugh F. Shannon, Scotch Plains, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed June 30, 1971, Ser. No. 158,639
Int. Cl. C10l *1/22*
U.S. Cl. 44—72 **5 Claims**

A tertiary diamine having one long aliphatic hydrocarbon group and one short alkyl group attached to each nitrogen atom of the diamine, when added in minor proportion to a gasoline, will improve the distribution of the air/fuel mixture in the intake manifold of a multicylinder gasoline engine that is run with the resulting blend thereby increasing operating efficiency. A representative diamine is dimethyl dioctadecyl ethylene diamine.

3,705,025
CUTTING TOOL

Alma U. Daniels, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Original application Nov. 18, 1968, Ser. No. 776,741, now Patent No. 3,502,447, dated Mar. 24, 1970. Divided and this application Jan. 19, 1970, Ser. No. 8,153
Int. Cl. B24d *3/02*
U.S. Cl. 51—309 **2 Claims**



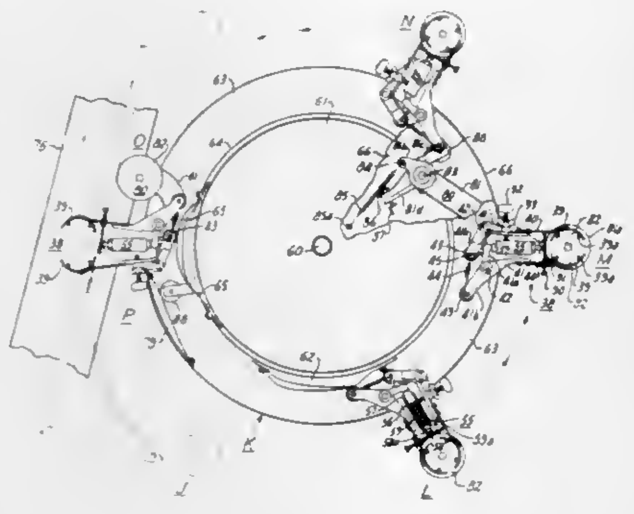
A cutting tool having a cutting edge comprising dense homogeneous compositions having an average grain size less than about 10 microns is disclosed. The compositions comprise:

- (1) 30–87% by vol. of alumina, aluminum nitride, zirconia, or mixtures thereof;
- (2) 10–60% by vol. of a nitride of titanium, tantalum, zirconium, hafnium, niobium, or mixtures thereof; and
- (3) 3–15% by vol. of a metal component having:
  - (A) 50%–80% by vol. of tungsten, molybdenum, or mixtures thereof; and
  - (B) 20–50% by vol. of nickel, iron, cobalt, or mixtures thereof.

3,705,026
GLASSWARE DIMPLING

James C. McReynolds and William E. Adams, Sapulpa, Okla., assignors to Bartlett-Collins Company, Sapulpa, Okla.
Filed Oct. 15, 1970, Ser. No. 80,992
Int. Cl. C03f *9/00*
U.S. Cl. 65—232 **13 Claims**

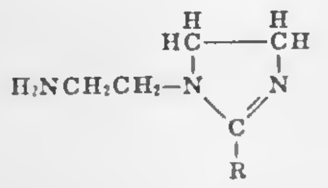
Tumblers and the like articles are produced from vitreous, plastic and similar materials by a continuous step by step production method, wherein each article may be first preliminarily formed as a parison and then blow-formed as a blank or semi-finished article. While the blank is still hot or semi-plastic, dimples or depressions are formed in its side and bottom walls to produce an indented or dimpled type of shape. Side wall dimpling is accomplished by providing transfer finger pairs with pressure nubbins and preliminarily employing the fingers as clamping pressers; a bottom end dimple is produced by providing a bottom closure plate of a vacuum head assembly with a centrally disposed nubbin and applying suction force to draw the article up into the head.



3,705,027
MICROBIOCIDAL NAPHTHENYL IMIDAZOLINES

Phillip Adams, Murray Hill, and Alfonso N. Petrocci, Glen Rock, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.
No Drawing. Filed Dec. 9, 1969, Ser. No. 883,641
Int. Cl. A01n *9/22*
U.S. Cl. 71—67 **3 Claims**

The use of 1-aminoethyl-2-naphthenyl imidazoline, having the structure:

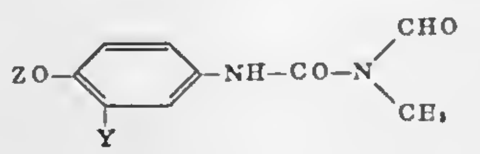


wherein R is the residue of a naphthene-carboxylic acid as a microbiocidal preservative agent.

3,705,028
USE OF ARYLUREAS IN COMBATING WEEDS IN COTTON PLANTATIONS

Stefan Janiak, Basel, and Otto Rohr, Therwil, Switzerland, assignors to Ciba-Geigy AG
No Drawing. Filed Jan. 26, 1970, Ser. No. 5,951
Claims priority, application Switzerland, Feb. 6, 1969, 1,821/69
Int. Cl. A01n *9/20*
U.S. Cl. 71—120 **8 Claims**

The use in combating weeds in cotton plantations of compounds of the formula


(I)

in which Z represents a C_1–C_4 alkyl radical, a C_2–C_4 alkenyl radical or a C_2–C_4 alkinyl radical and Y stands for a fluorine, chlorine, bromine or iodine atom or a trifluoromethyl radical.

3,705,029
DISPERSING SODIUM WITHIN MOLTEN ALUMINUM

George S. Foerster, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Jan. 6, 1971, Ser. No. 104,475
Int. Cl. C22c *1/02*
U.S. Cl. 75—138 **11 Claims**

A method of dispersing sodium into molten aluminum. A sodium-containing, essentially insoluble heavy metal is introduced into molten aluminum at a temperature exceeding the melting temperature of the sodium-containing heavy metal. The sodium diffuses from the heavy metal into the aluminum to maintain a desired level of sodium in the aluminum for an extended period. A solidified shaped article having a modified silicon structure can be cast from the sodiumized aluminum.

3,705,030
FOAMED METAL

Currie B. Berry, Jr., and Robert J. Fanning, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Oct. 30, 1970, Ser. No. 85,783
Int. Cl. B22d *25/00, 25/06*
U.S. Cl. 75—20 F **5 Claims**

A process for strengthening a foamed metal or foamed metal alloy with a metal oxide formed in situ by melting the metal or metal alloy, mixing an oxygen containing agent into the metal or metal alloy, and foaming the metal or metal alloy.

3,705,031
CHLORINE AND BROMINE CONTAINING POLY-9-VINYLCARBAZOLE ELECTROPHOTOGRAPHIC POLYMERS

Kikuo Kinjo, Tokyo, Teruo Yamanouchi, Fujisawa, and Eiichi Kondo, Hiroshi Matsuno, and Katsuhiko Nishide, Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Ota-ku, Tokyo, Japan
No Drawing. Filed July 15, 1970, Ser. No. 55,215
Claims priority, application Japan, July 18, 1969, 44/56.806
Int. Cl. G03g *5/00*
U.S. Cl. 96—1.5 **18 Claims**

An electrophotographic photosensitive material comprises a polymer containing a chlorine and bromine substituted 9-vinylcarbazole unit.

3,705,032
ELECTROPHOTOGRAPHIC MATERIALS

Satoru Honjo, Masaaki Takimoto, Seiji Matsumoto, and Kuniko Kosuge, Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara-shi, Kanagawa, Japan
Filed Aug. 20, 1969, Ser. No. 851,562
Claims priority, application Japan, Aug. 20, 1968, 43/59,400
Int. Cl. G03g *5/08*
U.S. Cl. 96—1.8 **11 Claims**

An electrophotographic material having an electrophotographic layer formed of a finely divided inorganic photoconductor, one or more spectral sensitizing dyes and an insulating film forming material comprising an alkyd resin cured with a polyisocyanate compound. The above is coated on a support, and the alkyd resin contains 10 to 50% by weight of an aromatic dibasic carboxylic acid and has a hydroxyl value within the range 10 to 100. The polyisocyanate compound is contained in an amount from about 1.2 to 8 times the equivalent amount corresponding to the hydroxyl value of the alkyd resin.

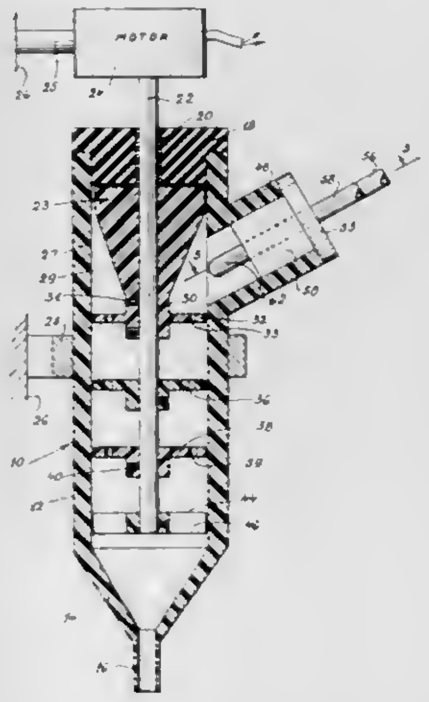
3,705,033
PROCESS FOR THE PRODUCTION OF PHOTOGRAPHIC IMAGES

Erwin Ranz, Leverkusen, Edith Weyde, Kurten, and Harald von Rintelen, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 20, 1970, Ser. No. 30,343
Claims priority, application Germany, Apr. 26, 1969, P 19 21 361.7
Int. Cl. G03c *5/54*
U.S. Cl. 96—29 R **4 Claims**

Positive photographic images consisting of a silver image and a vesicular image superimposed on the silver image are produced by imagewise exposure of a supported light-sensitive silver salt emulsion layer, photographic development in the presence of silver salt solvents while in contact with an image receiving layer, whereby the silver salt from the unexposed and undeveloped areas of the light-sensitive silver salt emulsion layer is transferred to the image receiving layer and reduced to form a silver image therein and treatment of the image receiving layer containing the said silver image with a compound which is decomposed by the image silver to form the vesicular image in accordance with the silver image.

3,705,034
PROCESS AND APPARATUS FOR PRODUCING IMPROVED PHOTOGRAPHIC EMULSION

Robert A. McNamara, 87 Main St.,
Newton, N.J. 07860
Filed June 10, 1968, Ser. No. 735,793
Int. Cl. G03c *1/02*
U.S. Cl. 96—94 **5 Claims**

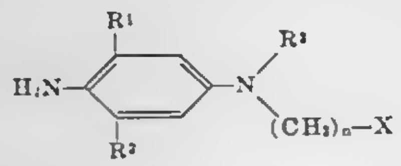


The disclosure describes a continuous flow cylindrical precipitation reactor having a lateral opening through which reactants are introduced from two adjacent orifices. In the reactor are rotating apertured disk agitators which stir the reactants to form an emulsion. The emulsion flows axially through the reactor, and leaves the reactor at its open bottom. The process involves use of active gelatin, gold sensitization, and immediate combining of input flow streams of reactants just prior to agitation.

3,705,035
DIFFUSION-FAST COLOR-FORMING DEVELOPING AGENTS

Hans Vetter, Justus Danhauser, Karlheinz Kabitzke, Paul Marx, Arnfried Melzer, and Willibald Pelz, Cologne, and Walter Puschel, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed June 5, 1970, Ser. No. 43,939
Claims priority, application Germany, June 19, 1969, P 19 31 057.7
Int. Cl. G03c *7/00, 1/06, 1/48*
U.S. Cl. 96—55 **4 Claims**

Photographic images are obtained by developing an imagewise exposed light-sensitive photographic material comprising at least one silver halide emulsion layer, which contains diffusion fast p-phenylene diamine type developing agents in the formula



wherein

R^1 represents hydrogen, alkyl or alkoxy;
R^2 represents hydrogen or alkyl;
R^3 represents alkyl from 8 to 20 carbon atoms;
X represents hydrogen, sulfo, carboxyl, hydroxyl or sulfonamide, and
n represents 1 to 4.

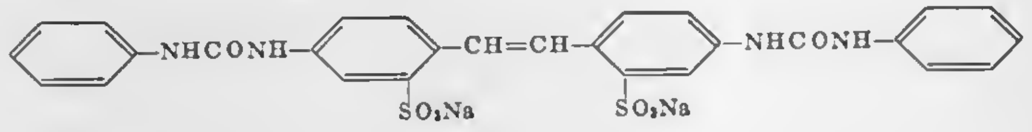
Preferably are produced colored images, using material which contains in the same layer as the diffusion fast developer a color-forming coupler or a dye-giving compound which on reaction with developed oxidation products releases a diffusible dye. The development is preferably carried out in the presence of a pyrazolidone-3 compound.

3,705,036
COLOR PHOTOGRAPHIC PROCESS TO PREVENT DISCOLORATION BY ULTRAVIOLET LIGHT

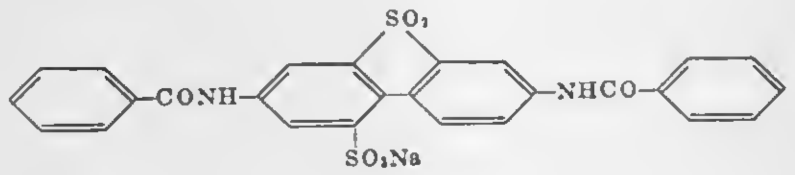
Hiroyuki Amano, Reiichi Ohi, and Kazuo Shirasu, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Continuation of abandoned application Ser. No. 707,481, Feb. 23, 1968. This application Mar. 16, 1971, Ser. No. 124,936
Claims priority, application Japan, Feb. 23, 1967, 42/11,670
Int. Cl. G03c *7/00*
U.S. Cl. 96—56 **13 Claims**

A method of processing a color photographic light sensitive material which comprises contacting it, after exposure and development, with a processing solution containing at least one ultra-violet absorbent selected from the group consisting of

Compound 1

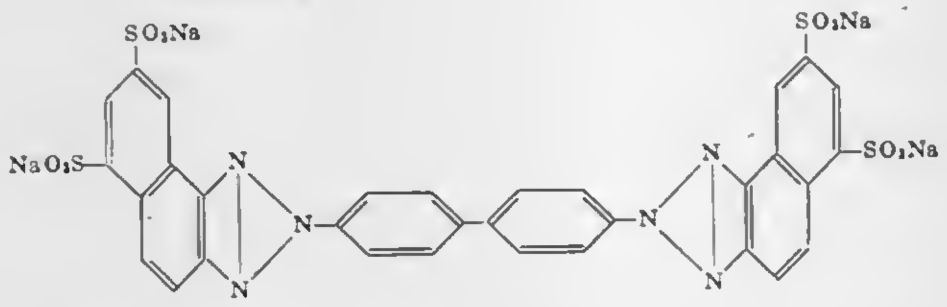


Compound 2



and

Compound 3



3,705,037
PHOTOCHROMIC COMPOSITION CONTAINING A BLEACHED-OUT DYE AND A REDUCING AGENT THEREFOR

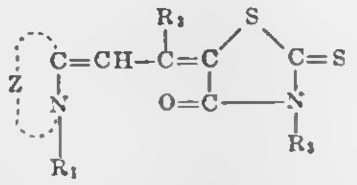
Eiichi Inoue and Toshihiro Yamase, Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Mar. 20, 1970, Ser. No. 21,541
Claims priority, application Japan, Mar. 25, 1969, 44/22,577
Int. Cl. G03c *1/72*
U.S. Cl. 96—89 **30 Claims**

A photosensitive composition comprises a photocolor developing and eliminating coloring matter and a reducing medium capable of reducing the photocolor developing and eliminating coloring matter under irradiation of a visible light. The reducing medium may be a reducing material such as reducing solvent and reducing solid matter and a reducing organic compound.

3,705,038
SPECTRAL SENSITIZATION OF SILVER HALIDE LIPPMANN EMULSIONS

Herman Adelbert Philippaerts, Mortsel, Theofiel Hubert Ghys, Kontich, and Henri Depoorter, Mortsel, Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium
No Drawing. Filed Oct. 7, 1970, Ser. No. 78,936
Claims priority, application Great Britain, Jan. 20, 1970, 2,769/70
Int. Cl. G03c *1/22*
U.S. Cl. 96—140 **10 Claims**

Photographic silver halide emulsions of the Lippmann-type are described which comprise as a spectral sensitizer a merocyanine dye of the formula:



wherein:

Z represents the atoms necessary to close a pyrroline nucleus or a tetrazole nucleus,
R_2 represents hydrogen, an aliphatic group or an aryl group, and
each of R_1 and R_3 stands for an aliphatic group or an aryl group, one of R_1 and R_3 comprising a sulpho group, a carboxy group, a sulphato group, a phosphone group or a sulphamoyl or sulphonyl-carbamoyl group.

These dyes have an excellent sensitizing action in the green region of the spectrum and can be used in high concentrations without leaving residual stain in the emulsion after processing and without producing fog.

3,705,039
LOW CALORIE SWEETENER MIXTURE OF MALTITOL AND MALTOTRIITOL

Masakazu Mitsuhashi, Mamoru Hirao, and Kaname Sugimoto, Okayama, Japan, assignors to Hayashibara Company, Okayama-shi, Okayama, Japan
No Drawing. Filed July 10, 1970, Ser. No. 53,993
Claims priority, application Japan, July 13, 1969, 44/55,306
Int. Cl. A23l *1/26*
U.S. Cl. 99—28 **11 Claims**

Liquefied starch solution is subjected to the action of an alpha-1,6-glucosidase and saccharified. The resulting linear chained mixed saccharification product is hydrogenated to produce a non-digestive linear chained sweetener mixture of maltitol and maltotriitol. The sweetener mixture is added to various foods and drinks.

3,705,040
PROCESS OF EXTRACTING MEAT FROM CRUSTACEANS PARTICULARLY SHRIMP

Peter W. Bynagte, San Diego, Calif., assignor to Westgate-California Foods, Inc.
No Drawing. Filed Oct. 19, 1970, Ser. No. 82,096
Int. Cl. A22c *29/00*
U.S. Cl. 99—111 **4 Claims**

The process of extracting the meat from crustaceans, particularly shrimp, wherein the shrimp are dipped into a solution of water, sodium acid pyrophosphate or calcium acid pyrophosphate and sodium tripolyphosphate or sodium metaphosphate or sodium hexametaphosphate or sodium trimetaphosphate or sodium orthophosphate for a period of at least two minutes during which time the solution is agitated, and then cooked for at least two minutes and then cooled and peeled.

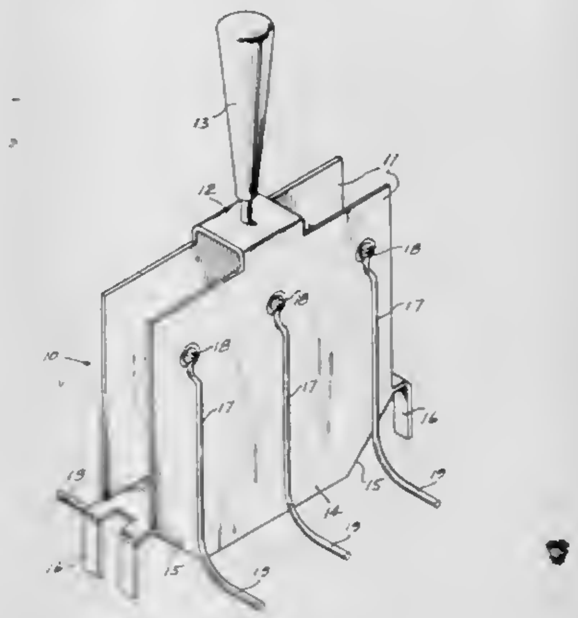
3,705,041
INTERNALLY TREATED PLASTIC FOOD CONTAINERS

Wilhelm E. Walles, Otis R. McIntire, James K. Rieke, and Max V. Griggs, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Apr. 1, 1969, Ser. No. 812,299
Int. Cl. B65b *25/22*
U.S. Cl. 99—171 LP **9 Claims**

Food containers of non-aromatic plastic films having their internal surfaces suitably sulfonated and neutralized are disclosed as being useful to package raw or precooked oleaginous foods since the foods can be heated in the package to cook it or warm it for serving without rupture of the package.

3,705,042
TACO SHELL JIG

Kenneth K. Muse, Star Rte., Worland, Wyo. 82401
Filed Dec. 10, 1971, Ser. No. 206,685
Int. Cl. A23p *1/00*
U.S. Cl. 99—426 **1 Claim**



A device for shaping and holding a tortilla in taco shell form during cooking.

3,705,043
INFRARED ABSORPTIVE JET PRINTING INK COMPOSITION

Daniel M. Zabiak, River Grove, Ill., assignor to A. B. Dick Company, Niles, Ill.
No Drawing. Filed Dec. 7, 1970, Ser. No. 95,951
Int. Cl. C09d *11/02*
U.S. Cl. 106—20 **4 Claims**

This invention is addressed to an ink composition suitable for use in jet printing characterized by high infrared absorptivity comprising a high infrared absorbing coloring component and a humectant in the form of an aliphatic polyol, alkyl ether derivatives of aliphatic polyols and mixtures thereof in aqueous medium.

3,705,044
METHOD FOR MANUFACTURING PAINTS AND INKS, AND PRODUCT PRODUCED THEREBY

David D. Pipkins, Downers Grove, Ill., assignor to The Valspar Corporation, Minneapolis, Minn.
Filed Oct. 15, 1970, Ser. No. 80,833
Int. Cl. C09d *11/00, 11/02, 11/16*
U.S. Cl. 106—20 **4 Claims**

The apparatus includes a storage tank for solvents, a ball mill, and a tinting tank. Carbon dioxide supply lines are connected to each of these. Addition of carbon dioxide under pressure to the storage tank precarbonates the organic solvent and provides a carbonated product when milled with a pigment. The carbon dioxide can be added at the mill either alone, or in combination with precarbonation. Solvents or diluents are added in the tinting tank and the resulting product is a carbonated paint or ink which has improved anti-skinning characteristics. The storage tank arrangement reduces emissions of organic solvents into the atmosphere. The use of carbon dioxide reduces flammability in the system, of the product, and during subsequent use. Improved conductivity of the carbonated solvent also results.

3,705,045
INK MARKING COMPOSITIONS

Francis Joseph Nadolski, Piscataway, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Nov. 12, 1970, Ser. No. 89,066
Int. Cl. C09d *11/00*
U.S. Cl. 106—22 8 Claims

An ink marking composition, prepared by adding a hot solution of an acid dye of the triarylmethane or azo class in a specific class of glycols which include di-, tri- and tetraethylene glycols and propylene and hexylene glycols, to a hot solution of a basic dye of the di- or tri-arylmethane class in water, and cooling, is non-drying, bleedfast, and suitable for use in fiber pens, felt and wick markers, stamp pads and meter and recording equipment.

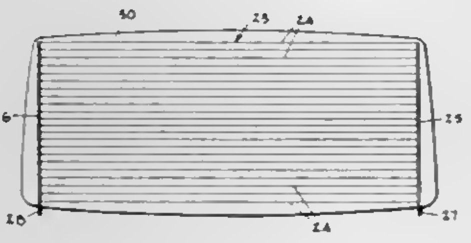
3,705,046
STARCH PRODUCT

Edwin L. Speakman, Clinton, Iowa, assignor to Standard Brands Incorporated, New York, N.Y.
No Drawing. Filed Jan. 18, 1971, Ser. No. 107,510
Int. Cl. C08b *27/22*
U.S. Cl. 106—213 20 Claims

The disclosure is directed to modified cross-linked starch products in the granular form. Pastes of these starch products have substantially stable viscosities at elevated temperatures and dry films of the products are more soluble than films prepared from untreated starch. Also. pastes of the modified cross-linked starch products are substantially-retrogradable. The modified cross-linked starch product is a partially depolymerized formaldehyde cross-linked starch product having a 60-minute Brabender viscosity of from about 70 to about 125 percent of the peak viscosity and a gel strength of less than 140 gm.-cm. Said product is prepared by treating starch granules with formaldehyde and partially depolymerizing the cross-linked starch granules.

3,705,047
METHOD OF REPAIRING ELECTRICALLY CONDUCTING FRIT CIRCUITS

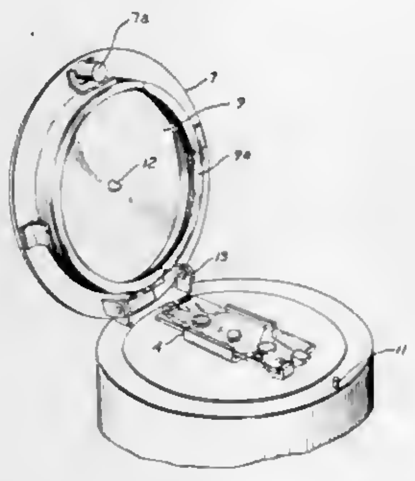
James G. Marriott, Perrysburg, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio
Filed May 23, 1969, Ser. No. 827,263
Int. Cl. B22d *19/10;* **B23p** *3/00;* **B41m** *3/08*
U.S. Cl. 117—2 3 Claims



Methods of repairing or restoring electrical heating circuits composed of electrically conducting metal containing frit lines fired on a vitreous substrate, which lines contain cracks or discontinuities therein that render such lines nonconductive.

3,705,048
CLINICAL SPINNER

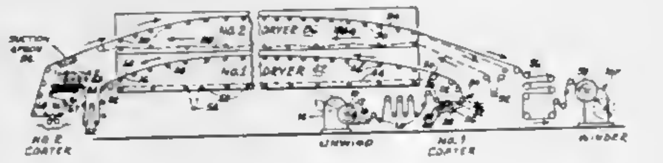
John J. J. Staunton, Oak Park, Ill., assignor to The Perkin-Elmer Corporation
Filed Nov. 6, 1970, Ser. No. 87,524
Int. Cl. B44d *1/02*
U.S. Cl. 117—3 7 Claims



An improved method and apparatus for preparing blood and similar samples for microscopic examination in which the sample is deposited on a slide and the slide is spun at high speed to throw off the excess liquid and leave a thin smear or film. The sample is shielded from air currents by means of a cover which fits over the rotating holder to which the sample slide is clamped. By shielding the sample it is protected from air buffeting which prevents distortion of the blood cells and obviates diagnostic errors due to change in cell shape. After the cells spread in a uniform layer, it is important to arrest rotation of the slide to prevent excess drying of the smear, which also results in distortion of the cell shape.

3,705,049
METHOD FOR THE MANUFACTURE OF DOUBLE COATED SHEETS WITH PRESSURE-RUPTURABLE MATERIALS

Thomas W. Busch, Appleton, Wis., assignor to Appleton Papers, Inc., Appleton, Wis.
Filed Aug. 31, 1970, Ser. No. 68,417
The portion of the term of the patent subsequent to Oct. 20, 1987, has been disclaimed
Int. Cl. B41m *5/16*
U.S. Cl. 117—36.9 2 Claims



Tandem coating of paper web on one side first with a coating of pressure-rupturable encapsulated materials and then with a coating of clay overlaying the coating of pressure-rupturable materials, wherein each coating, while wet with the coating composition, is doctored to meter the coating composition and to uniformly distribute the coating composition over the surface of the web.

3,705,050
GLASS ARTICLE HAVING ROUGHENED, ENAMEL SURFACE AND METHOD FOR FORMING SAME

Allison L. Smith, Vineland, N.J., assignor to Owens-Illinois, Inc.
No Drawing. Original application Jan. 6, 1966, Ser. No. 518,997, now Patent No. 3,544,508, dated Dec. 1, 1970. Divided and this application Apr. 9, 1970, Ser. No. 27,165
Int. Cl. C03c *17/00*
U.S. Cl. 117—46 FA 12 Claims

A glass article having a roughened or matte finish marking area on its surface consisting essentially of a vitreous enamel and to a process for producing such a marking area on a surface of a glass article, which area may subsequently be marked with indicia by a suitable instrument, such as a graphite pencil, and be capable of retaining the indicia in such manner that the indicia will not be susceptible to being readily removed during normal handling of the surface.

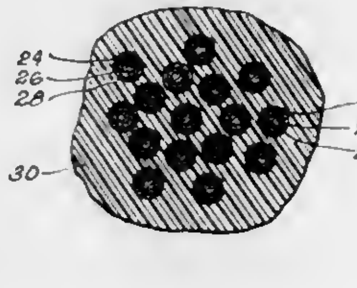
3,705,051
METAL PLATING PROCESS

Paul Kobetz, Warren E. Becker, and Albert P. Giraitis, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.
No Drawing. Continuation of abandoned application Ser. No. 705,016, Feb. 13, 1968. This application Dec. 10, 1970, Ser. No. 96,989
Int. Cl. B44d *1/02*
U.S. Cl. 117—47 H 19 Claims

A process for applying an aluminum plate on a wide variety of materials to produce articles having desirable qualities exemplified by good corrosion resistance. A first embodiment of the invention is characterized by contacting the substrate to be coated with a solution containing a suitable catalyst and a trihydrocarbylamine complex of aluminum hydride at relatively low temperatures, i.e., below 150° C. Decomposition of the complex is effected by catalysts and aluminum plating occurs on the exposed surfaces of the substrate. In a second process embodiment the substrate is coated with a catalyst and subsequently brought into contact with a solvent containing a dissolved aluminum hydride-trihydrocarbylamine complex to effect the desired aluminum deposition. The process of this invention provides a highly useful and novel method of plating substantially any material with a uniform, strongly adherent aluminum coating of desired thickness.

3,705,052
GLASS FIBER REINFORCED ELASTOMERS

Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation
Filed Dec. 16, 1970, Ser. No. 98,641
Int. Cl. C03c *25/02*
U.S. Cl. 117—72 42 Claims



This invention is addressed to a method for enhancing the bonding relationship of glass fibers to elastomeric materials when the glass fibers are combined with elastomeric materials in the manufacture of glass fiber-reinforced elastomer products wherein glass fibers are first treated to provide a metal oxide on the surfaces thereof, and are thereafter treated to provide a thin coating of a xanthate or a carbamate on the glass fiber surfaces with the result that they may be combined directly with the elastomeric materials, or they may be treated in the form of a bundle with an elastomer compatible impregnant.

3,705,053
HIGHLY ABSORBENT BONDED NONWOVEN FABRICS

William D. Emmons, Huntingdon Valley, Vincent J. Moser, Abington, John G. Brodnyan, Langhorne, and Norman Shachat, Levittown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
No Drawing. Filed Apr. 16, 1971, Ser. No. 134,904
Int. Cl. D6n *3/04;* **B32b** *27/12*
U.S. Cl. 117—140 A 4 Claims

The present invention is concerned with new and improved binders for the production of nonwoven fabrics which have a high degree of absorbency, and retain their bonded character as well as absorbency through numerous wash-dry cycles. The fabrics are bonded by a novel self-crosslinking binder comprising a copolymer of (a) N-methylolamine or -amide units, (b) sulfonic acid units which contain no basic nitrogen atoms or group, and (c) certain acrylic units of neutral but mildly hydrophilic character which contain no basic nitrogen atoms or group.

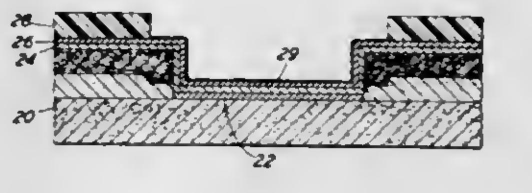
3,705,054
METHOD OF APPLYING COATINGS OF TIN OXIDE UPON SUBSTRATES

Toru Matsushita, Yokohama-shi, Kunimoto Suzuki, Tokyo, and Shoji Hasegawa, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
No Drawing. Filed Jan. 18, 1968, Ser. No. 698,688
Claims priority, application Japan, Jan. 25, 1967, 42/4,540
Int. Cl. C03c *17/22*
U.S. Cl. 117—211 1 Claim

An organic stannous compound in which divalent tin is bonded to organic radicals by the aid of oxygen such as stannous alkoxide or stannous acyl compound represented by a general formula $Sn(OR)_2$ or $Sn(OOCR)_2$ (R in the formulas represents an alkyl radical) is applied upon a substrate and then the applied coating is pyrolyzed.

3,705,055
METHOD OF DESCUMMING PHOTORESIST PATTERNS

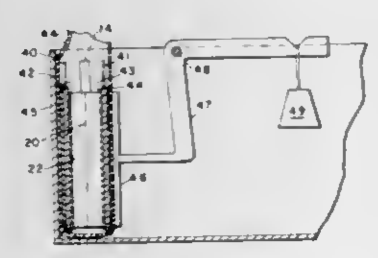
Gary Lee Christensen and Donald Henry Gittelman, Reading, Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Sept. 18, 1970, Ser. No. 73,486
Int. Cl. B44d *1/18;* **B08b** *7/00*
U.S. Cl. 117—212 1 Claim



Residual portions of photoresist are removed from areas of a pattern which are to be free of photoresist. The removal or "descumming" is accomplished by subjecting substrates with patterned coatings of photoresist to an oxidizing medium, such as oxygen plasma, for a brief period. The residual photoresist or "scum" is removed while the desired photoresist is reduced in thickness. The time of oxidation is limited so that the desired photoresist is not made excessively thin.

3,705,056
METHOD FOR PRODUCING AND OPERATING A FUEL CELL

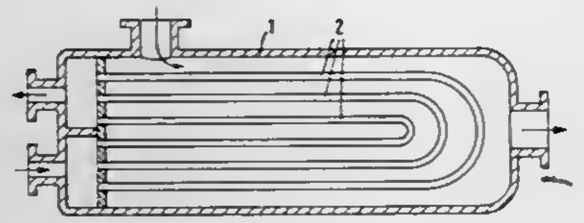
Henry P. Doble, Jr., and Harry C. Langelan, Silver Spring, Md., assignors to Decktronic, Inc., Washington, D.C.
Filed Jan. 28, 1969, Ser. No. 794,675
Int. Cl. H01m *13/04, 27/04*
U.S. Cl. 136—86 E **8 Claims**



The invention contemplates a fuel cell having a porous electrode forming the septum between the reducing and oxidizing gas chambers, the electrode comprising a grid pasted with a simple metallic compound such as ferrous oxalate which has been electrolytically reduced while under controlled mechanical pressure to produce a relatively specific, high porosity of extreme surface area.

3,705,057
METHOD FOR TREATING HEAT EXCHANGERS AND SIMILAR APPARATUS IN THERMAL POWER PLANTS

Fritz Kelp, Erlangen, Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mulheim (Ruhr), Germany
Filed June 9, 1971, Ser. No. 151,261
Claims priority, application Germany, June 13, 1970, P 20 29 249.3
Int. Cl. F28f *19/02*
U.S. Cl. 148—6.35 **4 Claims**



A method of treating heat exchangers and like apparatus used in thermal power plants for applying a protective magnetite layer to the surface of iron or steel tubes or other wall portions of the heat exchanger has the steps of subjecting the surface to a flow of steam at a temperature above 220° C. in the absence of air and simultaneously, during the time the protective layer is applied, subjecting the tube to a pressure differential corresponding approximately to the pressure differential to which the tube is subjected in actual use.

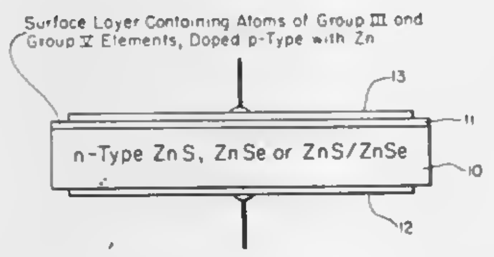
3,705,058
SOFT-NITRIDING PROCEDURE FOR STEEL AND CAST IRON

Zoltan Kolozsvari and Endre Gal, Targu-Mures, Rumania, assignors to Fabrica de Utilaje si Piese de Schimb "Metalotehnica," Targu-Mures, Rumania
No Drawing. Filed July 7, 1971, Ser. No. 160,523
Claims priority, application Rumania, July 9, 1970, 63,864
Int. Cl. C23c *11/16, 11/18*
U.S. Cl. 148—16.6 **1 Claim**

A method of increasing the nitrogen content of steel and cast iron wherein the body is maintained in an atmosphere of ammonia, methane and oxygen in a molar ratio of $CH_4:NH_3=1$ and $(CH_4+NH_3):O_2=25–30$ while maintaining the dissociation rate of the ammonia between 38 and 40%. The treatment time is 1 to 10 hours at a temperature of 570° C. ±10° C.

3,705,059
METHODS OF PRODUCING P-TYPENESS AND P-N JUNCTIONS IN WIDE BAND GAP SEMICONDUCTOR MATERIALS

Zoltan K. Kun, Skokie, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Continuation-in-part of abandoned application Ser. No. 819,960, Apr. 28, 1969. This application Feb. 25, 1971, Ser. No. 118,744
Int. Cl. H01l *7/36, 5/00;* **C23c** *13/00*
U.S. Cl. 148—175 **15 Claims**


Surface Layer Containing Atoms of Group III and Group V Elements, Doped p-Type with Zn
13
11
n-Type ZnS, ZnSe or ZnS/ZnSe
10
12

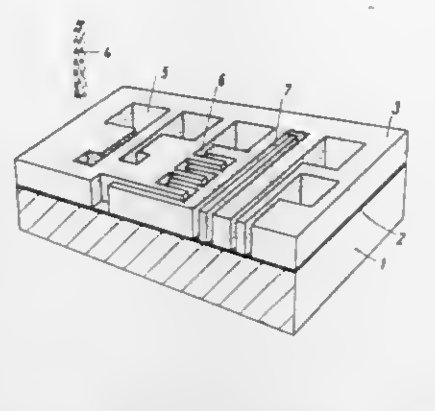
To produce a p-conductivity type wide band gap semiconductor material, a III–V compound semiconductor layer is first vacuum evaporated onto and then diffused into a crystalline II–VI compound semiconductor substrate, specifically a zinc chalcogenide. The resulting hybrid crystalline material is doped by simultaneous or sequential infusion of zinc atoms in substitution for atoms of the Group III element. The process may be used for the direct production of p-n junctions in zinc chalogenides by employing an n-type rather than an intrinsic substrate.

3,705,060
METHOD OF PRODUCING A SEMICONDUCTOR OR THICK FILM DEVICE

Fritz Stork, Grossgartach, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm-Donau, Germany
Filed Dec. 1, 1969, Ser. No. 881,150
Claims priority, application Germany, Dec. 2, 1968, P 18 12 130.7
Int. Cl. B32b *31/14;* **B44c** *1/22*
U.S. Cl. 156—3 **14 Claims**

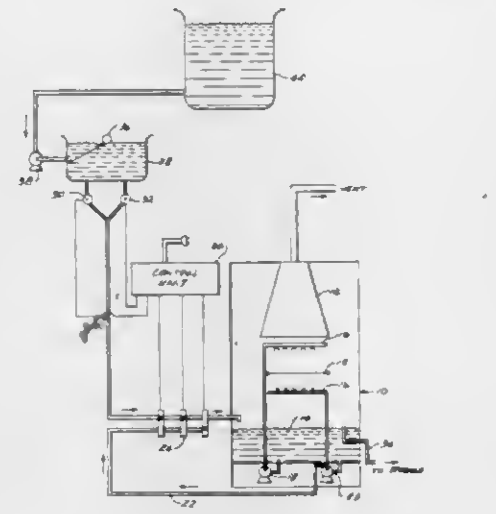
A method of producing a semiconductor or thick film device comprises forming a layer of etching resistant, temperature resistant and light insensitive plastics material on a carrier body, such as an insulating material or semiconductor body and removing predetermined areas of the plastics layer by means of a controlled electron

beam. The areas of the carrier body from which the plastics material has been removed can be used for the removal of further material, depositing further material or the introduction of further material.



3,705,061
CONTINUOUS REDOX PROCESS FOR DISSOLVING COPPER

Edwin B. King, Hitchcock, Tex., assignor to Southern California Chemical Co., Inc., Santa Fe Springs, Calif.
Filed Mar. 19, 1971, Ser. No. 126,141
Int. Cl. C23g *1/36, 3/00*
U.S. Cl. 156—19 **8 Claims**

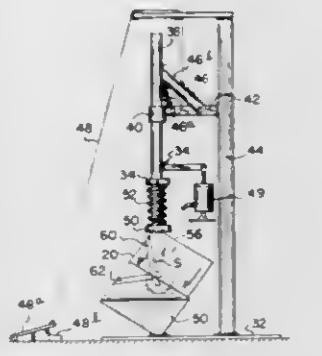


There is provided a continuous regenerative redox system for dissolving copper from substrates. An alkaline etch solution containing cupric ions as the oxidizer is used to oxidize and thereby dissolve copper with attendant reduction of the cupric ions to the cuprous state. A portion of the etch solution is continuously removed from the system. A source of oxygen and an ammonia based replenishing solution are added to reconstitute the alkaline etch solution. The replenishing solution requirements of the system are determined by continuously monitoring the specific gravity of the etch solution and pH with respect to ammonium content.

3,705,062
METHOD OF ASSEMBLING A COLLAPSIBLE, REUSEABLE CONTAINER UTILIZING AN INVERTED THREE SIDED PYRAMIDAL SHAPED TROUGH SUPPORT FIXTURE

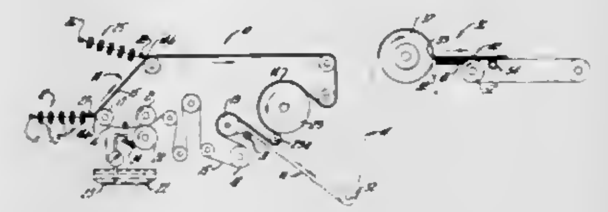
George R. Johnson, Chagrin Falls, Ohio, assignor to The Arpax Company, Chagrin Falls, Ohio
Continuation-in-part of application Ser. No. 779,425, Nov. 27, 1968, now Patent No. 3,599,822. This application Nov. 27, 1970, Ser. No. 93,110
Int. Cl. B29c *27/18;* **B65g** *7/28*
U.S. Cl. 156—69 **6 Claims**

A method of assembling a collapsible reuseable container for shipping, storage or the like comprised of separate defining side, end and top and bottom panels, comprising utilizing an inverted three sided pyramidal shaped trough fixture and assembling the side, end and bottom panels in the support trough, with the bottom panel facing generally upwardly, applying pressure sensitive tape sections or strips to the bottom panel adjacent opposite corner portions thereof, and in manner whereby the strips extend diagonally across the respective side and end panels and into wrap-around relation with the respective opposite side and end panels to secure the panels together, and then rotating the assembled panels 90° in the fixture to provide positioning of the container for application of the strips or the tape sections to the bottom panel adjacent the other corner portions thereof, whereby the panels are strongly secured together. The assembled container is then placed upright, ready to receive stock material therein. The cover or top panel can then be applied to the filled container and secured to the remainder of the container by tape sections applied adjacent the corners of the top panel and extending diagonally into adhering engagement with the adjacent side and end panels.



3,705,063
METHOD OF PRODUCING HIGH-LOFT, NONWOVEN PANELING MATERIAL AND COVERING

Robert J. Stumpf, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Oct. 5, 1970, Ser. No. 78,004
Int. Cl. D04h *11/00*
U.S. Cl. 156—72 **14 Claims**



A paneling material comprising a laminated construction having a layer of adhesive and a multiplicity of elements looped outwardly from the layer and a layer of nonflexible material, such as plywood, plastic, or the like, laminated to the adhesive layer; and a method of making the paneling material by first embedding a web of elements in an open pattern of adhesive, bonding the elements in the adhesive, consolidating the adhesive into a continuous backing layer while looping the elements outwardly from the adhesive backing, and laminating the nonflexible material to the adhesive backing. In certain instances, a second pattern of adhesive may be applied to the first pattern of adhesive prior to the consolidation step. Also a barrier layer may be interposed between the nonflexible material and the adhesive backing. Also, the invention includes a new use for a high-loft nonwoven material, namely: as a wall covering material.

3,705,064

PROCESS FOR THE MANUFACTURE OF VARICOLORED, ORNAMENTALLY DESIGNED NEEDLED NON-WOVEN FABRICS

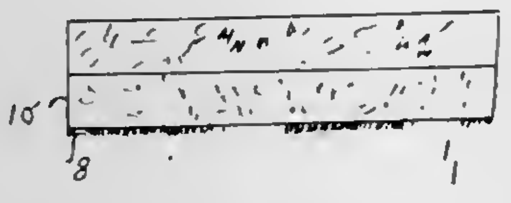
Herbert Lochner, Kempen, Germany, assignor to Cik-Chemische Industrie Kempen G.m.b.H., Kempen, Germany

Filed Jan. 14, 1970, Ser. No. 2,976

Claims priority, application Germany, Jan. 15, 1969, P 19 01 753.9

Int. Cl. B32b *31/04, 31/20*

U.S. Cl. 156—72 **7 Claims**



A process for manufacturing varicolored, ornamentally designed needled non-woven fabrics which comprises applying to a first web of a needled, single-colored or blended non-woven fabric, a second web of non-woven fabric of a different color contrasting from the color of the first fabric, said second web having been glued and dried in accordance with a desired pattern, attaching the two webs to one another by a needling operation in such a manner that the areas free of glue of said second web are passed through by needles whereby fibers of said fabric are taken along and will appear at the rear face of the first web of non-woven fabric forming a finished pile thereon, while at the glued areas only a partial connection of the two fabric webs is effected by needling without the fibers being passed through to the rear face of said first web.

3,705,065

METHOD OF PRODUCING CRUSHED HIGH-LOFT, NONWOVEN MATERIAL, INCLUDING CARD AND BREAKER FRAME BLENDING

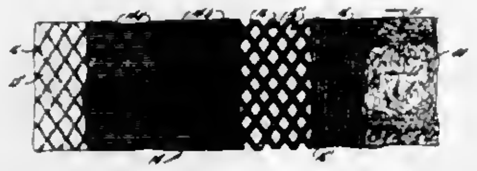
Robert J. Stumpf, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 5, 1970, Ser. No. 78,005

Int. Cl. D04h *11/00*

U.S. Cl. 156—72 **16 Claims**

A high-loft, nonwoven fabric with a substantially continuous backing layer of adhesive and a multiplicity of fibers looped outwardly from the backing, with the fiber loops being at least partially crushed; and a method of making the fabric by first embedding a web of fibers in an open pattern of adhesive and then consolidating the adhesive into a substantially continuous backing layer while looping the fibers outwardly from the backing and thereafter reactivating the adhesive backing and crushing the loops. Variation of the appearance and color of the fabric may be achieved by blending fibers of various colors prior to, and during the forming of fiber slivers used in producing the fiber web, as well as varying the amount of crushing of the loops formed during the consolidation step.



3,705,066

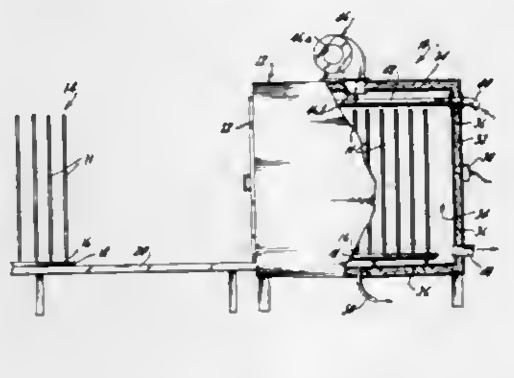
METHOD OF SIMULTANEOUSLY BOARDING AND SETTING KNITTED HOSIERY

William E. Aldrich, Cranston, R.I., assignor to Warnaco Inc., Bridgeport, Conn.

Filed Aug. 17, 1970, Ser. No. 64,422

Int. Cl. D04b *39/00*

U.S. Cl. 156—148 **11 Claims**



A knitted fabric having a matrix of interconnected spandex yarns, such as circular knit women's hosiery, containing spandex and nylon yarns having interconnected loops, is boarded to the final shape for the hosiery and made non-run without affecting any of the other properties of the fabric or hosiery by being placed under tension and subjected to superheated steam at a temperature in the range of 340° F. to 380° F. for a time sufficient to fuse the interconnected loops of the spandex yarn and to set the hosiery in its final shape.

3,705,067

METHOD OF PREPARING REINFORCED SHEETING MATERIAL BASED ON CHLORINATED OLEFIN POLYMERS

Richard B. Ammons, 11065 East Vieux,
Baton Rouge, La. 70815

No Drawing. Continuation of abandoned application Ser. 832,443, June 11, 1969, and a continuation-in-part of abandoned applications Ser. No. 467,081 and Ser. No. 467,096, both June 25, 1965. This application Aug. 10, 1970, Ser. No. 62,622

Int. Cl. B32b *7/04;* **C09j** *5/00*

U.S. Cl. 156—324 **1 Claim**

This invention is directed to flexible multicomponent laminate structures for use as flashing and the like, consisting of one or more film layers and a fabric layer wherein the film layer is prepared from a flexible essentially non-crystalline sheet of a chlorinated ethylene polymer of designated properties and wherein the fabric layer is an inherently polar woven fiber reinforcing mat.

3,705,068

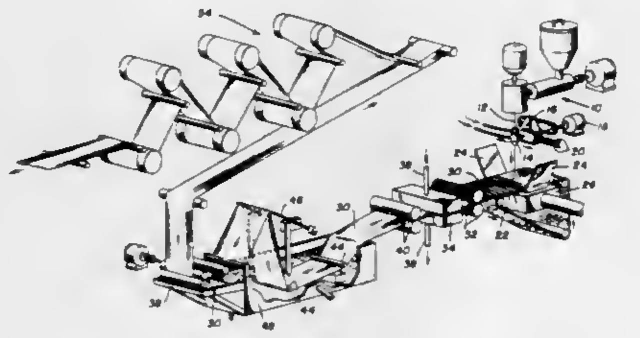
PROCESS AND APPARATUS FOR PRODUCING NONWOVEN FABRICS

Emerick J. Dobo, Cary, and Dong W. Kim and William C. Mallonee, Chapel Hill, N.C., assignors to Monsanto Company, St. Louis, Mo.

Original application June 16, 1967, Ser. No. 646,720, now Patent No. 3,542,615, dated Nov. 24, 1970. Divided and this application Nov. 21, 1969, Ser. No. 877,557

Int. Cl. D04h *1/04*

U.S. Cl. 156—441 **4 Claims**



A process for producing self-bonded nonwoven fabrics from polyamides in a continuous operation employing an activating gaseous medium such as hydrogen chloride gas to promote the bonding and apparatus for carrying the process to completion.

3,705,069

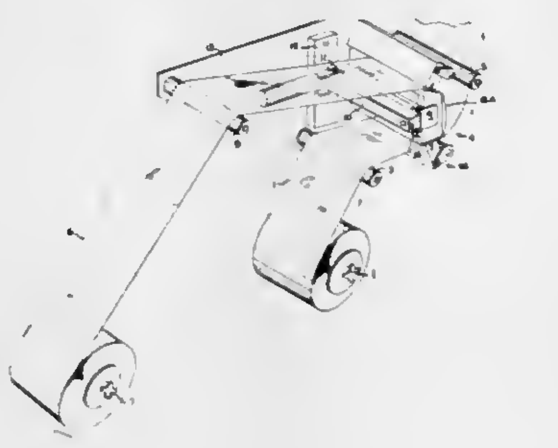
FILM SPLICING DEVICE

Ernest Elrod, Jonesboro, and Arthur B. Vlescas, Decatur, Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Mar. 5, 1971, Ser. No. 121,313

Int. Cl. B31f *5/00;* **B37b** *31/08;* **B65b** *21/00*

U.S. Cl. 156—502 **8 Claims**



A reserve film strip is arranged with its leading end wrapped partially about a fixed mandrel and clamped thereto. A strip of supply film is fed to a point of use and immediately alongside the mandrel and adjacent the clamped leading end of the reserve roll and means for bonding the leading end of the reserve strip to the trailing end of the supply strip is disposed adjacent the mandrel and comprises a pressure bar for urging the strips together and an elongated heater element which both seals the adjacent ends of the two rolls together and severs the surplus ends. The bonding means including the pressure bar and heater element are sequentially urged into engagement with the juxtaposed strips by suitable motive means such as a fluid motor.

3,705,070

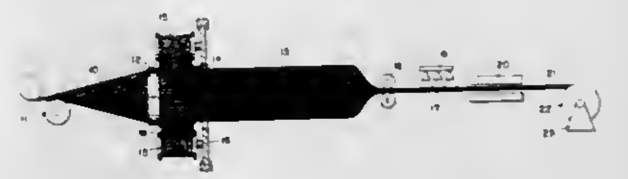
NONWOVEN FABRIC AND PROCESS FOR PREPARING

Charles W. Kim, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed July 22, 1969, Ser. No. 843,561

Int. Cl. D04h *3/14*

U.S. Cl. 161—58 **15 Claims**



Nonwoven fabrics are prepared by crosslaying an open network of fibril-interconnected substantially parallel continuous monofilaments with a similar network at an angle of 20–89° and bonding the same.

3,705,071

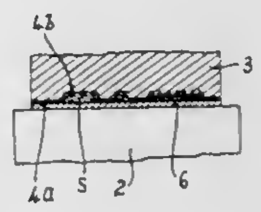
METHOD OF MANUFACTURING THIN COMPOUND MATERIALS, NOTABLY FOR SHOEMAKING

Elie Gras, Thonon, France, assignor to Etablissements Anver S.A., Paris, France

Filed July 22, 1970, Ser. No. 57,170

Int. Cl. B29c *5/12, 27/04;* **B32b** *27/30*

U.S. Cl. 161—116 **9 Claims**



A method for the manufacture of relatively thin pieces useful in the making of components for shoes, morocco articles and other similar articles. A mold is prepared by casting the article in a mold of silicone containing material which has low dielectric losses. A sheet of absorbent material such as PVC foam is impregnated with a pasty or pulverulent plastic material of the same chemical nature as said sheet and having a high coefficient of dielectric losses. On or below said plastic-impregnated sheet is disposed a supporting sheet of leather, textile or other suitable material. A close mutual bonding of these elements is insure by the combined action of compression and the application of high frequency currents for gelling and melting the plastic materials of said sheet and said pasty or pulverulent plastic material, thus causing the complete disappearance of said sheet of absorbent material.

3,705,072

UNDERPACKING FOR PRINTING WITH DIMENSIONALLY STABLE PLASTIC CORE HAVING ELASTOMERIC AND PRESSURE SENSITIVE OUTER LAYERS

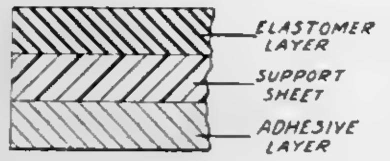
Donald M. Rosvold, South St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 4, 1970, Ser. No. 34,601

Int. Cl. B32b *27/06, 27/32, 27/40*

U.S. Cl. 161—167 **2 Claims**

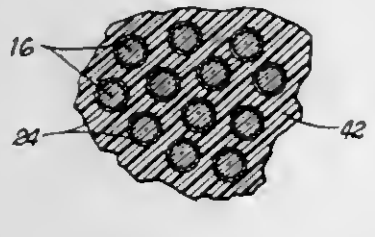
A novel underpacking comprising a support sheet having a shear resistant layer affixed to its upper and lower faces with at least the top layer providing a low tack release surface said support sheet being selected from cellulose acetate triacetate and polyethylene terephthalate.



For the working smooth elastomeric surface, polyurethane or silicone is used.

3,705,073
GLASS FIBER BUNDLE COMPRISING AN ELASTOMER COMPATIBLE IMPREGNANT AND A THICKENING AGENT

Alfred Marzocchi, Cumberland, and Nicholas S. Janetos, East Providence, R.I., assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Filed May 26, 1970, Ser. No. 40,622
Int. Cl. C03c *25/02;* **B32b** *17/04, 17/10*
U.S. Cl. 161—176 **5 Claims**



This invention is addressed to the improvement in the bonding relationship between glass fibers and elastomeric materials when the glass fibers are combined with elastomeric materials in the manufacture of glass fiber-reinforced elastomeric products wherein individual glass fibers are sized, or a bundle of glass fibers is impregnated with an elastomer compatible material which has been rendered thixotropic by the addition thereto of a thickening agent.

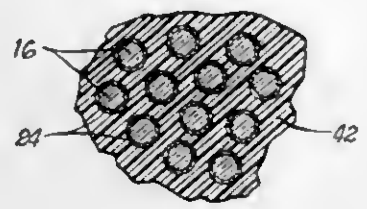
3,705,074
HIGH BULK YARN FORMABLE MIXTURES OF LINEAR POLYMERIC THERMOPLASTIC MATERIALS

George E. R. Lamb, Mendham, Dusan C. Prevorsek, Morristown, Abraham M. Kotliar, Westfield, and Hendrikus J. Oswald, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation of abandoned application Ser. No. 779,310, Nov. 20, 1968. This application May 21, 1971, Ser. No. 146,434
Int. Cl. D02g *3/06*
U.S. Cl. 161—172 **4 Claims**

The invention contemplates the preparation of fibrillated yarns or strands having high bulk and good tactile properties from a unitary structure, e.g. monofilaments. The monofils, tapes, films and the like hereafter referred to as a monofil are extruded from polymer mixtures consisting of (A) a low molecular weight polyester and (B) one or more of the following polymers; (i) a fiber forming polyamide, (ii) a fiber forming polyester and (iii) a fiber forming polyolefin in blends or mixtures whose composition is capable of producing suitable fibers. The splitting of the monofil into a relatively high bulk structure containing many fibrils is effected by suitable mechanical working which breaks or fissures the monofil into separate fibrils.

3,705,075
GLASS FIBER REINFORCED ELASTOMERS

Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Filed Dec. 16, 1970, Ser. No. 98,813
Int. Cl. C03c *25/02;* **B32b** *17/04*
U.S. Cl. 161—176 **20 Claims**

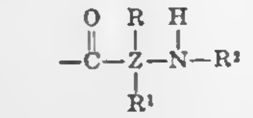


This invention is addressed to the improvement in the bonding relationship between glass fibers and elastomeric materials in the manufacture of glass fiber reinforced elastomeric products wherein individual glass fibers are coated, or bundles of glass fibers are impregnated with a composition including as a glass fiber anchoring agent, a resorcinol silicon compound or a resorcinolato chromic complex.

3,705,076
ADHESIVE COMPOSITION AND LAMINATING PROCESS

Hugo R. Usala, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 218,103, Aug. 20, 1962. This application May 17, 1966, Ser. No. 550,627
Int. Cl. B32b *27/08, 27/30*
U.S. Cl. 161—189 **39 Claims**

A composition of an organic solvent solution of an aminoester modified vinyl addition polymer, of at least two ethylenically unsaturated copolymerizable monomers, such as methyl methacrylate and methacrylic acid, having attached to the carbon-carbon chain monovalent radicals of the formula



$$-\overset{O}{\overset{\|}{C}}-\overset{R}{\overset{|}{\underset{\underset{R^1}{|}}{Z}}}-\overset{H}{\overset{|}{N}}-R^2$$

wherein

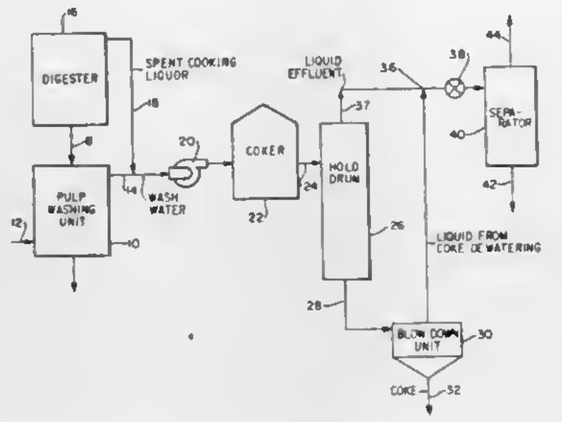
Z is an aliphatic hydrocarbon radical having 2–3 carbon atoms and R, R^1 and R^2 are either hydrogen or alkyl radicals and the polymer has an amino nitrogen content of at least 0.01%;

the composition is useful as an adhesive for laminating polyvinyl fluoride film to a wide variety of substrates and the composition can be used as a clear or pigmented coating composition for metal or wood substrates.

3,705,077
WASTE DISPOSAL PROCESS FOR SPENT WOOD-PULPING LIQUORS

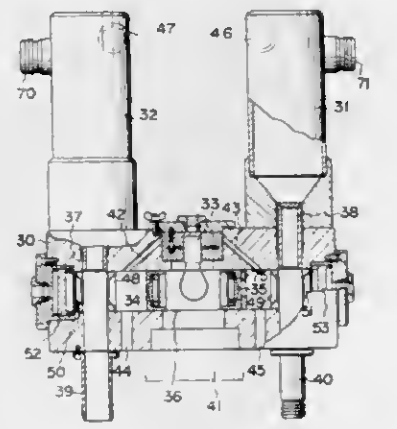
William F. Franz, Gardiner, Howard V. Hess, Glenham, and Edward L. Cole, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Oct. 9, 1970, Ser. No. 79,385
Int. Cl. D21c *11/00*
U.S. Cl. 162—30 **6 Claims**

Wash water and digester liquor from a wood pulping operation are heated at a temperature in the range of 450° F. to 700° F. under autogeneous pressures of about 1000 to about 3000 p.s.i.g. for a period of 0.5 minute to 6 hours to form coke and a purified effluent. The coke is separated from the effluent and dewatered. Liquid from this dewatering step is combined with the effluent and depressured to flash vaporize and concentrate the combined stream to a soluble chemicals concentration suitable for reconstitution and recycle to the pulping operation. Coke produced in the process may be burned as plant fuel and the ash recovered and worked for chemical values. The liquid stream is reconstituted for pulping purposes by the addition thereto of pulping chemicals derived, in part, by burning the coke produced in the process.



3,705,078
REGULATING PULP CONCENTRATION IN PAPER MANUFACTURING

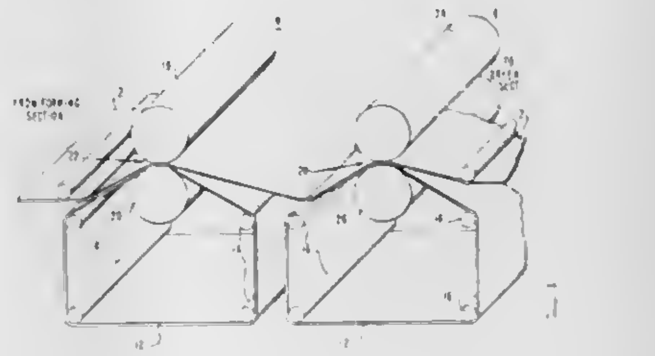
Yoshimi Shinohara, 493–2 Kuzawa, Fuji-shi, Shizuoka-ken, Japan
Filed Sept. 8, 1970, Ser. No. 70,423
Claims priority, application Japan, Sept. 6, 1969, 44/70,465
Int. Cl. D21f *1/06, 1/08*
U.S. Cl. 162—198 **10 Claims**



The regulation of pulp concentration in the manufacture of paper. A carrier liquid is continuously recirculated and carries the pulp from which the paper is manufactured. A replenishing liquid is added to the carrier liquid for replenishing the pulp thereof. A comparison is made between the carrier liquid before the replenishing liquid is added thereto and the carrier liquid after the replenishing liquid is added thereto. By way of this comparison, a detecting assembly detects the deviation, if any, of the relationship between the carrier liquid without replenishing liquid and the carrier liquid with replenishing liquid added thereto from a predetermined relationship therebetween. In accordance with the detected deviation, if any, an electrical signal is achieved for electrically adjusting a valve which controls the supply of replenishing liquid to the carrier liquid, and in this way the supply of replenishing liquid to carrier liquid is maintained at an extent which will maintain the predetermined relationship between the carrier liquid without replenishing liquid and the carrier liquid with replenishing liquid added thereto.

3,705,079
PRESS FABRIC FOR A PAPERMAKING MACHINE PRESS SECTION HAVING SELECTED LARGE INCOMPRESSIBLE YARNS

Charles Allen Lee, Knoxville, Tenn., and Joseph Robert Wagner, Leeds, England, assignors to Huyck Corporation, Stamford, Conn.
Original application Apr. 10, 1968, Ser. No. 727,125. Divided and this application Feb. 18, 1971, Ser. No. 116,659
Int. Cl. D21f *3/00*
U.S. Cl. 162—358 **5 Claims**



This invention relates to an improved papermakers' fabric for use in the press section of a papermaking machine and more specifically to a papermakers' fabric having a plurality of spaced, parallel, substantially incompressible grooves in at least one surface thereof, which provide void volume for water expressed from a paper web as it passes through the pressure nip of the press rolls in the machine.

3,705,080
METHOD FOR PRODUCING NICOTINAMIDE ADENINE DINUCLEOTIDE

Kiyoshi Nakayama, Sagamihara-shi, Japan, assignor to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Continuation of application Ser. No. 658,316, Aug. 4, 1967. This application June 17, 1968, Ser. No. 737,314
Claims priority, application Japan, Aug. 8, 1966, 41/51,662
Int. Cl. C12d *13/06*
U.S. Cl. 195—28 N **12 Claims**

A process for producing nicotinamide adenine dinucleotide which comprises culturing a microorganism capable of producing nicotinamide adenine dinucleotide in an aqueous nutrient medium under aerobic conditions in the presence of at least one surface active agent. As a result of the addition of the surface active agent to the medium, the nicotinamide adenine dinucleotide accumulates in the culture liquor extracellularly. Exemplary preferred surface active agents include cetyl trimethyl ammonium bromide and cetyl pyridinium chloride, but many others—cationic, anionic, non-ionic and amphoteric—may be used. The surface active agent may be added to the medium either at the beginning or sometimes during culturing, either all at one time or intermittently.

3,705,081

METHOD FOR PRODUCING NICOTINAMIDE ADENINE DINUCLEOTIDE

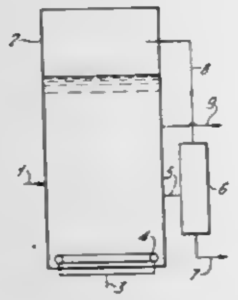
Kiyoshi Nakayama, Sagamihara-shi, Japan, assignor to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Continuation of application Ser. No. 656,687, July 28, 1967. This application June 13, 1968, Ser. No. 736,584
Claims priority, application Japan, July 29, 1966, 41/49,398
Int. Cl. C12d *13/06*
U.S. Cl. 195—28 N 7 Claims

The present disclosure relates to a method for producing nicotinamide adenine dinucleotide in high yields which comprises culturing a microorganism capable of producing nicotinamide adenine dinucleotide in an aqueous nutrient medium under aerobic conditions in the presence of pantothenic acid, β-alanine or coenzyme A and mixtures thereof. Examples of microorganisms which can be used in the present process are those belonging to the genera Brevibacterium, Corynebacterium and Arthrobacter.

3,705,082

CULTIVATION AND RECOVERY OF MICRO-ORGANISMS

Jean Claude Hondermarck, Lavera, France, Ian Cameron Bennett, Pinner, England, and Jacques Guillo, Lavera, France, assignors to The British Petroleum Company Limited, London, England
Filed Oct. 16, 1969, Ser. No. 867,019
Claims priority, application Great Britain, Oct. 18, 1968, 49,546/68
Int. Cl. C12b *1/00*
U.S. Cl. 195—28 R 1 Claim



A method and apparatus for the cultivation of microorganisms wherein the pumping efficiency of cultivated broth removed from the cultivation zone is improved by first subjecting the removed cultivated broth to a separation step wherein aerated broth is separated from partially de-aerated broth under the action of the density differential between aerated broth and partially de-aerated broth, and thereafter pumping partially de-aerated broth back to the cultivation zone. The process is particularly suited to fermentations having external heat exchange means and in which the cultivated broth is highly aerated.

3,705,083

PROCESS FOR PRODUCING COLLAGENASE

Angelo J. Chiulli, Hempstead, and Edwin H. Wegman, Freeport, N.Y., assignors to Agricultural Biologicals Corporation, Lynbrook, N.Y.
No Drawing. Filed July 8, 1966, Ser. No. 563,702
Int. Cl. C12d *13/10;* **A61k** *19/00*
U.S. Cl. 195—62 6 Claims

A non-flagellated, non-motile strain of *Clostridium histolyticum* (ATCC No. 21000), when fermented under conventional conditions for the growth of *Cl. histolyticum*, yields an elaboration product characterized by collagenase and proteolytic enzyme activity and inhibits the growth of microbes such as *Staphylococcus aureus* and organisms of the genus Clostridium. This collagenase may be employed in the form of a topical ointment for debridement of necrotic tissue or as an injectable solution to facilitate internal sloughing and readsorption of physiologically antagonistic tissue.

3,705,084

MACROPOROUS ENZYME REACTOR

John H. Reynolds, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of abandoned application Ser. No. 20,639, Mar. 18, 1970. This application Feb. 4, 1971, Ser. No. 112,802
Int. Cl. C07g *7/02*
U.S. Cl. 195—63 30 Claims

A flow-through enzyme reactor comprising a macroporous reactor core; a polymeric surface on said core having adsorption promoting groups which are members of the group consisting of nitrilo, acid amido and ureido; and an active enzyme adsorbed on said polymeric surface and cross-linked in place.

3,705,085

METHOD FOR EXTRACTING AND SEPARATING ENZYMES

Jacques Guy Pelluet, Nesle, France, assignor to Societe Anonyme: Les Produits Organiques du Santerre Orsan, Paris, France
No Drawing. Filed July 24, 1970, Ser. No. 58,164
Claims priority, application France, Sept. 23, 1969, 6932369; Jan. 27, 1970, 7002833
Int. Cl. C12d *13/10;* **C07g** *7/028*
U.S. Cl. 195—66 R 5 Claims

A method for preparing an active enzyme powder from a culture of *Bacillus subtilis* which comprises the steps of:

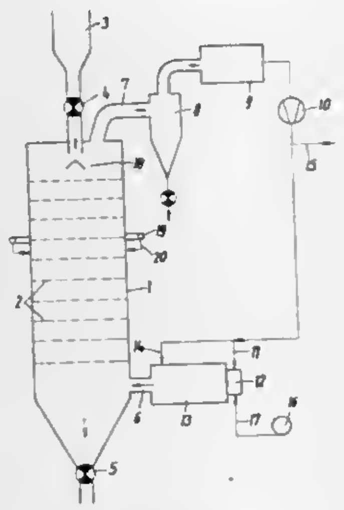
(a) precipitating the enzyme from a nutrient broth of the purified culture by means of sodium sulphate,
(b) vacuum-filtering the resulting flocculate on a filter having a pre-treated filter bed using calcium sulphate dihydrate as a filtration adjuvant, and
(c) scraping a surface layer off the filter bed to obtain the dry product having a degree of activity determined by the thickness of the layer.

The powder may be used in detergent compositions.

3,705,086

COAL CARBONIZING IN TRICKLING STREAMS

Paul Schmalfeld, Bad Homburg, and Helmut Hahn, Hanau, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
Filed July 7, 1970, Ser. No. 52,900
Claims priority, application Germany, July 11, 1969, P 19 35 214.8
Int. Cl. C10b *47/20*
U.S. Cl. 201—34 8 Claims



Fine-grained coke is produced by a carbonization of fine-grained coal by a treatment with a hot gas. The coal trickles down in a countercurrent to the rising hot gas past fixtures which retard the free fall and occupy up to 50% of the cross-section of flow. The coal may in that way be made suitable for use in making briquettes.

3,705,087

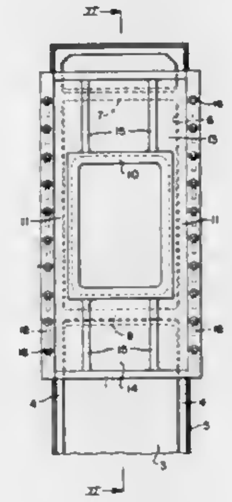
COKE OVEN DOOR HAVING AN ADJUSTABLE LEVELLING BAR OPENING

Walter Grumm, Hattingen-Ruhr, and Heinz Thubeauville, Bochum, Germany, assignors to Dr. C. Otto & Comp. G.m.b.H., Bochum, Germany

Filed Apr. 22, 1971, Ser. No. 136,442

Claims priority, application Germany, June 4, 1970, P 20 27 376.1

Int. Cl. C10b *25/06*
U.S. Cl. 202—248 10 Claims



An upright door for an end of the horizontal chamber of a coke oven is provided in its upper part with an opening for a bar by which coal in the oven is levelled. A tubular casing is disposed in this opening and is adjustable vertically in it. The casing has a substantially horizontal passage through it, and there are means at opposite sides of the casing for bolting it to the door at different levels. The oven door is provided with substantially horizontal transverse walls extending outwardly above and below the casing and spaced therefrom. At the outer side of the door there are means closing the outer ends of the spaces between the top and bottom of the casing and transverse walls, and these spaces are filled with refractory material. The outer end of the passage through the casing normally is closed by a door, and the oven door is lined with refractory below the tubular casing.

3,705,088

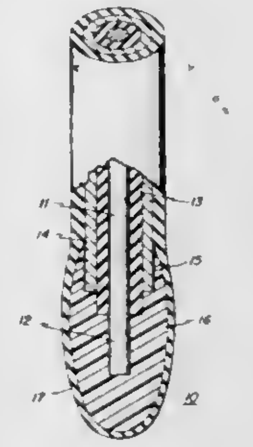
CARBON DIOXIDE SENSOR

Leonard W. Niedrach and Willard T. Grubb, Schenectady, N.Y., assignors to General Electric Company

Filed Oct. 16, 1970, Ser. No. 81,314

Int. Cl. G01n *27/46*
U.S. Cl. 204—195 P 6 Claims

A carbon dioxide sensor has an elongated flexible current collector with an exterior surface of palladium on at least one end, an electrochemically active region of palladium oxide in electrical contact with a portion of the palladium surface of the current collector, a second elongated flexible current collector surrounding at least partially the first current collector, a second electrochemically active region of silver and silver halide in electrical contact with the second current collector, a first layer of electrical insulation disposed between the first and second current collectors, a second layer of electrical insulation disposed over the second current collector, an anion exchange resin electrolyte contacting both electrochemically active regions, and an outer sheath of carbon dioxide permeable, ion-impermeable diffusion barrier material encapsulating at least the electrochemically active regions and the electrolyte.



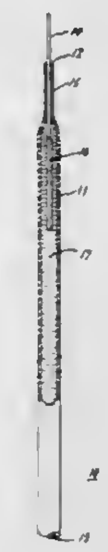
3,705,089

REFERENCE ELECTRODE HALF CELL

Willard T. Grubb, Schenectady, N.Y., assignor to General Electric Company

Filed Sept. 28, 1970, Ser. No. 75,866

Int. Cl. G01n *27/30*
U.S. Cl. 204—195 F 5 Claims

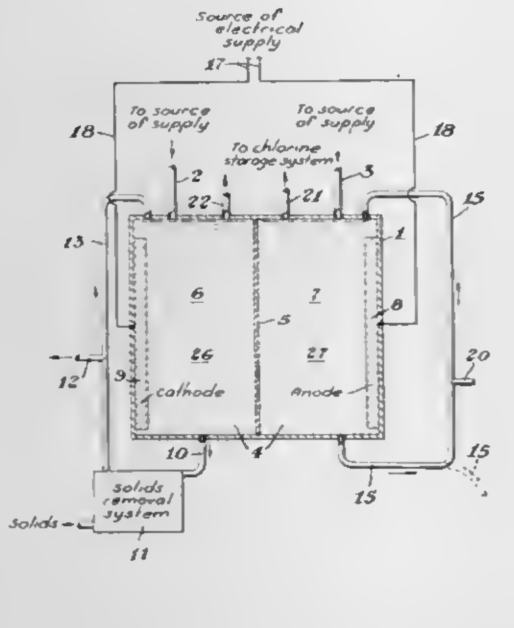


A reference electrode half cell has an elongated, flexible electrically insulated tube having opposite open ends, a silver wire positioned partially within the tube at one end thereof and extending outwardly from the one end, the tube bonded to the silver wire at the one end, a coating of silver chloride on a portion of the silver wire positioned within the tube, and at least one gelled equitransferent salt solution filling the tube in contact with the silver chloride coating on the silver wire and in contact with the opposite open end of the tube.

3,705,090

NOVEL ELECTROLYTIC CELL AND METHOD FOR PRODUCING CHLORINE AND METAL HYDROXIDES

Grafton L. Bergeron and James J. Leddy, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of application Ser. No. 796,249, Sept. 16, 1968. This application Oct. 1, 1970, Ser. No. 77,292
Int. Cl. C23b *5/68*
U.S. Cl. 204—266 **5 Claims**

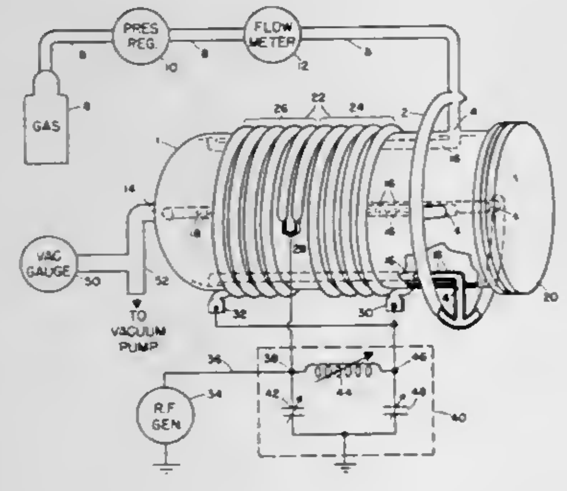


A novel electrolytic cell for producing both chlorine and alkaline earth hydroxides simultaneously, in which brine supply means are connected to each of the anode and cathode chambers.

3,705,091

GAS DISCHARGE APPARATUS

Adir Jacob, West Roxbury, Mass., assignor to LFE Corporation, Waltham, Mass.
Filed Oct. 5, 1971, Ser. No. 186,739
Int. Cl. B01k *1/00*
U.S. Cl. 204—312 **4 Claims**



The admission of a gas to a reaction chamber which has been previously evacuated, is followed by its activation via a high-frequency electromagnetic field formed by a composite coil surrounding a material-handling zone within the chamber. The activated gas reacts with material introduced into the chamber and is thereafter withdrawn, along with inactive gas and resultant gaseous byproducts, from the system. The construction of the chamber and the composite coil are such as to provide a substantially uniform distribution of gaseous excited species throughout the material-handling volume of the chamber.

3,705,092

SOLVENT EXTRACTION OF COAL BY A HEAVY OIL

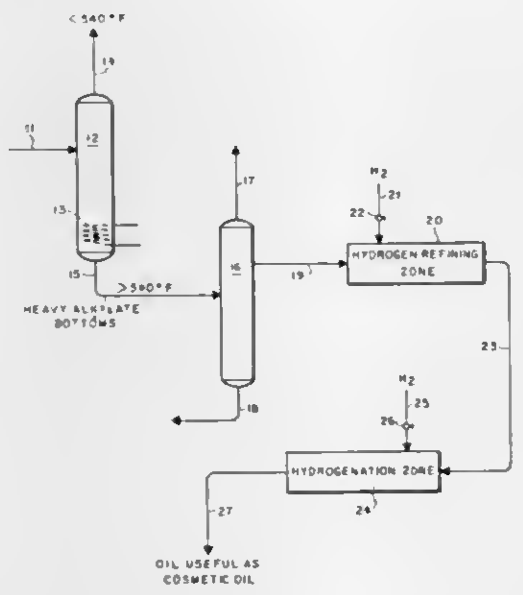
John G. Gatsis, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Dec. 18, 1970, Ser. No. 99,704
Int. Cl. C10g *1/04*
U.S. Cl. 208—8 **6 Claims**

A solid carbonaceous material, such as coal, is converted to liquid products and the asphaltene content of a heavy hydrocarbonaceous liquid is reduced in a process wherein the solid is solvent extracted by the liquid and the resultant mixture of liquids is recovered as the product.

3,705,093

REFINED HEAVY ALKYLATE BOTTOMS OIL

Thomas L. Ashcraft, Jr., Bellaire, Tex., assignor to Esso Research and Engineering Company, Linden, N.J.
Continuation-in-part of application Ser. No. 11,606, Feb. 16, 1970. This application June 14, 1971, Ser. No. 153,119
Int. Cl. C10g *23/00*
U.S. Cl. 208—14 **17 Claims**



A colorless and odorless specialty oil having a viscosity within the range from about 75 SSU to about 3000 SSU at 100° F., a viscosity index within the range from about 0 to about —200, and an aromatics content comparable to that of white oils is prepared by hydrogen refining and then hydrogenating a heavy alkylate bottoms oil of approximately the same viscosity and viscosity index which has a boiling range within the limits from about 540° F. to about 800° F. The heavy alkylate oil contains at least about 90 weight percent saturated hydrocarbons, which are about 50 to 70 weight percent naphthenes, the remainder being isoparaffins. These saturated molecules have highly branched side chains which are characterized by a high "branchiness ratio" of from about 2.6 to about 3.9. The naphthenes are predominantly polycyclic and have a bicyclic ratio of from about 0.4 to about 0.8. Hydrogen refining of the heavy alkylate oil is carried out in the presence of a sulfur-insensitive catalyst at a temperature from about 400° F. to about 700° F. under a hydrogen pressure from about 150 to about 2000 p.s.i.g. using a hydrogen-treat rate from about 100 to about 1000 s.c.f./bbl. at a liquid hourly space velocity from about 0.1 to about 10. Hydrogenation of the hydrogen-refined heavy alkylate oil occurs in a hydrogenation zone over a Group VIII metal hydrogenation catalyst at temperatures from about 300° F. to about 650° F., a hydrogen pressure from about 300 to about 3000 p.s.i.g., a liquid hourly space velocity from about 0.1 to about 3.0 v./v./hr., and a hydrogen-treat rate from about 300 to about 2500 s.c.f./bbl. The hydrogenated oil is useful as a unique cosmetic base oil.

3,705,094

SERIAL REFORMING WITH PLATINUM-RHENIUM AND PLATINUM-NON RHENIUM CATALYSTS

Carl D. Keith, Summit, and William C. Pfefferle, Middletown, N.J. (both of 497 Delancy St., Newark, N.J. 07105)
No Drawing. Filed Mar. 20, 1970, Ser. No. 21,515
Claims priority, application Canada, Oct. 14, 1969, 064,811
Int. Cl. C10g *35/08, 39/00*
U.S. Cl. 208—65 **10 Claims**

The disclosure is directed to systems for the catalytic reforming of gasoline boiling range hydrocarbons to improve their octane rating. Reforming is conducted in the presence of molecular hydrogen and platinum group metal-type catalysts disposed in a plurality of fixed bed reaction zones. In an initial dehydrogenation reaction zone the catalyst contains a platinum group metal and rhenium on an alumina support while in a subsequent paraffin dehydrocyclization part of the system the catalyst contains a platinum group metal on alumina. In a special operation the inlet temperatures of the reactors can be controlled with respect to the length of the total reforming cycle.

3,705,095

PLURAL STAGE PLATINUM CATALYST REFORMING WITH RHENIUM IN THE LAST STAGE

Milton H. Dalson, Carl D. Keith, and William C. Pfefferle, all % Engelhard Minerals & Chemicals Corp., 497 Delancy St., Newark, N.J. 07105, and John Mooi, % Atlantic Richfield Company, 400 E. Sibley Blvd., Harvey, Ill. 60426
No Drawing. Filed Mar. 20, 1970, Ser. No. 21,549
Claims priority, application Canada, July 3, 1969, 58,402/69
Int. Cl. C10g *35/08, 39/00*
U.S. Cl. 208—65 **19 Claims**

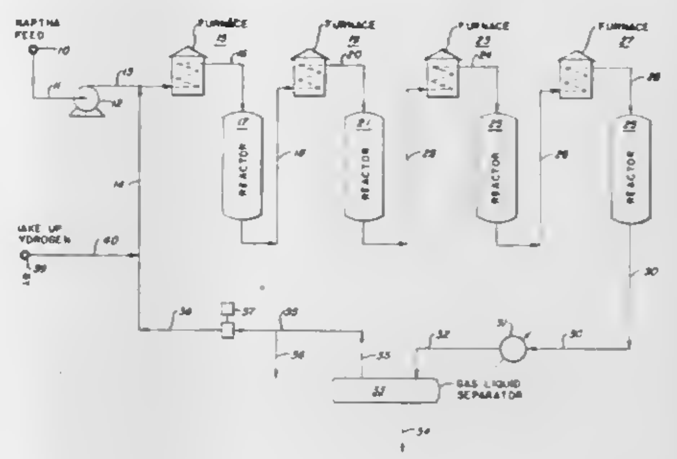
A process for reforming naphthene and paraffin-containing hydrocarbon feeds to increase their aromatic content is disclosed which involves the use of a series of catalytic reaction zones of which one of the first contains an alumina-supported, platinum group metal-containing catalyst which is substantially devoid of rhenium and which serves to dehydrogenate naphthenes, and one of the last of which zones contains an alumina-supported, platinum group metal and rhenium-containing catalyst which serves to dehydrocyclize paraffins.

3,705,096

DUAL-ZONE AND DUAL-CATALYST REFORMING PROCESS

David A. McCaulay, Homewood, Albert L. Hensley, Jr., Munster, and John A. Mahoney, Griffith, Ind., assignors to Standard Oil Company, Chicago, Ill.
Filed Oct. 30, 1970, Ser. No. 85,688
Int. Cl. C10g *39/00*
U.S. Cl. 208—65 **30 Claims**

A petroleum hydrocarbon fraction is contacted in a first reforming zone with a first catalyst comprising a Group VIII noble metal, a halide, and alumina to produce a first reformate, which is subsequently contacted in a second reforming zone with a second catalyst comprising the oxides of chromium, a member selected from the group consisting of an oxide of an alkali metal, an oxide of an alkaline earth metal, and mixtures thereof, and alumina. The second catalyst may contain also a small amount of rhenium. The first reformate should possess a paraffins-to-naphthenes ratio of at least 5 to 1.



3,705,097

PROCESS AND CATALYST FOR REDUCING SULFUR IN HYDROCARBONS

Billy D. Head, Angelton, Edward A. Fraini, Lake Jackson, and George R. Martin, Freeport, Tex., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Jan. 28, 1971, Ser. No. 110,670
Int. Cl. C10g *23/04*
U.S. Cl. 208—217 **10 Claims**

A crude feedstock containing sulfur impurities is desulfurized i.e. reduced in sulfur content, by reacting the feedstock with excess hydrogen over a fluidized catalyst comprising magnesium oxide and a Group VIII metal oxide on a refractory support wherein the Group VIII metal content is in the range from 1–10 percent and the magnesium content is in the range from 5–25 percent both based on the total weight of catalyst.

3,705,098

SEWAGE TREATMENT WITH HYDROGEN PEROXIDE

John Alexander Shepherd, Princeton, N.J., and Millice Floyd Hobbs, Monte Sereno, Calif., assignors to FMC Corporation, New York, N.Y.
No Drawing. Filed Feb. 22, 1971, Ser. No. 117,737
Int. Cl. C02c *1/40*
U.S. Cl. 210—63 **3 Claims**

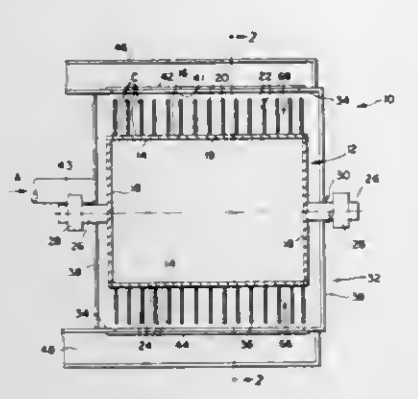
In the treatment of sewage to remove odors and reduce corrosion in sewerage and treatment plants, sulfide and hydrogen sulfide are removed by oxidation with hydrogen peroxide.

3,705,099

SEPARATING MEANS AND METHOD

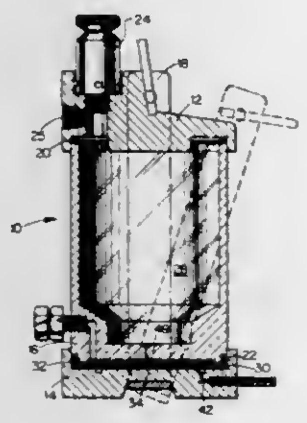
Allen Bruce Hunter, Dollard des Ormeaux, Quebec, Canada, assignor to Environmental Purification Systems, Inc., Marblehead, Mass.
Filed May 18, 1970, Ser. No. 38,171
Claims priority, application British Provisional, June 16, 1969, 30,312
Int. Cl. B01d *43/00*
U.S. Cl. 210—65 **14 Claims**

A method and apparatus are disclosed for separating the unlike components of a fluid mixture of unlike materials by contacting the mixture with surface means, providing relative motion between the mixture and the surface means, which motion exerts a force on the mixture parallel to the surface means, thus forming layers or zones having a reduced concentration of at least one material component of the fluid mixture. At least a part of one such layer or zone is thereafter removed from the mixture.



3,705,100
BLOOD FRACTIONATING PROCESS AND APPARATUS FOR CARRYING OUT SAME

William F. Blatt, Framingham, Edward A. Agranat, Weston, and Peter N. Rigopulos, Melrose, Mass., assignors to Amicon Corporation, Lexington, Mass.
Continuation-in-part of applications Ser. No. 828,935, May 29, 1969, and Ser. No. 833,090, June 13, 1969. This application Aug. 25, 1970, Ser. No. 66,675
Int. Cl. B01d *13/00*
U.S. Cl. 210—23 8 Claims



A process for separating blood plasma from whole blood that dispenses with the known centrifugal-separation techniques and involves passing whole blood along a flow path which is shallow and substantially parallel to the upstream side of filtration membrane, recovering plasma from the downstream side of said membrane, and recovering the retained blood components (formed elements) from the upstream side of the membrane.

3,705,101
NEUTRON-ABSORBING MATERIAL AND METHOD OF MANUFACTURE

Paul Blum, Saint-Genis-Laval, Jacques Lefrancois, Fontenay-aux-Roses, and Louis Vinarnick, Gif-sur-Yvette, France, assignors to Commissariat a l'Energie Atomique, Paris, and Societe Lyonnaise de Plomberie Industrielle, Lyon, France
Filed Mar. 27, 1968, Ser. No. 716,380
Claims priority, application France, June 14, 1967, 110,431
Int. Cl. G21c *7/24*
U.S. Cl. 252—478 5 Claims

The neutron-absorbing material essentially comprises between 32 and 40% by weight of polyethylene, between 17 and 20% by weight of water, between 37 and 45% by weight of gypsum and approximately 1% of boron.

The method of preparation of the material consists in incorporating in the dry state the boron compound with the gypsum in suitable proportions, in adding the mixture of boron compound and gypsum to the mixing water in which a retarder of set may have been dissolved, in homogenizing the mixture, in incorporating polyethylene granules with the mixture, in pouring the resulting paste into a container and in tamping the poured paste.

3,705,102
COMPOSITION AND METHOD OF DEFOAMING BUBBLE BATHS

Rolf Mast, Park Forest, Ill., assignor to Armour-Dial, Inc., Chicago, Ill.
No Drawing. Filed Jan. 18, 1971, Ser. No. 107,556
Int. Cl. C11d *1/12*
U.S. Cl. 252—89 7 Claims

A bath composition comprising a high-foaming detergent and an encapsulated combination of an emollient, a fatty polyoxyethylene material having a hydrophilic-lipophilic balance (HLB) of 10–12 and a methylpolysiloxane defoaming agent is disclosed. In use, the detergent provides copious foam and, after a delay in time, the encapsulated materials are released to simultaneously break the foam produced by the detergent and provide an emollient for the skin of the user.

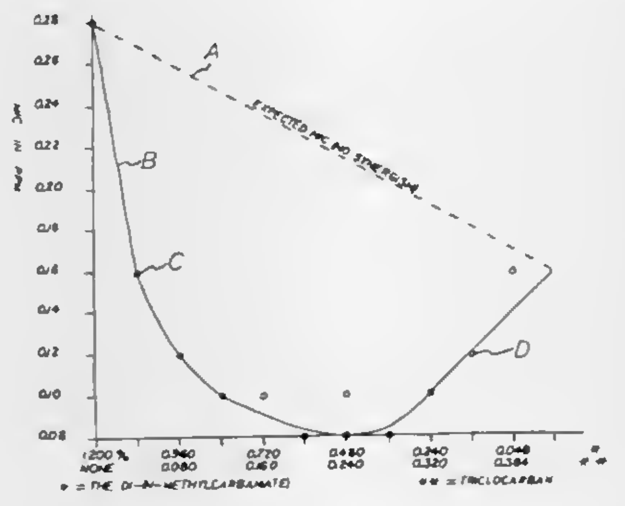
3,705,103
STAIN-REMOVING SOLID CLEANSERS

Bernard Cohen, Trenton, N.J., assignor to FMC Corporation, New York, N.Y.
No Drawing. Filed Dec. 31, 1970, Ser. No. 103,287
Int. Cl. C11d *7/54*
U.S. Cl. 252—100 5 Claims

Solid cleaners for nonmetallic surfaces such as ceramic and "Formica," which can be used to remove stains from such surfaces, are made with the oxidizing constituent thereof being a water-soluble peroxydiphosphate, the cleaner yielding a pH in water of not over 2.5.

3,705,104
SYNERGISTIC ANTISEPTIC COMPOSITIONS

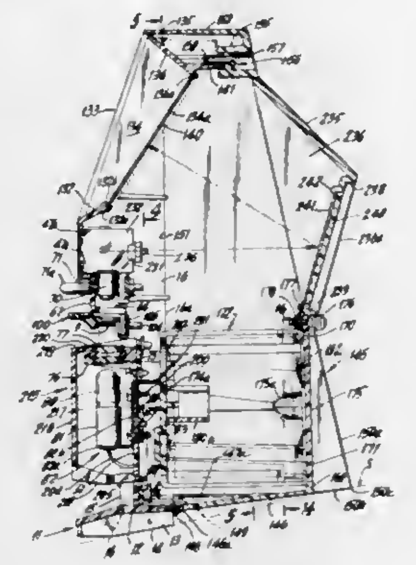
David Taber, 2000 Lincoln, Evanston, Ill. 62242, and Leo A. Raphaelian, 2640 Laurel Lane, Wilmette, Ill. 60091
Filed July 20, 1970, Ser. No. 56,270
Int. Cl. C11d *9/50*
U.S. Cl. 252—107 6 Claims



Compositions possessing antibacterial activity through the effect of synergistic mixtures of 2,2′-methylene-bis-(3,4,6-trichlorophenol)-di-(N-methylcarbamate), triclocarban and 4,4′-dichloro-3-trifluoromethyl carbanilide.

3,705,105
MOVING PICTURE FILM VIEWER EDITOR

Eugene Martinez, Irvington-on-Hudson, N.Y., assignor of a fractional part interest to Robert H. Reible, Croton-on-Hudson, N.Y.
Filed June 21, 1971, Ser. No. 154,858
Int. Cl. G03b *21/00*
U.S. Cl. 352—129 32 Claims



Idler gears isolate film loop and preserve the integrity of the isolated film loop. Film image locating means are movable in order to index the image on the screen properly. The projection lamp cover or housing is also the "on/off" switch and film guide for the idler gears. The front portion of the housing contains the positioning devices for the condenser lens assembly, the lamp, the focusing lens, two of the mirrors of the optical system and the screen. The rear portion of the housing contains positioning devices for the third mirror of the optical system and the battery storage compartment. The battery storage compartment is so designed that the pickup contacts for electrical current are on the front portion of the housing while all other contacts are on the rear portion of the housing and on the battery compartment cover, thereby eliminating the need for electrical interlock wiring between both halves of the housing.

3,705,106
NONOXIDIZING ACIDIC COMPOSITIONS CONTAINING ROSIN AMINE AND ACETYLENIC CORROSION INHIBITORS

Thaddeus M. Muzyczko, Melrose Park, Samuel Shore, Roselle, and Jerome A. Martin, Chicago, Ill., assignors to The Richardson Company, Melrose Park, Ill.
No Drawing. Original application Mar. 21, 1968, Ser. No. 714,771, now Patent No. 3,632,524. Divided and this application Feb. 8, 1971, Ser. No. 113,648
Int. Cl. C23f *11/04, 11/14;* **C23g** *1/06*
U.S. Cl. 252—148 8 Claims

Corrosion inhibiting compositions for use with aqueous systems and based on a combination of a rosin amine, ethoxylated rosin amine, ethyloctynol, and propargyl alcohol. The compositions include both mixtures and reaction products thereof.

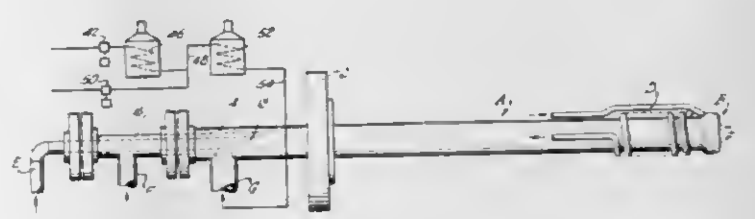
3,705,107
OIL BASE GEL HAVING LOW VISCOSITY BEFORE GELATION AND METHOD OF PRODUCING SAME

Raymond W. Hoeppel, P.O. Box 997, Oak View, Calif. 93022
No Drawing. Filed Nov. 6, 1970, Ser. No. 87,649
Int. Cl. B01j *13/00;* **H01b** *3/02*
U.S. Cl. 252—316 3 Claims

A thixotropic oil base gel having a low dielectric constant and high electrical resistivity is produced by agitating together in oil an alkali metal soap of a disproportionated rosin acid, a calcium base and an oil dispersible hydroxy hydrocarbon surfactant selected from a group comprising phenols and alcohols. Because of retarded gelation, the resultant fluid is low in viscosity and can be easily pumped into confined areas where it sets up to a stable rigid gel upon cessation of agitation.

3,705,108
SYNTHESIS GAS GENERATION

Charles P. Marion, Mamaroneck, N.Y., and Blake Reynolds, Riverside, Conn., assignors to Texaco Development Corporation, New York, N.Y.
Filed Oct. 6, 1969, Ser. No. 863,784
Int. Cl. C07c *1/02*
U.S. Cl. 252—373 5 Claims



Synthesis gas is generated by reacting a finely divided preatomized liquid oil suspended in steam or other moderator, with high purity molecular oxygen. The problem of burner deterioration is overcome by using a triple orifice burner in which the oxygen is conveyed thru a central orifice, the preatomized oil/steam phase is passed thru an outer annular orifice coaxially about the oxygen orifice and separated therefrom by a third stream of steam or other moderator which forms an annular sheath separating the oxygen and oil streams for a finite distance downstream of the nozzle tip which thus spaces the tip a finite distance from the point where combustion occurs.

3,705,109
CORROSION INHIBITING COMPOSITION AND USE THEREOF

Rudolf H. Hausler, Arlington Heights, and Leonard A. Goeller, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Apr. 6, 1970, Ser. No. 26,084
Int. Cl. C23f *11/00*
U.S. Cl. 252—392 10 Claims

A corrosion inhibiting composition of (1) a dicarboxylic acid and (2) polymeric reaction product of an epihalohydrin compound and aliphatic amine. The composition is incorporated in any substrate which contacts metal and serves to inhibit corrosion of the metal.

3,705,110
CALIBRATING FLUID FOR AUTOMATED HEMATOLOGY INSTRUMENTS

Allan L. Louderback, Temple City, and Young Youbne, Gardena, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.
No Drawing. Filed Apr. 21, 1971, Ser. No. 136,169
Int. Cl. C09k *3/00;* **C01n** *15/06, 21/00*
U.S. Cl. 252—408 4 Claims

A calibrating fluid for automated instruments for blood cell counting and hemoglobin determination comprising an admixture of nigrosin dye and a carbon black dispersion in dilute aqueous solution which exhibits absorbance linearity in the visible and ultraviolet range having suspended therein synthetic latex particles with a 5 to 15 micron particle size range.

3,705,111

CATALYTIC COMPOSITE OF PLATINUM GROUP METAL, NICKEL, GROUP IV–A METAL AND FRIEDEL-CRAFTS METAL HALIDE ON OXIDE SUPPORT

Frederick C. Wilhelm, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 15,960, Mar. 2, 1970. This application May 11, 1970, Ser. No. 36,375

Int. Cl. B01j *11/74*

U.S. Cl. 252—439 **6 Claims**

Isomerizable hydrocarbons are isomerized using a catalytic composite comprising a combination of a platinum group component, a Group IV–A metallic component, and a nickel component with a porous carrier material. A catalytic composite comprising a platinum group component, a Group IV–A metallic component, a nickel component and a Friedel-Crafts metal halide component combined with a refractory inorganic oxide is also disclosed.

3,705,112

NOVEL HOT-PRESSED REFRACTORY ARTICLES AND PREPARATION THEREOF

Louis F. Nienart, Elizabeth, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 657,769, Aug. 2, 1967. This application Jan. 6, 1970, Ser. No. 1,060

Int. Cl. H01b *1/06;* **C04b** *35/66, 35/48*

U.S. Cl. 252—520 **6 Claims**

Solid, electrically conductive articles composed of a mixture of the diboride and the nitride of titanium and/or zirconium are described. These articles are prepared by hot-pressing finely divided particles of the metal with boron nitride, the mixture optionally containing elemental boron and molybdenum disilicide, at a temperature of at least 2000° C. under pressure of from 2000 to 15,000 p.s.i. under an inert atmosphere. The articles of the invention are useful as cathode connector bars for the electrolytic cell used in preparing aluminum. In addition their refractory and mechanical strength properties make them suitable for many applications in and around industrial furnaces, rocket and jet engines, and the like.

3,705,113

HYDROGENATED OLEFIN SULFONATE-ALKYL-1,2-GLYCOL DETERGENT COMPOSITIONS

Samuel H. Sharman, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Oct. 24, 1968, Ser. No. 770,386

Int. Cl. C11d *1/12*

U.S. Cl. 252—555 **7 Claims**

High performance detergent compositions comprise a mixture of hydrogenated olefin sulfonates and an alkyl-1, 2-glycol.

3,705,114

HYDROGENATED OLEFIN

William A. Sweeney, Larkspur, and Gar Lok Woo, Tiburon, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Original application June 16, 1969, Ser. No. 833,801. Divided and this application June 16, 1971, Ser. No. 153,849

Int. Cl. C11d *1/12*

U.S. Cl. 252—555 **4 Claims**

Novel nonsoap detergent toilet bars are formed from water and a detergent prepared from a solution of a complex mixture of hydrogenated olefin sulfonates containing from 10 to 24 carbon atoms by cooling the solution to a temperature in the range of from 0° C. to 35° C. and subsequently filtering the solution to recover the improved hydrogenated olefin sulfonates as the precipitate.

3,705,115

GLYCIDYL ETHERS OF GLYCERINE-CONTAINING POLYHYDROXYL COMPOUNDS

James L. Bertram, Lake Jackson, and David O. Bowen, Freeport, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,232

Int. Cl. C08g *30/16*

U.S. Cl. 260—2 EP **8 Claims**

The physical properties of glycidyl ethers of glycerine are improved by blending a polyhydroxyl-containing compound, such as glycerine, with said glycidyl ether in proportions such that the ratio of epoxide equivalents to hydroxyl equivalent in the blend is in the range of from about 1.8:1 to about 0.5:1. When such blends are cured with catalytic quantities of a curing agent, such as a tertiary amine, one or more of the physical properties such as tensile strength, percent elongation and tensile modulus are improved.

3,705,116

PROCESS FOR THE MANUFACTURE OF LIGHT BUILDING ELEMENTS

Silvio Vargiu and Mario Pitzalis, Milan, and Pierluigi Abruzzi, Bergamo, Italy, assignors to Societá Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed Dec. 10, 1970, Ser. No. 97,025

Claims priority, application Italy, Dec. 23, 1969, 26,204/69

Int. Cl. C08f *47/08*

U.S. Cl. 260—2.5 B **16 Claims**

Lightweight concrete building elements are made by a process in which the polystyrene granules used are associated with a binder containing both a polyepoxy compound and a monoepoxy compound.

3,705,117

PROCESS FOR THE MANUFACTURE OF LIGHT BUILDING ELEMENTS

Silvio Vargiu and Mario Pitzalis, Milan, and Pierluigi Abruzzi, Bergamo, Italy, assignors to Societá Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed Dec. 14, 1970, Ser. No. 98,102

Claims priority, application Italy, Dec. 23, 1969, 26,205/69

Int. Cl. C08f *47/08*

U.S. Cl. 260—2.5 B **14 Claims**

Lightweight concrete building elements are made by a process in which the action of epoxy binders for the polystyrene granules is assisted by the presence of an organic solvent, preferably benzene, toluene or xylene.

3,705,118

PROCESS FOR FORMING A MICROPOROUS CELLULAR POLYIMIDE

Oscar R. Abolafia, Endicott, John A. Butora, Endwell, and Michael T. Orinik, Binghamton, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 11, 1971, Ser. No. 105,466

Int. Cl. C08j *1/20*

U.S. Cl. 260—2.5 N **7 Claims**

A process for the preparation of a microporous cellular polyimide article comprising preparing a mixture in an inert solvent of polyamic acid and p,p′-oxybis(benzene sulfonyl hydrazide) as a blowing agent, forming the mixture into a shaped article, allowing the article to dry

wherein the blowing agent simultaneously decomposes to form a foamed article and heating the foamed article to cyclize the polyamic acid is disclosed. The foamed article contains micropores of about 1 micron in diameter which improves adhesion at polymer-polymer and polymer-metal interfaces.

3,705,119

SPLITTING BLOCKED ISOCYANATES WITH A CARBOXYLIC ACID SALT OF CALCIUM, STRONTIUM, MAGNESIUM, OR BARIUM

Jerome F. Levy, Dresher, and John Kucsan, Philadelphia, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Aug. 6, 1970, Ser. No. 61,791

Int. Cl. C08g *22/40*

U.S. Cl. 260—18 TN **15 Claims**

Lower reaction temperatures for "splitting" blocked isocyanates and reacting the same with active hydrogen containing compounds, as in forming polyurethanes and polyureas, particularly in coatings, are made possible by using a carboxylic acid salt of magnesium, calcium, strontium, or barium, such as of hexanoic acid, octanoic acid, naphthenic acid, or linoleic acid, as a catalyst. The acids preferably have from 3 to about 18 carbon atoms, preferably from about 5 to about 10 carbon atoms. The catalysts are much superior to or equal to tin compounds such as dibutyl-tin di-2-ethylhexoate, stannous oleate, or stannous octoate, and are less expensive. Salts such as calcium acetate, calcium stearate, and calcium oleate are ineffective.

3,705,120

ROOM TEMPERATURE VULCANIZING COMPOSITION

Nobuhisa Kawaguchi, Yokohama, Kanagawa-ken, Japan, assignor to Fuji Polymer Industries Co., Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 749,618, Aug. 2, 1968. This application Apr. 12, 1971, Ser. No. 133,396

Claims priority, application Japan, Aug. 21, 1967, 42/53,279

Int. Cl. C08h *9/00*

U.S. Cl. 260—18 S **6 Claims**

A fluid composition which hardens quickly upon contact with air is composed of the principal components (1) a diorganopolysiloxane endblocked by hydroxyl radicals, (2) a minor amount of an organoalkoxysilane or an organoorthosilicate, (3) a minor amount of an aluminum alcoholate and (4) a minor amount of an organic tin salt.

3,705,121

FLAVORING AND FRAGRANCE COMPOSITIONS

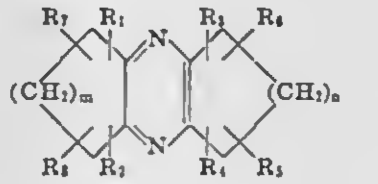
Alan O. Pittett, Atlantic Highlands, and Ranya Muralidhara, Matawan, N.J., assignors to International Flavors and Fragrances, Inc.

No Drawing. Filed Sept. 25, 1970, Ser. No. 75,782

Int. Cl. C07d *51/76*

U.S. Cl. 260—250 R **3 Claims**

Processes for altering the flavors and aromas of consumable products, including foodstuffs and tobaccos, which comprise adding thereto a small but effective amount of at least one tricyclic pyrazine having the formula



wherein *m* and *n* are each an integer from 1 to 6, and R_1, R_2, R_3, R_4. R_5, R_6, R_7, and R_8, are the same or different and represent hydrogen or alkyl; the products so produced; flavoring and fragrance compositions containing such tricyclic pyrazines; and certain novel pyrazines and processes for their production.

3,705,122

COMPOSITIONS FOR MOLDING SEALING LINERS OR THE LIKE HAVING CONTRASTING COLORS

Walter C. Gwinner, Stamford, Conn., assignor to Zapata Industries Inc., Frackville, Pa.

Original application July 27, 1967, Ser. No. 656,399, now Patent No. 3,547,746, dated Dec. 15, 1970. Divided and this application May 26, 1970, Ser. No. 40,658

Int. Cl. C08f *45/04, 45/08, 45/14*

U.S. Cl. 260—23 XA **7 Claims**

Thermoplastic resin compositions formulated with pigments to furnish contrasting colors in raised and background areas upon molding heated charges of the compositions with a die having relieved areas, and methods for molding and imparting contrasting colors to an article in a single molding operation.

3,705,123

POLYPHASE COMPOSITIONS

Bert H. Mahlman, West Chester, Pa., and Harold M. Spurlin, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of application Ser. No. 670,112, Sept. 25, 1967, which is a continuation-in-part of abandoned application Ser. No. 606,449, Dec. 30, 1966. This application Oct. 29, 1970, Ser. No. 85,189

Int. Cl. C08f *45/52*

U.S. Cl. 260—28.5 A **8 Claims**

Polyphase compositions are described wherein a propylene polymer in crystalline but non-spherulitic form is a continuous network as one phase and the second phase contains at least 50% of a hydrocarbon wax. Polypropylene-paraffin wax is typical. They have a high degree of ductility, toughness and elongato-ability and films thereof are capable of orientation. Also describes preparation of colloidal dispersions of the propylene polymer in hydrocarbon wax useful for making such compositions and the process of preparing the polyphase compositions.

3,705,124

WATER-BASED ENAMEL FORMULATIONS FROM ACRYLIC HYDROSOLS

Richard N. Selby and Donald M. Williams, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 735,587, June 10, 1968, which is a continuation-in-part of abandoned application Ser. No. 467,751, June 28, 1965. This application Jan. 22, 1971, Ser. No. 108,992

Int. Cl. C09d *3/80, 5/02*

U.S. Cl. 260—29.6 TA **11 Claims**

A water-based enamel formulation is disclosed containing pigment, surfactant, a particular acid acrylic interpolymer binder and a particular thickener. The enamels show improvement with respect to ease of flow, leveling ability, lappability, gloss level, gloss uniformity, color retention, hiding power, drying time and consistency stability on storage as compared to ordinary water-based paints.

3,705,125

MATERIAL FOR BONDING RESINS TO GLASS FIBERS AND COMPOSITES MADE THEREFROM

Jerome A. Preston, Granville, and Carlton J. Davis, Sr., Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation

No Drawing. Continuation of abandoned application Ser. No. 862,107, July 15, 1969, which is a division of abandoned application Ser. No. 610,487, Jan. 20, 1967, which in turn is a continuation of application Ser. No. 884,781, Dec. 24, 1969, now Patent No. 3,664,982. This application May 10, 1971, Ser. No. 142,031

Int. Cl. C08g *47/10, 51/14*

U.S. Cl. 260—37 N **12 Claims**

An improved bonding material comprising a hydrolyzed siloxane and a polyimine which is dispersible in the siloxane. The coating material is preferably applied to glass fibers at forming from an aqueous solution, and the coated fibers are preferably used to strengthen a matrix resin which is fused with the coating material so that diffusion of the polyimine into the matrix resin takes place. Composites of the coated glass fibers with matrix resins that are reactive with amine hydrogen have great strength.

3,705,126

STABILIZATION OF SYNTHETIC POLYMERS

Katsuaki Matsui, Tomoyuki Kurumada, Ichiro Watanabe, Noriyuki Ohta, Keisuke Murayama, and Syoji Morimura, Tokyo, Japan, assignors to Sankyo Company Limited

No Drawing. Filed June 10, 1970, Ser. No. 45,258

Claims priority, application Japan, June 20, 1969, 44/48,745

Int. Cl. C08f *45/60;* **C08g** *51/60*

U.S. Cl. 260—45.8 N **7 Claims**

Synthetic polymers are stabilized against photo- and thermo-deterioration thereof by having incorporated therein a piperidine-4-spiro-hydantoin derivative in a sufficient amount to prevent such deterioration, said polymers including polyolefins, polyvinyl chlorides, polyvinylidene chlorides, polyamides and polyurethanes.

3,705,127

POLYMERIC FLAME RETARDANT COMPOSITIONS

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 757,764, Sept. 5, 1968, now Patent No. 3,574,230, dated Apr. 6, 1971. This application Dec. 21, 1970, Ser. No. 100,440

Int. Cl. C08f *45/60;* **C08g** *51/60*

U.S. Cl. 260—881 **7 Claims**

Novel compositions of matter comprising a polymeric compound and a haloaryl imide of a polyhalo-substituted polyhydropolycyclicdicarboxylic acid as exemplified by polypropylene and α,α.-bis(5,6,7,8,9,9-hexachloro-1,2,3,4,4a,5,8,8a-octahydro-5,8-methano-2,3 - naphthalenedicarboximido)-2,3,5,6-tetrachloro-p-xylene possesses certain desirable physical properties such as being flameproof or fire resistant.

3,705,128

FLAME RESISTANT POLYMERS CONTAINING AMIDE COMPLEXES OF METAL SALTS

Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 23, 1971, Ser. No. 165,717

Int. Cl. C08f *45/60, 45/62;* **C08g** *51/60, 51/62*

U.S. Cl. 260—45.75 R **10 Claims**

Flame resistant polymers, such as halogenated polyesters and polyvinyl chloride containing amide complexes of certain metal salts such as zinc chloride-dimethyl formamide, and articles such as molded bodies, films, etc. of such flame resistant polymers.

3,705,129

EPOXY RESIN COMPOSITION CONTAINING METALLOCENES

Tadashi Murio, Mikio Sato, and Masatzugu Ogata, Hitachi, Japan, assignors to Hitachi, Ltd., and Hitachi Chemical Co., Ltd., Chiyoda-ku and Tokyo, Japan respectively

No Drawing. Filed May 26, 1970, Ser. No. 40,731

Claims priority, application Japan, May 26, 1969, 44/40,186, 44/40,187, 44/40,188, 44/40,191; Nov. 14, 1969, 44/90,810

Int. Cl. C08g *30/10, 30/12*

U.S. Cl. 260—47 EC **14 Claims**

An epoxy resin composition having an excellent latent curing characteristic at room temperature and a good curing property comprising an epoxy resin and a metallocene or a derivative thereof. Preferred metallocenes include ferrocene and derivatives thereof. Additional curing additives, such as quinone, organic peroxides and phenol, can be employed as desired. The resultant cured epoxy resins display excellent mechanical and electrical properties.

3,705,130

FIBER FORMING POLYESTER COMPOSITION AND FIBER PRODUCED THEREFROM

Hideo Komatsu, Sadao Yuguchi, Masamitsu Tanimura, and Hiroshi Matsukawa, Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed July 28, 1971, Ser. No. 166,884

Claims priority, application Japan, July 30, 1970, 45/66,088

Int. Cl. C08g *17/08*

U.S. Cl. 260—47 C **12 Claims**

A novel flame retardant fiber forming polyester composition, useful as a textile fiber, is synthesized from (a) alpha, omega-bis (-2,6 dichloro - 4 - carboxy - phenoxy) alkane and (b) alkylene glycol.

3,705,131

POLYMERS OF POLYPHENYLENE TYPE AND METHOD OF PRODUCING THE SAME

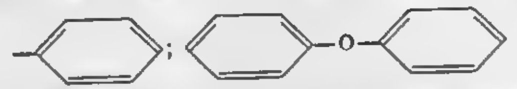
Vasily Vladimirovich Korshak, Mark Efimovich Volpin, Vladimir Alexandrovich Sergeev, Valentin Kuzmich Shitikov, and Igor Sergeevich Kolomoikov, Moscow, U.S.S.R., assignors to Ordena Lenina Institut Elementoorganicheskikh Soedineny Akademii nauk U.S.S.R., Moscow, U.S.S.R.

No Drawing. Filed Nov. 27, 1970, Ser. No. 93,442

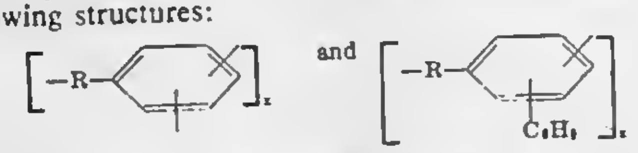
Int. Cl. C08f *9/00, 23/00*

U.S. Cl. 260—47 UA **8 Claims**

A method of producing polymers of the crosslinked polyphenyl type by polycyclotrimerization of diethynyl derivatives of aromatic or heterocyclic compounds of the general formula CH≡C—R—C≡CH, where R is



or of a mixture thereof with monoethynyl organic compounds of the formula $CH\equiv C_6H_5$ in the presence of complex catalysts, which are complex compounds of transition metals belonging to groups IV–VIII of the Periodic Table, such as $/(RO)_3P/_nCoHal$, where R is a lower alkyl, Hal is Cl, Br, I, and $n=3$ or 4. As a result of said method, a new type of phenylenes is obtained, conforming to the following structures:



where R has the above-specified significance, and x is any number.

Such polymers are thermosetting, that is, when heated up to 150–200° C., they set and pass into an infusible and insoluble state; they feature a high thermostability up to 900° C., and remain invariably stable to thermal deformation up to temperatures of thermal decomposition thereof (500–600° C.).

3,705,132

MOISTURE-CURED COATING COMPOSITIONS

Michael Cuscurida, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Mar. 22, 1971, Ser. No. 127,046

Int. Cl. C08g *22/10, 22/14, 22/24*

U.S. Cl. 260—75 NP **2 Claims**

A polyurethane coating which dries very rapidly and cures quickly may be made by reacting a polyether triol and a polyester diol with an aliphatic polyisocyanate. Moisture cured polyurethane coatings are widely used in seamless flooring.

3,705,133

POLYESTER PROCESS

Stanley D. Lazarus, Petersburg, Va., and Paul N. Christensen, Copenhagen, Denmark, assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 596,451, Nov. 23, 1966. This application Aug. 21, 1969, Ser. No. 852,116

The portion of the term of the patent subsequent to Dec. 16, 1986, has been disclaimed

Int. Cl. C08g *17/015*

U.S. Cl. 260—75 R **17 Claims**

A process for the preparation of colorless, linear high molecular weight film and fiber-forming polyalkylene terephthalates either by direct esterification or esterinterchange of terephthalic acid and/or the lower alkyl esters thereof with a glycol having 2 to 10 carbon atoms per molecule to obtain the corresponding diglycol-ester intermediate and then condensing said intermediate in the presence of a catalytic amount of at least one trivalent antimony salt of a higher aliphatic monocarboxylic acid having at least 12 carbon atoms per molecule.

3,705,134

POLYAMIDE CONTAINING ORGANO METALLIC COMPOUND

David James, ICI Fibres Limited, Pontypool, Mammouthshire, England

Filed July 24, 1970, Ser. No. 58,185

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R **5 Claims**

Synthetic fiber and film forming polyamides containing organic compounds of metals of groups IV or V of the Periodic Table. The pressure of such compounds results in an increase in the rate of relative viscosity rise during the polyamidation reaction and an enhancement of the dyeability of the final polymer.

3,705,135

INHIBITING PREMATURE VULCANIZATION OF DIENE RUBBERS WITH N-THIOFORMAMIDES

Mark Dennis Wolfinger, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,259

Int. Cl. C08f *27/06*

U.S. Cl. 260—79.5 B **17 Claims**

Certain N-thioformamides are used to inhibit premature vulcanization of vulcanizable elastomers.

3,705,136

POLYMERIC ACRYLIC COMPOUNDS OF POLYCYCLIC HYDROCARBONS AND PROCESSES FOR PREPARING SAME

John Duval Cawley, Rochester, and Jan Willem Hendrik Faber, Hilton, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Nov. 28, 1969, Ser. No. 880,894

Int. Cl. C08f *3/64, 3/66, 7/02*

U.S. Cl. 260—79.7 **6 Claims**

Acrylic compounds are disclosed which comprise either thio-substituted polycyclic groups or polycyclic groups comprising at least 4 carbocyclic rings which can optionally be thio-substituted. In one embodiment, polymers can be prepared from the above acrylic compounds.

3,705,137

PRECIPITATION COPOLYMERIZATION OF METAL SALTS OF UNSATURATED CARBOXYLIC ACIDS

Kenshi Kuwabara, Shigetada Sonoda, and Masahito Ishii, Tokyo, Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 612,808, Jan. 31, 1967. This application Dec. 4, 1969, Ser. No. 882,280

Int. Cl. C08f *1/11*

U.S. Cl. 260—80.3 E **5 Claims**

A method of preparing copolymers of metal salts of unsaturated carboxylic acids suitable for use as a stabilizer for chlorine-containing resins, such as polyvinyl chloride, by means of precipitation copolymerization in an alcohol solution containing water. A stabilizer composition comprising a mixture of said copolymers of metal salts of unsaturated carboxylic acids and chlorine-containing resin.

3,705,138
PROCESS FOR THE PREPARATION OF AMORPHOUS COPOLYMERS OF ETHYLENE

Cornelis E. P. V. Van Den Berg, Guido Gezellelaan 34, Geleen, Netherlands

Filed June 30, 1969, Ser. No. 837,885

Claims priority, application Netherlands, July 1, 1968, 6809302

Int. Cl. C08f *15/40, 17/00, 1/56*

U.S. Cl. 260—80.7 **9 Claims**

A process for the preparation of amorphous copolymers of ethylene, one or more other α-alkenes, and optionally one or more compounds containing more than one C C bond, using a catalyst comprising an aluminum dihalide, a vanadium compound and an organo metal compound, the catalyst being dispersed in a liquid dispersing agent.

3,705,139
HIGH MOLECULAR COMPOSITION

Izumi Yamane, Yokohama, Masuzo Nagayama, Tokyo, and Makoto Takai, Chiba, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan

No Drawing. Filed Oct. 26, 1970, Ser. No. 84,164

Claims priority, application Japan, Oct. 30, 1969, 44/86,422, 44/86,423

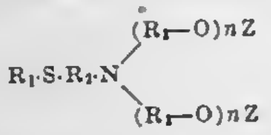
Int. Cl. C08f *3/02, 7/04, 45/00*

U.S. Cl. 260—92.8 A **9 Claims**

A high molecular composition comprising a high molecular substance containing one member selected from the group consisting of alkyl sulfide compounds as an antistatic agent, said compounds being expressed by the following General Formulas a and b:

(a) $R_1 \cdot S \cdot R_2 \cdot A(R_3—O)nZ$

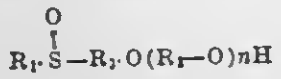
(wherein R_1 represents a hydrocarbon radical having 6–22 carbon atoms; R_2 and R_3 each represents a hydrocarbon radical having 1–4 carbon atoms; A represents oxygen or nitrogen, and, in case A represents nitrogen, said general formula is represented by



$$R_1 \cdot S \cdot R_2 \cdot N \begin{cases} (R_3—O)nZ \\ (R_3—O)nZ \end{cases}$$

n represents an integer in the range of 0–100; and Z represents hydrogen or COR_4 wherein R_4 represents a hydrocarbon radical having 1–22 carbon atoms); and

(b)



$$R_1 \cdot \overset{\overset{O}{\|}}{S}—R_2 \cdot O(R_3—O)nH$$

(wherein R_1 represents a hydrocarbon radical having 6–22 carbon atoms; R_2 and R_3 each represents a hydrocarbon radical having 1–4 carbon atoms; and n represents an integer in the range of 0–100).

3,705,140
PEPTIDES RELATED TO THE C-TERMINAL SEQUENCE OF CCK-PZ AND CAERULEIN

Luigi Bernardi, No. 1 Via Gignous, Milan; Germano Bosisio, No. 37 Via Monte Sabotino, Palazzolo; Roberto DeCastiglione, No. 38 Via Domenichino, and Onofrio Golfredo, No. 6 Via Cremosano, both of Milan, all of Italy

Continuation-in-part of Ser. No. 721,613, April 16, 1968, abandoned. This application July 12, 1968, Ser. No. 744,315

Claims priority, application Italy, Oct. 5, 1967, 21259 A/67; June 7, 1968, 17444 A/68

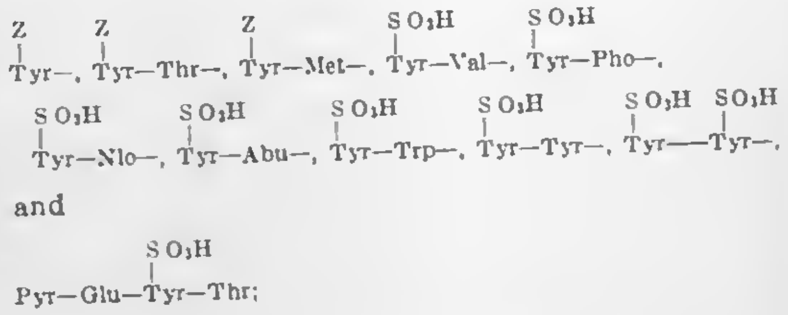
Int. Cl. A01k *27/00;* **C07c** *103/52*

U.S. Cl. 260—112.5 **15 Claims**

The present invention relates to new biologically active polypeptides and to the process for their preparation. More particularly the present invention relates to the polypeptides of the formula:

$$X — Gly — Trp — Y — Asp — Phe — NH_2$$

wherein X is selected from the group consisting of



$$\overset{Z}{\underset{|}{}}Tyr—,\ \overset{Z}{|}\!\!Tyr—Thr—,\ \overset{Z}{|}\!\!Tyr—Met—,\ \overset{SO_3H}{|}\!\!Tyr—Val—,\ \overset{SO_3H}{|}\!\!Tyr—Pho—,$$

$$\overset{SO_3H}{|}\!\!Tyr—Nlo—,\ \overset{SO_3H}{|}\!\!Tyr—Abu—,\ \overset{SO_3H}{|}\!\!Tyr—Trp—,\ \overset{SO_3H}{|}\!\!Tyr—Tyr—,\ \overset{SO_3H}{|}\!\!Tyr——\overset{SO_3H}{|}\!\!Tyr—,$$

and

$$Pyr—Glu—\overset{SO_3H}{|}\!\!Tyr—Thr;$$

- Y is selected from the group consisting of Met-, Nle- and Abu;
- Z is selected from the group consisting of $—SO_3H$ and $—PO_3H_2$, and its protected derivatives.

The invention further describes a process for the preparation of polypeptides having the above formula.

The polypeptides of the present invention display a high polyvalent biological action. In particular they display a stimulating activity on gallbladder, on biliary, gastric and pancreatic secretion and also a hypotensive activity and may be employed especially in the stimulation of the gastric and pancreatic secretion, in the cholecystography and in duodenal ulcers.

3,705,141
ADAMANTANECARBOXAMIDOALKANOIC ACIDS AND RELATED COMPOUNDS

Carl Peter Krimmel, Wauconda, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 727,698, May 8, 1968, which is a continuation-in-part of abandoned application Ser. No. 467,749, June 28, 1965. This application May 17, 1971, Ser. No. 144,304

Int. Cl. C07c *103/52;* **C07g** *7/00*

U.S. Cl. 260—112.5 **4 Claims**

The present adamantanecarboxylic acid derivatives of amino acids possess anti-biotic activity against a variety of organisms. Thus, they are anti-bacterial, anti-protozoal, and anti-algal agents. The compounds are prepared by the reaction of an adamantanecarbonyl halide, preferably the chloride, with an appropriate amino acid, dipeptide, or polypeptide.

3,705,142
SYNTHETIC THYROPROTEIN CONTAINING TRIIODOTHYRONINE PREPARED BY ADDITION OF MULTIPLE CHARGES OF IODINE TO A PROTEIN

Charles W. Turner, 717 Hilltop Drive, Columbia, Mo. 65201

No Drawing. Continuation-in-part of application Ser. No. 9,554, Feb. 9, 1970, which is a continuation-in-part of abandoned application Ser. No. 764,938, Oct. 3, 1968. This application Apr. 8, 1971, Ser. No. 132,559

Int. Cl. C07g *7/00, 15/00;* **A61k** *17/10*

U.S. Cl. 260—119 **3 Claims**

A synthetic thyroprotein containing triiodothyronine and a method of production comprising the addition of multiple charges of iodine to a proteinaceous material, interposed by oxygen sparging, to partially iodinate tyrosine in the protein to produce monoiodotyrosine and diiodotyrosine which, when oxidatively coupled, produce triiodothyronine.

3,705,143
PRODUCTION OF CASEIN BY PASSAGE THROUGH A DUCT WITH A CONSTRICTION

Jean-Jacques Mourey, Lausanne, and Ernest Badertscher, Orbe, both of Switzerland, assignors to Societe D'Assistance Technique Pour Produits Nestle S.A., Lausanne, Switzerland

Filed May 7, 1970, Ser. No. 35,591

Claims priority, application Switzerland, May 16, 1969, 7446/69

Int. Cl. B23j *1/20*

U.S. Cl. 260—120 **12 Claims**

Non-sticky, uniformly-sized casein particles are prepared by passing a casein slurry through a duct with a constriction, under flow conditions such that V·De is at least 600 $cm^2\ sec^{-1}$, where V is the mean streaming velocity of the slurry and De the hydraulic equivalent diameter of the duct. Other features of the invention are disclosed in the following specification.

3,705,144
VACUUM INTERRUPTER OR SWITCH FOR ELECTRIC POWER NETWORKS

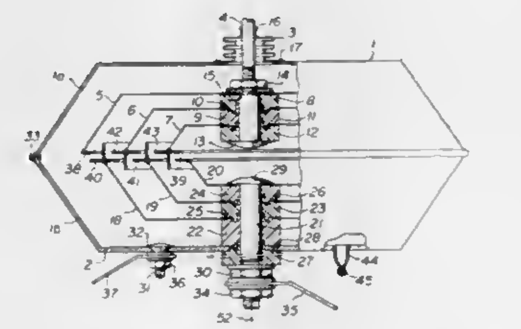
Pierre Genequand, Geneva, Switzerland, assignor to Battelle Memorial Institute, Carouge/Geneva, Switzerland

Filed Dec. 15, 1971, Ser. No. 208,209

Claims priority, application Switzerland, Dec. 24, 1970, 19,029/70; Nov. 22, 1971, 16,945/71

Int. Cl. H01h *33/66*

U.S. Cl. 200—144 B **22 Claims**



A single-pole interrupter, for a power network, having a plurality of contact elements arranged to form in the open position a series of spaced interrupting gaps, each contact element being provided with screening means for shielding these interrupting gaps from each other. Means are provided for preventing the discharge that occurs upon opening the interrupter from restarting once the current has passed through zero during the first change in alternation after the interrupter is opened.

3,705,145
DISAZO DYESTUFFS

Alois Gottschlich and Klaus Leverenz, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

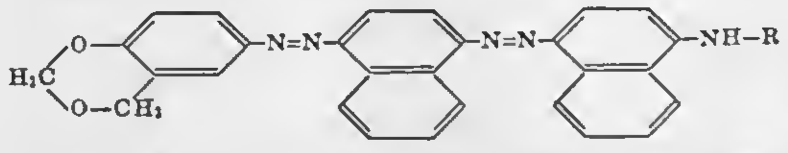
No Drawing. Filed Nov. 19, 1970, Ser. No. 91,158

Claims priority, application Germany, Nov. 28, 1969, P 19 59 774.1

Int. Cl. C09b *31/04*

U.S. Cl. 260—152 **14 Claims**

Disazo dyestuffs of formula



in which R denotes alkyl groups, which can be substituted by alkoxy radicals, alkoxycarbonyl radicals, nitrile, hydroxyl or halogen, as well as their preparation and their use for dyeing hydrophobic fibre materials.

3,705,146
FORMALDEHYDE ADDUCTS OF SACCHARIDES

Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 15, 1969, Ser. No. 885,323

Int. Cl. C07c *47/18*

U.S. Cl. 260—209 R **4 Claims**

Formaldehyde adducts of aliphatic polyhydroxy alcohols having the general formula

$$R[O(CH_2O)_xH]_y$$

wherein

- each x is independently an integer such that the average x is at least 3,
- each y is an integer not less than 3, and
- R is the residue formed by the removal of the hydroxyl groups from an aliphatic polyhydroxy alcohol.

Such adducts may be used in place of conventional sources of formaldehyde to prepare or cure phenolic resins.

3,705,147
3-DEAZAPYRIMIDINE NUCLEOSIDES AND METHOD OF PREPARATION THEREOF

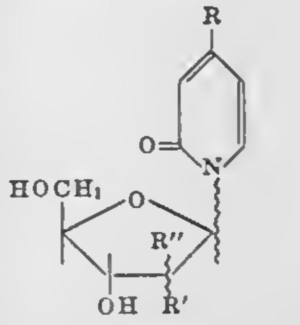
Morris J. Robins, Edmonton, Alberta, Canada, and Bruce L. Currie, Salt Lake City, Utah, assignors to University of Utah

No Drawing. Filed Aug. 22, 1969, Ser. No. 862,584

Int. Cl. C07d *51/52*

U.S. Cl. 260—211.5 **7 Claims**

Novel compounds comprising 3-deazapyrimidine nucleosides were synthesized from 2,4-substituted pyridine compounds by condensation with 2,3,5-tri-O-benzoyl-D-ribofuranosyl bromide, or the chloride thereof, and subsequent modification to yield the desired compounds. These novel nucleosides have the structure



(A)

wherein R is a group selected from the class consisting of hydroxyl and amine and R' and R'' are selected from the class consisting of hydrogen and hydroxyl, have been found to inhibit carcinoma growth in animal tissue. In particular, 3-deazacytidine and 3-deazauridine have been found especially effective in inhibiting Ehrlich asceites carcinoma and leukemia L–1210 growth in mice.

3,705,148
PHOTOGRAPHIC FILMS ON HEAT RESISTANT CELLULOSE TRIACETATE

Billy R. Dotson; Robert W. Schrader; Marilyn A. Twomey, and Robert F. Williams, Jr., all of 1669 Lake Ave., Rochester, N.Y.

Continuation-in-part of Ser. No. 439, Jan. 2, 1970, abandoned. This application April 3, 1970, Ser. No. 25,571

Int. Cl. C08b *21/04*

U.S. Cl. 260—227 **3 Claims**

For some uses in the photographic field, practically perfect dimensional stability (resistance to visible distortion and shrinkage less than 0.5 percent is required of sensitized film which is exposed to temperatures as high as 240°–250° C for a few seconds without edgewise restraint. Conventional cellulose ester films cannot meet such rigid requirements. It has now been found that cellulose triacetate film that (a) contains at most a few percent of plasticizer, (b) is fairly highly crystalline, and (c) is substantially free of visible distortion and haze (less than about 3 percent can meet these requirements that involve excellent high temperature dimensional stability).

3,705,149

METHOD FOR OBTAINING A DYE FREE, WATER SOLUBLE DYED SUBSTRATE FOR AMYLASE ASSAY

Arthur L. Babson, Morristown, and Susan R. Tenney, Chester, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.
No Drawing. Filed Apr. 7, 1971, Ser. No. 132,232
Int. Cl. C08b *19/04, 25/02*
U.S. Cl. 260—233.3 R **11 Claims**

Water soluble, dyed substrates from which all unreacted dye has been removed are obtained by coupling a reactive dye to a starch or starch fraction in an alkaline solution, neutralizing the reaction mixture, and removing all unreacted dye by a multiple precipitation process conducted at a controlled temperature, wherein the dyed substrate is precipitated, re-dissolved, and re-precipitated until the fluid from the last precipitation is free from dye color. Should the supernatant fluid contain dye color, the re-dissolving and re-precipitating of the dyed substrate must be continued. By conducting the purification procedure at a low temperature and utilizing a salt solution, it is possible to precipitate the dyed substrate with a relatively dilute alcohol solution, which does not interfere with the re-dissolving of the dyed substrate. Suitably, the multiple precipitation process is carried out, at about 4° C., by adding to the dyed substrate reaction mixture containing a salt concentration of from 0.34% to 1.04%, an aqueous alcohol solution which provides a final concentration of 11.5% to 18% alcohol in the total precipitation mixture; removing the supernatant fluid containing salt and free dye to obtain a partially purified dyed substrate precipitate; re-dissolving this precipitate in one of the following solutions: an aqueous solution, an aqueous salt solution which provides up to 4.5% salt in the total volume of dyed substrate solution, an aqueous alcohol solution which provides up to 21% alcohol in the total volume of the dyed substrate solution or an aqueous solution containing less than 0.14% salt and less than 10.5% alcohol; and re-precipitating the dyed substrate by adjusting the concentrations of salt and alcohol in the dyed substrate solution to 0.34% to 1.04% and 11.5% to 18%, respectively. The precipitation/re-dissolving purification procedure is continued until all free dye has been removed and the water soluble, dyed substrate obtained is suitable for use in an improved amylase procedure.

3,705,150

PROCESS FOR THE PREPARATION OF 21-DEOXY-21-N-(N'-METHYLPIPERAZINYL)-PREDNISOLONE AND SALTS THEREOF

Zoltan Tuba, Solyom, Maria Bor, nee Szabo, Ferenc, Zoltan Komesz, Marga, Eva Weitner, nee Vari, Pataki, and Sandor Gorog, Vajda, Hungary, assignors to Richter Gedeon Vegyeszeti Gyra R.T.
No Drawing. Filed Apr. 27, 1971, Ser. No. 137,950
Claims priority, application Hungary, May 13, 1970, 389
Int. Cl. C07c *173/10*
U.S. Cl. 260—239.5 **5 Claims**

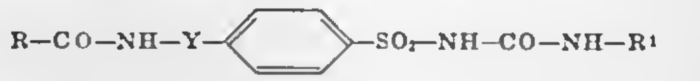
This invention relates to a process for the preparation of 21-deoxy-21-N - (N' - methylpiperazinyl-prednisolone and salts thereof formed with nontoxic mineral or organic acids.

3,705,151

BENZENE-SULFONYL SEMICARBAZIDES AND PROCESS FOR PREPARING THEM

Helmut Weber, Frankfurt am Main, Walter Aumuller, Kelkheim, Taunus, Rudi Weyer, Frankfurt am Main, Karl Muth, Kelkheim, Taunus, and Kurt Stach, Mannheim-Waldhof, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Aug. 7, 1968, Ser. No. 750,747
Claims priority, application Germany, Aug. 12, 1967, F 53,221
Int. Cl. C07d *41/04*
U.S. Cl. 260—239 BA **6 Claims**

Benzene-sulfonyl semicarbazides having hypoglycemic properties and corresponding to the general formula

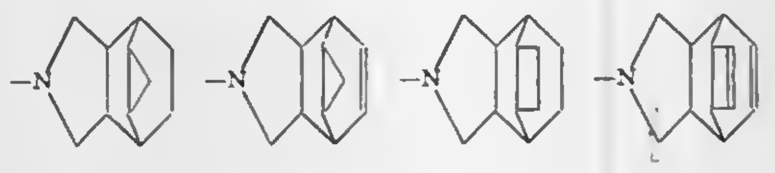


wherein

R (a) represents phenyl which may be substituted once or twice by substituents of the group lower alkyl, alkenyl, alkoxy, alkenoxy, alkoxyalkoxy, acyl, halogen, or trifluoromethyl, or by the methylene-dioxy group, (b) thienyl which may be substituted once or twice by substituents of the group halogen, lower alkyl, alkoxy, alkenyloxy, alkoxyalkoxy, phenalkoxy or aryl, or by a polymethylene chain linked at its two ends to the thienyl group, which chain contains from 3 to 4 carbon atoms,

Y represents $—CH_2—CH_2—$, $—CH_2—CH—(CH_3)—$ or $—CH(CH_3)—CH_2—$,

R^1 represents
- (a) a β,β-endoethylene-hexamethylene imine or a corresponding cyclic system having a C═C double linkage,
- (b) a hexahydro-iso-indoline, a tetrahydro-iso-indoline, a 4,7-endoalkylene-hexahydro-iso-indoline or a 4,7-endoalkylene-tetrahydro-iso-indoline, having 1 to 2 carbon atoms in the endoalkylene group, in the case of tetrahydro-compounds the double linkage being in 5,6-position,
- (c) an iso-indoline, an indoline, a hexahydro-indoline, a tetra- or decahydro-quinoline; a tetra- or decahydro-iso-quinoline,
- (d) an N-3-azaspiro-[5,5]-undecane,
- (e) an N-thiomorpholine,
- (f) the following groups



and salts thereof.

3,705,152

PRODUCTION OF NITROGEN-CONTAINING DERIVATIVES OF 1,12-DODECANEDIOIC ACID

Antony Harold Patrick Hall, New Malden, and Stuart Neil Dancer, Great Bookham, England, assignors to BP Chemicals Limited, London, England
Filed July 20, 1970, Ser. No. 56,487
Int. Cl. C07c *21/40;* **C07d** *41/06, 41/00*
U.S. Cl. 260—239.3 R **7 Claims**

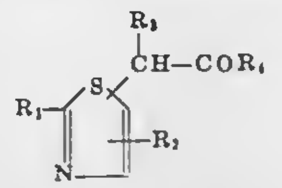
This invention relates to a process for producing derivatives of 1,12-dodecanedioic acid e.g. 11-cyanoundecanoic acid by spraying droplets of 1,1'-peroxydicyclohexylamine into a reactor containing an inert gas maintained at an elevated temperature and at a pressure of at least 300 mm. Hg.

3,705,153

NOVEL THIAZOLYLACETIC ACIDS AND SALTS THEREOF

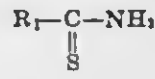
Shin-Ichi Kaneko, Nishinomiya, Kei Takahashi, Takatsuki, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed May 4, 1970, Ser. No. 34,567
Claims priority, application Japan, May 14, 1969, 44/37,205; May 15, 1969, 44/37,825; May 31, 1969, 44/42,695, 44/42,696, 44/42,699; June 2, 1969, 44/43,405; July 8, 1969, 44/54,307; July 10, 1969, 44/54,889; Nov. 14, 1969, 44/91,616
Int. Cl. C07d *91/32*
U.S. Cl. 260—240 D **3 Claims**

Novel thiazolylacetic acid derivatives of the formula,



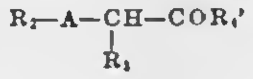
wherein R_1 is pyridyl, unsubstituted or halogen-, alkyl-, alkoxy-, phenyl- or halophenyl-substituted indolyl, unsubstituted or halogen-, nitro-, methylenedioxy-, alkyl- or alkoxy-substituted styryl; R_2 is hydrogen, alkyl or unsubstituted or substituted phenyl; R_3 is hydrogen or alkyl; and R_4 is hydroxyl, alkoxy, amino or hydrazino; and salts thereof which are useful for anti-inflammatory agents.

These thiazolylacetic acid derivatives are produced by contacting a thioamide derivative of the formula,



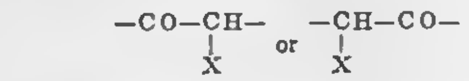
$$R_1—\underset{\underset{S}{\|}}{C}—NH_2$$

wherein R_1 has the same meaning as defined above, with a halogenated compound of the formula,



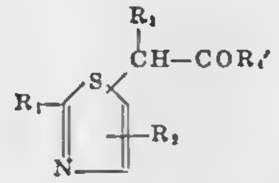
$$R_2—A—\underset{\underset{R_3}{|}}{CH}—COR_4'$$

wherein R_2 and R_3 have the same meanings as defined above; R_4' is the same alkoxy as in the definition of R_4; and A is a group of the formula,



$$—CO—\underset{\underset{X}{|}}{CH}— \quad \text{or} \quad —\underset{\underset{X}{|}}{CH}—CO—$$

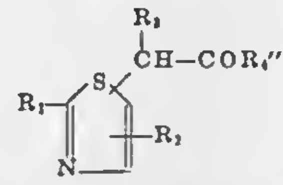
wherein X is halogen, to yield an alkyl thiazolylacetate derivative of the formula,



wherein R_1, R_2, R_3 and R_4' have the same meanings as defined above, and further, if necessary, contacting the resultant alkyl thiazolylacetate derivative with a compound of the formula,

$$R_4''—H$$

wherein R_4'' is hydroxyl, amino or hydrazino, to yield a thiazolylacetic acid derivative of the formula,



wherein R_1, R_2, R_3 and R_4'' have the same meanings as defined above.

3,705,154

SYNTHESIS OF 4H-3,1-BENZOXAZIN-2(1H)-ONE

David Aelony and William James McKillip, Minneapolis, Minn., assignors to Ashland Oil, Inc., Columbus, Ohio
No Drawing. Filed July 8, 1971, Ser. No. 160,915
Int. Cl. C07d *87/20*
U.S. Cl. 260—244 R **3 Claims**

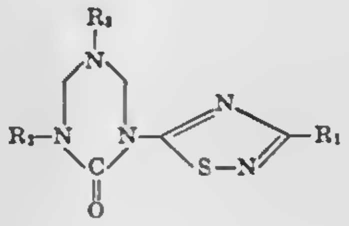
A method is disclosed for the preparation of 4H-3,1-benzoxazin-2(1H)-one wherein a trisubstituted ammonium-N-(2-hydroxymethylbenzoyl)imine is thermolytically rearranged to yield the contemplated product. The cyclic urethane obtained in accordance with the disclosed method is a monomer having usefulness in deriving copolymers with comonomers such as caprolactam, caprolactone, etc. and as a modifier for polyamide, polyurea and the like polymeric systems.

3,705,155

1-THIADIAZOLYL-HEXAHYDRO-1,3,5-TRIAZINE-2-ONES

Alfred H. Miller, Somerset, N.J., assignor to Esso Research and Engineering Company
No Drawing. Filed July 9, 1970, Ser. No. 53,655
Int. Cl. C07d *55/14*
U.S. Cl. 260—248 NS **11 Claims**

Compounds characterized by the following structural formula:



wherein R_1, R_2 and R_3 are each selected from the group consisting of hydrogen, C_1 to C_8 alkyl, C_3 to C_8 cycloalkyl, C_7 to C_{10} aralkyl, C_2 to C_4 dialkylamino, C_6 to C_{10} aryl optionally substituted by C_1 to C_4 alkyl, C_3 to C_8 alkene, C_3 to C_8 alkyne, chlorine, bromine, or nitro; R_1, R_2 and R_3 can be the same or different, have been found to be biologically active and to be useful as herbicides.

3,705.156

SUPPRESSION OF TRIS(ALKYLAMINO)-s-TRIAZINE FORMATION IN THE PRODUCTION OF CHLORO-BIS(ALKYLAMINO)-s-TRIAZINES THROUGH THE ADDITION OF FORMALDEHYDE

Harris E. Petree, Spanish Fort, Ala., assignor to Ciba-Geigy Corporation, Greenburgh, N.Y.
Filed Dec. 31, 1970, Ser. No. 103,251
Int. Cl. C07d *55/20*
U.S. Cl. 260—249.8 **5 Claims**

The known commercial method of producing herbicidal chloro-bis((alkylamino)-s-triazines involves the use of cyanuric chloride as a starting material and the step-wise replacement of two chlorine atoms therefrom with alkylamino groups. One of the byproducts obtained is a tris (alkylamino)-s-triazine, which is formed by replacement of the third chlorine atom in cyanuric chloride. A method for suppressing the formation of tris(alkylamino)-s-triazines comprises the steps of (1) adding formaldehyde to the reaction mixture immediately after the chloro-bis(alkylamino)-s-triazine reaction is complete, thus forming a water-soluble addition product of the formaldehyde and the alkylamine, and (2) removing this addition product by subsequent distillation and filtration.

3,705,157
AZOLYLPYRIDAZINE COMPOUNDS AND QUATERNARY SALTS THEREOF

Gretchen Ellen Wiegand, 36 South Middletown Road, Pearl River, N.Y.; Victor John Bauer, 17 Cypress Peak Lane, Mootvale, N.J., and Sidney Robert Safir, 684 Millbrook Road, River Edge, N.J.

Filed Oct. 19, 1970, Ser. No. 82,063

Int. Cl. C07d *51/04*

U.S. Cl. 260—250 A **10 Claims**

The preparation of azolylpyridazine compounds and their conversion to quaternary azolylpyridazinium slats is described. The salts are useful for their ability to lower blood glucose in warm-blooded animals.

3,705,158
BICYCLIC DEHYDROPIPERAZINE COMPOSITIONS

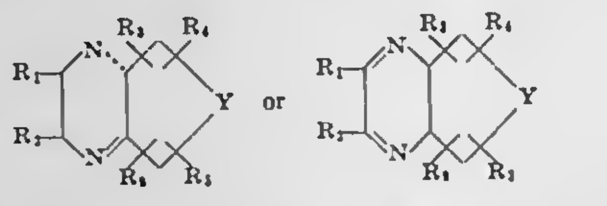
Alan O. Pittet, Atlantic Highlands, Ranya Muralidhara, Matawan, and Ernst T. Theimer, Rumson, N.J., assignors to International Flavors & Fragrances, Inc., New York, N.Y.

No Drawing. Filed Aug. 31, 1970, Ser. No. 68,531

Int. Cl. C07d *51/74*

U.S. Cl. 260—250 R **5 Claims**

Processes for altering the flavors and/or aromas of products, including foodstuffs and tobaccos, which comprise adding thereto a small but effective amount of at least one dehydropiperazine having the formula



where Y is $(—CH_2—)_n$; *n* is an integer from one to six; one dashed line represents a double bond and the other represents a single bond; and R_1, R_2, R_3, R_4, R_5, and R_6 are the same or different and represent hydrogen or alkyl; the products so produced; flavoring and fragrance compositions containing such dehydropiperazines; and novel dehydropiperazines and processes for their production.

3,705,159
HERBICIDAL 2,4-DI(SUBSTITUTED) AMINO-6-CHLORO PYRIMIDINES

Rupert Schneider, Riehen, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

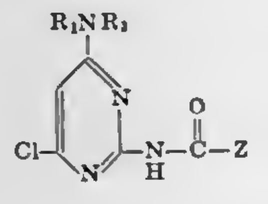
No Drawing. Filed Mar. 1, 1971, Ser. No. 119,872

Claims priority, application Switzerland, Mar. 5, 1970, 3,201/70

Int. Cl. C07d *51/42*

U.S. Cl. 260—256.4 N **10 Claims**

The invention concerns novel compounds of the formula:



wherein

R_1 is hydrogen or alkyl of 1 to 6 carbon atoms,
R_2 is alkyl of 1 to 6 carbon atoms, and
Z is alkoxy of 1 to 6 carbon atoms, phenyl, phenoxy, monoalkylamino of 1 to 6 carbon atoms, dialkylamino, each alkyl substituent thereof having 1 to 6 carbon atoms, alkyl of 1 to 6 carbon atoms, or halogenated alkyl of 1 to 6 carbon atoms,

and agriculturally acceptable acid addition salts thereof. The compounds are herbicides, and possess a selective herbicidal effect in cotton, potato, leek and maize crops.

3,705,160
THIAZACYCLIC HYDROXY COMPOUNDS AND PROCESS FOR THEIR MANUFACTURE

Karl Heusler, Basel, Switzerland, and Robert Burns Woodward, Cambridge, Mass., assignors to Ciba-Geigy Corporation

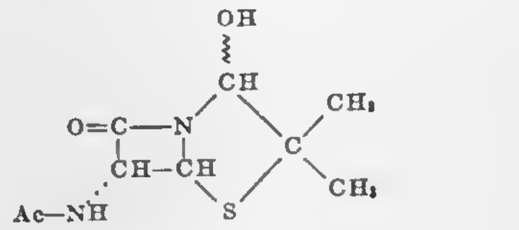
No Drawing. Filed July 15, 1969, Ser. No. 842,028

Claims priority, application Switzerland, July 23, 1968, 10,998/68; Dec. 11, 1968, 18,508/68

Int. Cl. C07d *99/16*

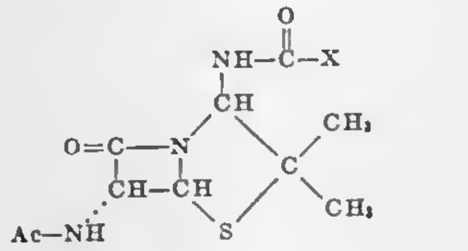
U.S. Cl. 260—239.1 **14 Claims**

The invention concerns compounds of the formula



(I)

with the configuration of 6-amino-penicillanic acid, in which Ac represents the acyl radical of an organic acid, and O-esters of such compounds. They are useful as intermediates and are manufactured by splitting in a compound of the formula



(II)

in which X is a suitably substituted hydroxy or mercapto group, such group X in the presence of water. The latter, particularly a group of the formula $—O—R_o$, in which R_o is a 2-halogeno-lower alkyl residue and a starting material of that type is converted by treatment with a chemical reducing reagent, such as zinc in the presence of aqueous acetic acid.

3,705,161
5-HYDROXY-4-(4-PHENYL-1-PIPERAZINYL-HYDROBENZ[c,d]INDOLES

Raj K. Razdan, Belmont, and Fatima N. Johnson, Arlington, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

No Drawing. Original application Apr. 23, 1968, Ser. No. 723,572, now Patent No. 3,575,989, dated Apr. 20, 1971. Divided and this application July 27, 1970, Ser. No. 64,876

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 TR **3 Claims**

5-hydroxy-4-saturated heterocyclic amino-1,2,2a,3,4,5-hexahydrobenz[c,d]indoles are prepared by amination of 1-benzoyl - 4,5 - epoxy - 1,2,2a,3,4,5-hexahydrobenz[c,d] indole with an appropriate secondary amino followed by debenzoylation and in turn are converted, if desired, to the corresponding tetrahydro compounds by dehydrogenation. The compounds are useful as central nervous system depressants.

3,705,162
4-PHTHALIMIDINE GLUTARIMIDES

Ivars Graudums, Stolberg-Buesbach, Heinrich Mueckter, Aachen, and Ernst Frankus, Schleckheim, near Aachen, Germany, assignors to Chemie Grunenthal GmbH, Stolberg, Germany

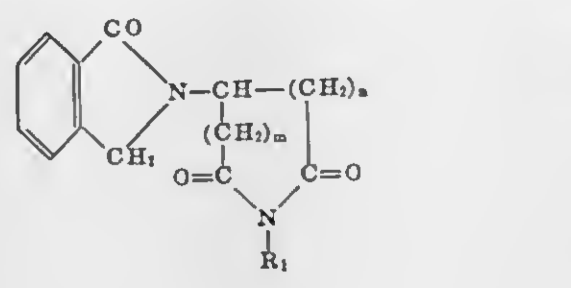
No Drawing. Filed June 27, 1968, Ser. No. 740,457

Claims priority, application Germany, July 1, 1967, P 16 70 443.1

Int. Cl. C07d *29/20*

U.S. Cl. 260—281 **8 Claims**

Phthalimidine compounds of the formula



wherein

R_1 is hydrogen, alkyl or alkenyl with 1 to 6 carbon atoms which may be substituted by hydroxyl or mercapto groups which may be esterified or etherified, by amino or carboxyl groups, or wherein R_1 is cycloalkyl, aryl, aralkyl, or a five- or six-membered heterocyclic ring which may also be substituted, and
m and *n* are the numerals 0, 1, or 2, the sum of *m* and *n* being 1 or 2,

have valuable pharmaceutical properties, such as immuno-suppressive, sedative and furthermore antitumor activities in rats. Examples of such compounds are the 3- or 4-phthalimidino piperidine-2,6-diones, the 3-phthalimidino pyrrolidine-2,5-dione and their 1-alkyl, 1-amino methyl, 1-morpholino methyl, 1-piperidino methyl, 1-pyrrolidino methyl derivatives.

They are produced, for instance, by reacting the phthalimidino glutaric acids or succinic acid with ammonia or amines under ring closure conditions. The compounds wherein R_1 is an amino methyl group are produced by reacting the respective piperidine-2,6-diones or pyrrolidine-2,5-diones with amino compounds or nitrogen heterocyclic compounds in the presence of formaldehyde or the like.

3,705,163
PREPARATION OF 2-SUBSTITUTED QUINOLINES

David Horvitz and William D. Baugh, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed May 19, 1969, Ser. No. 825,945

Int. Cl. C07d *33/18*

U.S. Cl. 260—283 SY **16 Claims**

A method is provided for the preparation of 2-substituted quinolines by the reaction of an aromatic nitro compound, such as nitrobenzene, with an olefin, such as ethylene or propylene, in the presence of a catalyst mixture of (A), a compound selected from the compounds of metals of Groups IV–A, IV–B, V–B and VII–B of the Periodic Table, and (B), a substance selected from the palladium-platinum triad metals of Group VIII of the Periodic Table and compounds thereof.

3,705,164
PROCESS FOR THE PRODUCTION OF MODIFIED ANIONIC EMULSION POLYMERS WITH ANIONIC POLYURETHANE

Hans Ludwig Honig, Leverkusen; Gerhard Balle, Cologne-Flittard; Wolfgang Keberle, and Dieter Dieterich, both of Leverkusen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 21, 1970, Ser. No. 82,794

Claims priority, application Germany, Oct. 23, 1969, P 19 53 348.3

Int. Cl. C08f *45/24*

U.S. Cl. 260—29.6 NR **10 Claims**

A process is provided for the production of stable aqueous polymer dispersions by subjecting vinyl monomers to radical emulsion polymerization in the presence of a stable aqueous dispersion of a high molecular weight polyurethane containing anionic groups.

3,705,165
N-CARBONYL DERIVATIVES OF AZABICYCLOOCTANES

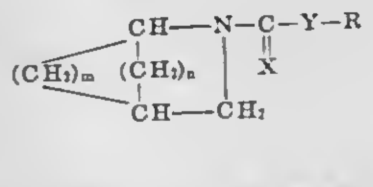
Elmar Sturm, 23, Durrmatweg, Arlesheim, Basel, and Christian Vogel, 2, Neubadrain, Binningen Basel, both of Switzerland

Filed Aug. 5, 1970, Ser. No. 61,442

Int. Cl. C07d *29/34*

U.S. Cl. 260—293.54 **7 Claims**

Compounds of the formula



wherein

R represents lower alkyl, lower halogenalkyl, lower alkenyl, lower halogenalkenyl, cycloalkyl or cycloalkenyl,
m represents the integer 2 or 3,
n represents the integer 1 or 2 whereby the sum of *or sulphur*, + *n* = 4, and
of the symbols X and Y one represents sulphur and the other represents oxygen or sulphur,

are disclosed as herbicidally active substances. Compositions as well as a method for controlling weeds and wild grasses with the aid of such compounds are also described.

3,705,166
ACRYLIC ACID DERIVATIVES OF 2,2,6,6-TETRAMETHYLPIPERIDINES

Keisuke Murayama and Syoji Morimura, Tokyo, Japan, assignors to Sankyo Company Limited

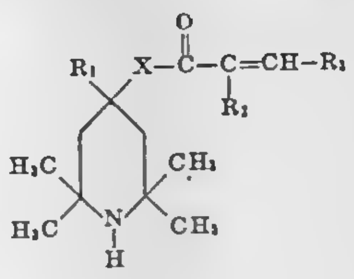
No Drawing. Filed Aug. 6, 1970, Ser. No. 61,860

Claims priority, application Japan, Aug. 15, 1969, 44/64,541

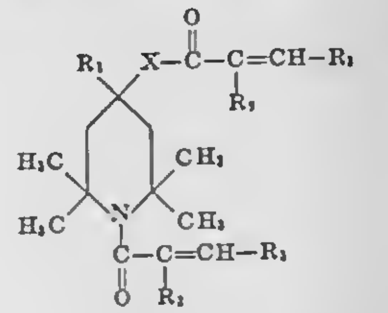
Int. Cl. C07d *29/30*

U.S. Cl. 260—293.86 **8 Claims**

New acrylic acid derivatives having the Formulae I and II

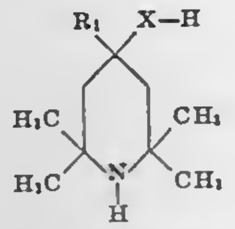


(I)



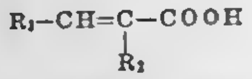
(II)

wherein R_1 represents hydrogen atom or cyano group; R_2 and R_3 may be the same or different and each represents hydrogen atom or methyl group; and X represents imino group or oxygen atom. They are useful as a stabilizer for the deterioration of various synthetic polymers and also copolymerized to form new highly light-stable polymeric compounds. The acrylic acid derivatives (I) and (II) are produced by reacting a piperidine derivative having the formula



(III)

wherein R_1 and X are as defined above with a reactive derivative of an unsaturated aliphatic carboxylic acid having the formula

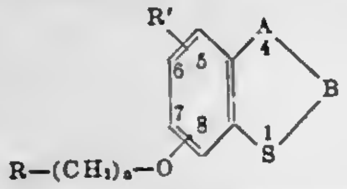


$$R_3{-}CH{=}\underset{R_2}{\underset{|}{C}}{-}COOH \qquad (IV)$$

wherein R_2 nd R_3 are as defined above.

3,705,167
BENZOTHIOPYRAN COMPOUNDS
Charles Malen, Fresnes, Bernard Danree, St.-Germain-en-Laye, and Michel Lauble, Vaucresson, France, assignors to Science Union et Cie Societe Francaise de Recherche Medicale, Suresnes, France
No Drawing. Filed Apr. 13, 1970, Ser. No. 28,016
Claims priority, application Great Britain, Apr. 25, 1969, 21,254/69
Int. Cl. C07d *29/36*
U.S. Cl. 260—293.57 7 Claims

Benzothiopyran compounds of the formula:

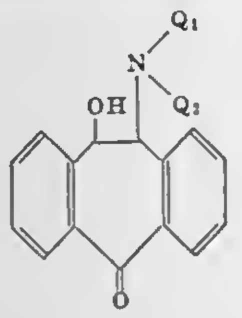


wherein A is methylene, hydroxymethylene or carbonyl; B is ethylene or vinylene which are optionally substituted by lower alkyl; *n* is 2, 3 or 4; R is di-lower alkyl amino or pyrrolidino, piperidino, morpholino, hexamethyleneimino, 3-azabicyclo (3,3,0)-3-octyl, or all these heterocyclic radicals substituted by one or more lower alkyls; and R' is hydrogen or halogen.

These compounds possess cardiovascular and circulatory properties.

3,705,168
HETEROCYCLICALLY SUBSTITUTED DIBENZO-(a,d)CYCLOHEPTA[1,4]DIEN-5-ONES
Albrecht Edenhofer, Riehen, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Application July 1, 1969, Ser. No. 838,317, now Patent No. 3,586,718, which is a division of application Ser. No. 517,893, Jan. 3, 1966, now Patent No. 3,478,048. Divided and this application Feb. 11, 1971, Ser. No. 114,718
Claims priority, application Switzerland, Jan. 8, 1965, 232/65; Jan. 14, 1965, 525/65; Dec. 17, 1965, 525/65
Int. Cl. C07d *29/10*
U.S. Cl. 260—293.62 2 Claims

Dibenzo[a,d]cyclohepta[1,4]dienes of the formula



wherein Q_1 and Q_2, taken together with the nitrogen atom, is a heterocyclic group selected from the group consisting of unsubstituted and lower alkyl of up to 7 carbon atoms substituted piperidino or pyrrolidino, are prepared, inter alia, from the corresponding dibenzocycloheptatrienones. The products are useful as antidepressants.

3,705,169
HYDROXYPHENYL-2-PIPERIDINYLCARBINOLS
Carl Kaiser, Haddon Heights, N.J., and Stephen T. Ross, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 864,865, Oct. 8, 1969. This application Nov. 5, 1970, Ser. No. 87,340
Int. Cl. C07d *29/16*
U.S. Cl. 260—293.84 8 Claims

Hydroxyphenyl-2-piperidinylcarbinols prepared by the condensation of an appropriately substituted ether derivative of a hydroxybenzaldehyde with 2-pyridyl lithium followed by removal of the ether group(s) and reduction have β-adrenergic stimulant activity. Erythro and threo diastereoisomers may be conveniently separated.

3,705,170
POLYHALO-(TRIFLUOROMETHYL)PYRIDYLOXY AMIDES AND HYDRAZIDES
Florence E. Torba, Clayton, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application Mar. 17, 1969, Ser. No. 807,980, now Patent No. 3,609,158. Divided and this application Oct. 2, 1970, Ser. No. 77,736
Int. Cl. C07d *31/44*
U.S. Cl. 260—295 AM 8 Claims

Disclosed as novel compounds are (trifluoromethyl) pyridine derivatives which are substituted by a hydroxy, mercapto, alkoxy, loweralkenoxy, aryloxy, alkylthio, arylthio, alkylsulfonyl, arylsulfonyl, amino, hydrazino or oxyloweralkenoic acid or acid derivative group and optionally by chlorine and/or fluorine. Any remaining positions on the pyridine ring are taken up by hydrogen. The compounds have utility as herbicides and as active constituents of various miticidal, anthelmintic, fungicidal and bacteriocidal compositions.

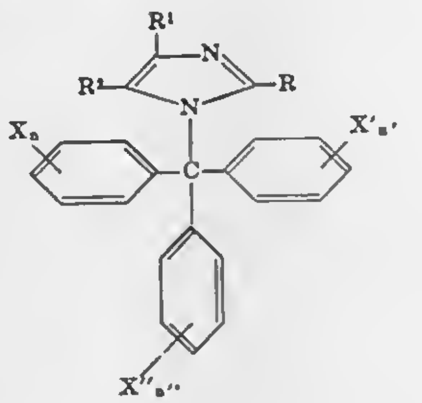
3,705,171
PREPARATION OF 2-SUBSTITUTED-5-AMINO OR SUBSTITUTED AMINO-1,3,4-THIADIAZOLES
Christos George Papaioannou, Somerset, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed May 18, 1970, Ser. No. 38,511
Int. Cl. C07d *91/62*
U.S. Cl. 260—306.8 D 7 Claims

The reaction of a substituted nitrile with thiosemicarbazide or a substituted thiosemicarbazide to produce 2-substituted - 5 - amino or substituted amino - 1,3,4 - thiadiazoles is described.

The compounds prepared by the present invention are useful as intermediates in preparing antibacterial agents, such as sulfamethizole.

3,705,172
N-TRITYL-IMIDAZOLES
Karl-Heinz Buchel, Leverkusen, Erik K. Regel, Wuppertal-Kronenberg, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Sept. 9, 1968, Ser. No. 758,594. Divided and this application Feb. 24, 1970, Ser. No. 13,797
Claims priority, application Germany, Sept. 15, 1967, F 53,504
Int. Cl. C07d *49/36*
U.S. Cl. 260—309 20 Claims

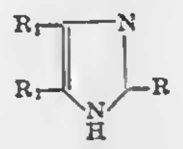
N-trityl-imidazoles and salts thereof of the formula:



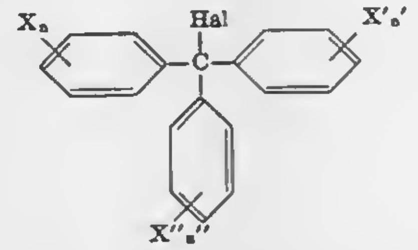
wherein

R, R^1 and R^2 are hydrogen, lower alkyl or phenyl or R^1 and R^2 together form an anellated benzene ring,
X, X' and X'' are alkyl of 1 to 12 carbon atoms or an electro-negative moiety, and
n, *n'* and *n''* are an integer from 0 to 2,

or pharmaceutically acceptable acid salts thereof may be produced by reacting a silver salt or alkali metal salt of an imidazole of the formula:



with a trityl halide of the formula:



wherein the substituents are as above defined and Hal is halogen. These compounds are useful as antimycotics.

3,705,173
PROCESS FOR PREPARING ALKYL 2-BENZIMIDAZOLECARBAMATES
Charles D. Adams, Newark, and Joel B. Wommack, Jr., Claymont, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Sept. 16, 1970, Ser. No. 72,804
Int. Cl. C07d *49/38*
U.S. Cl. 260—309.2 6 Claims

The alkyl esters of 2-benzimidazolecarbamic acid are prepared by reacting the alkyl esters of 4-(2-aminophenyl)-allophanic acid or 3-thioallophanic acid with an acid followed by neutralization to isolate the product.

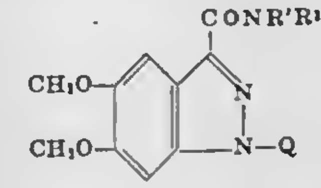
The product alkyl esters of 2-benzimidazolecarbamic acid are useful as fungicides and as intermediates for other fungicides.

3,705,174
POLYHALOALKYL BENZIMIDAZOLES
Michael H. Fisher, Somerville, Dale R. Hoff, Basking Ridge, and Richard J. Bochis, East Brunswick, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Feb. 27, 1970, Ser. No. 15,225
Int. Cl. C07d *49/38*
U.S. Cl. 260—309.2 5 Claims

Trihalo- and tetrahalobenzimidazoles characterized by having a trifluoromethyl or pentafluoroethyl group at the 2-position and a 1-ether or 1-ester substituent at the 1-position are active as anthelmintics and as pesticides.

3,705,175
INDAZOLE-3-CARBOXYLIC AMIDES
Laszlo Magdanyi, Andras Gelleri, Laszlo Pallos, Lujza Erdelyi, nee Petocz, and Peter Gorog, Budapest, Hungary, assignors to Egyesult Gyogyszer es Tapszergyar, Budapest, Hungary
No Drawing. Filed Mar. 26, 1970, Ser. No. 23,069
Claims priority, application Hungary, Apr. 1, 1969, EE–1,639
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 C 28 Claims

Indazole-3-carboxylic amides of the general formula



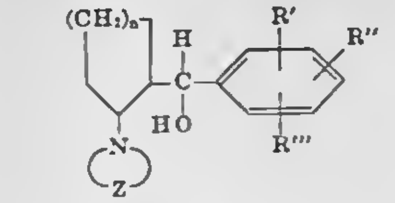
wherein
- R^1 and R^2 represent independently hydrogen, straight chained or branched alkyl of up to 16 carbon atoms, cycloalkyl, naphthyl, phenyl or aralkyl group, where the phenyl and aralkyl groups may be substituted with one or two lower alkyl, alkoxy, trifluoromethyl or halo substituent, further
- R^1 and R^2 may form together with the adjacent nitrogen atom and optionally with a further nitrogen atom a 5 or 6 membered heterocyclic radical,
- Q represents hydrogen, alkali metal or an acyl group of 1 to 4 carbon atoms

have been prepared.

The new compounds possess valuable pharmacological activities, first of all they are potent anti-inflammatory and analgesic agents.

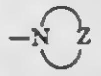
3,705,176
1,3-AMINOALCOHOLS
Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Original applications June 13, 1966, Ser. No. 556,892, and Dec. 23, 1968, Ser. No. 786,395. Divided and this application Oct. 30, 1970, Ser. No. 85,723
Int. Cl. C07d *27/02*
U.S. Cl. 260—326.5 M 6 Claims

Novel 1,3-aminoalcohol of the formula



IV

wherein *n* has the value of 1 to 4, inclusive, wherein



is pyrrolidino, wherein R', R'', and R''' are hydrogen, halogen, alkyl of 1 to 6 carbon atoms, inclusive, and alkoxy of 1 to 6 carbon atoms, inclusive, or CF_3, are prepared. The new compounds of Formula IV per se as well as in the form of acid addition salts have diuretic activity and some of them have anti-hyperglycemic activity. Compounds of Formula IV are thus useful to provide diuresis in mammals and are also useful as oral antidiabetic agents.

3,705,177
SUBSTITUTED PROPIOLOPHENONE COMPOUNDS

Madhukar Subraya Chodnekar, Basel; Hans Thommen, Therwil, and Ulrich Schwieter, Reinach, all of Switzerland, assignors to Hoffman-La Roche Inc., Nutley, N.J.

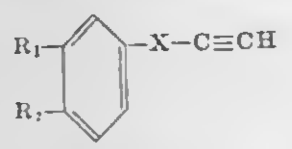
Filed Nov. 5, 1970, Ser. No. 87,316

Claims priority, application Switzerland, Nov. 14, 1969, 16957/69

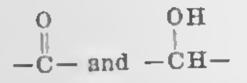
Int. Cl. C07d *13/10, 15/18*

U.S. Cl. 260—340.3 **6 Claims**

Compounds represented by the formula



wherein one of R_1 and R_2 represents a member selected from the group consisting of hydrogen, halogen, hydroxy, lower alkyl, lower alkoxy or propynyloxy and the other represents a member selected from the group consisting of halogen, hydroxy, lower alkyl, lower alkoxy or propynyloxy or R_1 and R_2 together represent a lower alkylenedioxy group, X is a member selected from the group consisting of



$$-\overset{O}{\overset{\|}{C}}- \text{ and } -\overset{OH}{\overset{|}{C}H}-$$

certain novel intermediate compounds therefore, processes for their preparation and compositions suitable for combatting plant fungi and/or pests containing said compounds are disclosed.

3,705,178
1,5-BIS-(2-NITRO-ANILINO)-ANTHRAQUINONE

Karl-Heinz Peters, Koeln-Buchheim, and Rutger Neeff, Leverkusen, both of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 663,987, Aug. 29, 1967, abandoned. This application Dec. 30, 1969, Ser. No. 1,912

Int. Cl. C09b *1/32*; **C07c** *87/64*

U.S. Cl. 260—378 **1 Claim**

A pigment, 1,5-bis-(2-nitroanilino)- anthraquinone has been prepared.

3,705,179
ANTIANDROGENIC STEROIDS

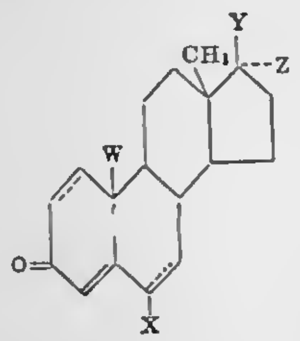
David J. Marshall, Hampstead, and Morris L. Givner, Pierrefonds, Quebec, Canada, assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Mar. 15, 1971, Ser. No. 124,556

Int. Cl. C07c *173/10, 169/20*

U.S. Cl. 260—349 **25 Claims**

Compounds of the formula



in which the dotted lines at positions 1,2 and 6,7 of the steroid nucleus designate optional double bonds, W is hydrogen or methyl, X is hydrogen, methyl, fluorine, chlorine or bromine, Y is carbonitrile, carboxaldehyde or isocarbonitrile and Z is hydrogen or methyl with the provisos that when an optional double bond is present at position 1,2 W is methyl and that when Y is carbonitrile or carboxaldehyde Z is methyl. The comopunds possess antiandrogenic activity rendering them useful for the treatment of androgen-dependent diseases.

3,705,180
17-OXYGENATE-2-ALPHA-METHYL-2-METHYLEN-5 ALPHA-ANDROSTAN-3-ONES AND INTERMEDIATES

Paul D. Klimstra, 1670 Chapel Court, Northbrook, Ill.

Filed Sept. 2, 1971, Ser. No. 177,457

Int. Cl. C07c *169/22*

U.S. Cl. 260—397.3 **5 Claims**

The above-named compounds are manufactured from 17β-hydroxy-17α(optionally alkyl)-1α-methyl-5α-androstan-3-ones. The compounds of this invention exhibit valuable pharmacological properties, e.g., anti-estrogenic, anti-fungal and anti-hypercholesterolemic.

3,705,181
METHOD FOR THE PREPARATION OF 6-METHYL-3-OXO-DELTA 4,6 STEROIDS

Jekishan R. Parikh, 2614 Russet Dr., Kalamazoo, Mich., and Max E. Breuer, 6448 Cypress, Kalamazoo, Mich.

Filed Oct. 19, 1971, Ser. No. 190,654

Int. Cl. C07c *169/34*

U.S. Cl. 260—397.4 **2 Claims**

The isomerization of 6-methylene-pregn-4-ene-3-keto compounds to the corresponding 6-methyl-3-oxy-$\Delta^{4,6}$-pregnadiene compounds is carried out by their treatment with a strong acid, preferably an aryl or alkyl sulfonic acid, sulfuric or perchloric acid; preferably, also in the presence of an acylating agent such as a carboxylic acid anhydride or chloride.

3,705,182
16β-DIFLUOROMETHYL AND 16-DIFLUOROMETHYLENE STEROIDS AND PROCESSES FOR THEIR PREPARATION

John A. Edwards, Los Altos, and John H. Fried, Palo Alto, Calif., and John S. Mills, London, England, assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Feb. 24, 1970, Ser. No. 13,813

Int. Cl. C07c *169/32, 169/34*

U.S. Cl. 260—397.4 **13 Claims**

Steroids of the 16β-difluoromethyl and 16-difluoromethylene pregnane series are described. These compounds are useful as progestational and anti-inflammatory agents. Also described are processes useful for preparing these compounds from corresponding Δ^{16} pregnane starting compounds utilizing 16α-benzenesulfonyldifluoromethyl-20-keto,16-difluoromethyl-Δ^{16}, 16α - benzenesulfonyldifluoromethyl-20-hydroxy and 16-difluoromethylene-20-hydroxy pregnane intermediates.

3,705,183
NOVEL CROSSLINKED CHROMIUM COMPLEXES

Fred Lee Bunger and Earl Phillip Moore, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 12, 1970, Ser. No. 80,215

Int. Cl. C07f *11/00*

U.S. Cl. 260—438.5 C **7 Claims**

Adhesion between thermosetting resins and inorganic or organic fillers is enhanced by treatment of the filler material, prior to forming a composite with the resin, with a solution of a chromium complex formed by reaction of a Cr(III) salt with a C_2–C_{11} monocarboxylic acid and with an organic molecule having two functional groups independently selected from hydroxyl, amino groups, and carboxyl. Composites made in this manner are resistant to degradation by hot water.

3,705,184
1:1 CHROME-COMPLEXED AZOMETHINE DYE DEVELOPERS

Arthur B. Goulston, Brighton, and Paul S. Huyffer, Lynnfield, Mass., assignors to Polaroid Corporation

No Drawing. Original application June 4, 1969, Ser. No. 830,480. Divided and this application Jan. 17, 1972, Ser. No. 218,229

Int. Cl. C07f *11/00*

U.S. Cl. 260—438.5 R **8 Claims**

Novel azomethine dyes and 1:1 chrome-complexed azomethine dye developers (dyes containing a silver halide developing substituent) obtained therefrom, which complexes are of particular use in color photography.

3,705,185
N-AROYL SULFONAMIDES

George G. I. Moore, White Bear Lake, and Alvin C. Conway, North St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed April 14, 1969, Ser. No. 816,038

Int. Cl. C07c *143/74*

U.S. Cl. 260—465 D **15 Claims**

N-Aroylperfluoroalkanesulfonamides wherein the perfluoroalkane group is methyl or ethyl and the aryl group is phenyl, naphthyl, pyridyl, thienyl, furyl, or pyrazinyl, optionally substituted, and their pharmaceutically acceptable salts, are active anticonvulsant agents. Processes for the preparation of these compounds are described.

3,705,186
PROCESS FOR THE PREPARATION OF DIPHENYL TEREPHTHALATE

Sasanka Sekhar Naskar, Witten-Ruhr; Hans-Leo Hulsmann, Wengern, and Gustav Renckhoff, Witten-Ruhr, all of Germany, assignors to Chemische Werke Witten GmbH, Witten/Ruhr, Germany

Filed Jan. 16, 1969, Ser. No. 791,767

Claims priority, application Germany, Jan. 31, 1968, P 16 68 894.9

Int. Cl. C07c *69/82*

U.S. Cl. 260—475 PN **18 Claims**

A process for the preparation of pure, colorless diphenyl terephthalate which comprises heating a dialkyl terephthalate with phenyl acetate in the presence of activated carbon to temperatures above 150°C. in an inert atmosphere, then adding a transesterification catalyst, such as a titanic acid ester, thereto, removing the alkyl acetate formed in the reaction and introducing the hot carbon-containing crude ester into a relatively high boiling aromatic hydrocarbon, such as xylene, also in an inert atmosphere, and crystallizing the product after removing the activated carbon through filtration. Optionally, fresh adsorbent may be added along with the aromatic hydrocarbon prior to crystallization.

3,705,187
PHENYL DERIVATIVES

Madhukar Subraya Chodnekar, Basel, Albert Pfiffner and Norbert Rigassi, Arlesheim, and Ulrich Schwieter, Reinach, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Feb. 2, 1970, Ser. No. 8,055

Claims priority, application Switzerland, Feb. 14, 1969, 2,256/69

Int. Cl. C07c *69/76*

U.S. Cl. 260—476 R **6 Claims**

Benzene compounds substituted with an aliphatic side chain containing at least six carbon atoms wherein the side chain can contain epoxy groups, olefinic unsaturation or epithio groups which are useful in killing and preventing proliferation of insects by upsetting their hormone balance, said compounds being prepared by condensing a phenyl halide with an aliphatic aldehyde or ketone via a Grignard reaction.

3,705,188
NAPHTHYL-N-CYANOFORMYL CARBAMATES

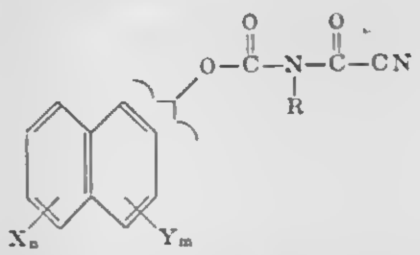
Malcolm Scott Singer, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Sept. 8, 1970, Ser. No. 70,498

Int. Cl. C07c *125/06*

U.S. Cl. 260—479 C **3 Claims**

Compounds of the formula:



wherein R is alkyl of 1 to 4 carbon atoms, X and Y are halogen of atomic number 9 to 35, nitro, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms, n is 0 to 3, and m is 0 to 3. The compounds are insecticides.

3,705,189
ESTER ISOCYANATES

William D. Emmons, Huntingdon Valley, and Jerome F. Levy, Bethayres, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Original application Jan. 6, 1966, Ser. No. 519,001, now Patent No. 3,468,934, dated Sept. 23, 1969. Divided and this application July 11, 1969, Ser. No. 841,128

Int. Cl. C07c *69/36*

U.S. Cl. 260—485 J **2 Claims**

This invention concerns novel ester isocyanates derived from acyloxyalkylamine hydrochlorides. The novel compounds may contain a hetero atom in either the acid or alkanolamine moiety and may contain oxalic acid as the acyl moiety.

3,705,190
PREVENTION OF POLYMER FOULING OF MONOMER PROCESSING APPARATUS

Theodore E. Bockstahler, and Curtis R. Hunt, both of Houston, Tex., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed March 17, 1969, Ser. No. 807,958

Int. Cl. C07c *69/54*

U.S. Cl. 260—486 R **8 Claims**

Solvents for polymer formed during the preparation of ethylenically unsaturated monomers are introduced into processing zones for the monomer without interfering with said processing. Neutral oil, a fraction of coal tar low in phenolic content and having a large proportion of methyl naphthalenes with smaller amounts of mononuclear and polynuclear aromatic hydrocarbons and phenolic compounds, is particularly preferred as the solvent.

3,705,191

SUBSTITUTED ETHANE DIPHOSPHONIC ACIDS AND SALTS AND ESTERS THEREOF

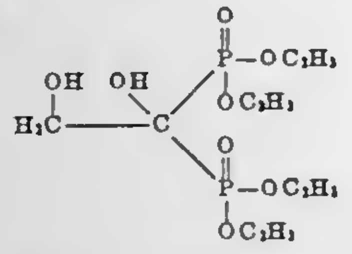
Al F. Kerst, Littleton, Colo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 13, 1970, Ser. No. 27,988

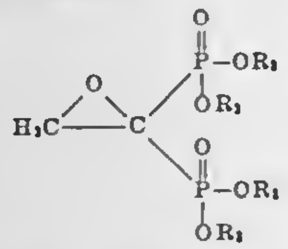
Int. Cl. C07d *9/38*

U.S. Cl. 260—502.4 P **1 Claim**

Substituted ethane diphosphonic acids and salts and esters thereof as exemplified by the ester compound having the formula



tetraethyl, 1,2 dihydroxy ethane-1,1-diphosphonate and processes for preparing the same which generically comprise the "de-oxiranization" of an epoxy ethane diphosphonate having the formula



wherein R_3 is hydrogen, a metal ion, or an organic radical. These compounds are useful as sequestering agents and in retarding cellulose materials from flaming.

3,705,192

METHOD OF PREPARING LIGHT-COLORED OLEFIN SULFONATE

Masuzo Nagayama and Hiroshi Okada, Tokyo, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan

Filed Aug. 11, 1970, Ser. No. 62,927

Claims priority, application Japan, Ang. 16, 1969, 44/64,923

Int. Cl. C07c *143/10, 143/16*

U.S. Cl. 260—513 R **4 Claims**

A method of preparing a light-colored olefin sulfonate comprising the steps of: an olefin feed consisting essentially of straight-chain olefin, which has 10 to 22 carbon atoms, and containing such impurities as will cause the coloring of the sulfonation products thereof, is brought into contact with either a hydrogenated five-membered heterocyclic compound, wherein the hetero-atom is a nitrogen atom, said ring also having a carbonyl radical, or butyrolactone, or, if necessary, a mixture of water therewith, to extract and remove said impurities contained in the feed; the resultant refined olefin is sulfonated with sulfur trioxide gas, neutralized, and subsequently hydrolyzed.

3,705,193

PURIFICATION OF BENZOIC ACID

Michael W. Clark, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 8, 1969, Ser. No. 883,270

Int. Cl. C07c *51/42*

U.S. Cl. 260—525 **6 Claims**

Benzoic acid made by the oxidation of toluene has improved purity and color stability if, prior to the final purification step, it is contacted with oxygen (air) at 125–290° C.

3,705,194

AMINOADAMANTANE DERIVATIVES AND METHOD FOR THEIR PRODUCTION

Arthur Scherm, Bad Homburg, and Dezso Peteri, Frankfurt (Main), both of Germany, assignors to Merz & Co., Chemische Fabrik, Frankfurt-am-Main, Germany

Filed Aug. 11, 1970, Ser. No. 63,018

Claims priority, application Germany, Aug. 13, 1969, P 19 41 218.1

Int. Cl. C07c *103/00*

U.S. Cl. 260—561 A **4 Claims**

N-substituted 1-aminoadamantanes are prepared by reacting an 1-aminoadamantane with a haloacetyl halide and further reacting the resulting reaction product with an alkaline salt of amino-ethanol. The prepared compounds possess excellent virostatic properties.

3,705,195

DIALKYL AND ALKYL-ALKOXYALKYL DERIVATIVES OF N-[OCTAHYDRO - 1,2,4 - METHENOPENTALENYL-(5)]-OXIME CARBAMATES

Claus Dieter Weis, Arlesheim, Basel-Land, and Karl Gatzi, Basel, Switzerland, assignors to Ciba-Geigy Corporation

No Drawing. Original application Dec. 18, 1967, Ser. No. 691,135, now Patent No. 3,555,092. Divided and this application Sept. 4, 1970, Ser. No. 69,888

Int. Cl. C07c *131/02*

U.S. Cl. 260—566 AC **1 Claim**

Certain oxime N-[octahydro-1,2,4-methenopentalenyl-(5)]-carbamates are disclosed as fungicides; compositions containing these carbamates as fungicidal agents and methods of controlling fungi therewith are also described.

3,705,196

SYNTHESIS OF ALIPHATIC AND ALICYCLIC ETHERS

John O. Turner, West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

Filed Oct. 31, 1969, Ser. No. 873,094

Int. Cl. C07c *41/10*

U.S. Cl. 260—611 R **7 Claims**

Aliphatic and alicyclic hydroperoxides and peroxides in the presence of a suitable alcohol and acid catalyst are converted to the corresponding ethers.

3,705,197

BIS(2-FLUORO-2,2-DINITROETHYL) FORMAL PREPARATION

Lloyd A. Kaplan, Silver Spring, and Robert E. Oesterling, Adelphi, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 31, 1964, Ser. No. 357,016

Int. Cl. C07c *41/00, 43/12*

U.S. Cl. 260—615 A **10 Claims**

1. The method of preparing bis(2-fluoro-2,2-dinitroethyl) formal of high purity which comprises dissolving 2,2,8,8-tetranitro-4,6-dioxa-1,9-nonanediol in an alkaline reaction medium and fluorinating the resultant solution.

3,705,198

PROCESS FOR INHIBITING COLOR FORMATION IN O-NITROPHENOL

Marrine A. Terpstra, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed May 29, 1969, Ser. No. 829,085

Int. Cl. C07c *79/26*

U.S. Cl. 260—622 R **5 Claims**

The formation of color bodies in o-nitrophenol is inhibited by treatment of the reaction mass with an alkali metal bisulfite, alkali metal metabisulfite, urea, or sulfur dioxide.

3,705,199

ALKALI TREATED HYDROGENATION CATALYST

Albert J. de Berardinis, Wilmington, Del., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.

No Drawing. Filed Apr. 30, 1970, Ser. No. 33,496

Int. Cl. B01j *11/22;* **C07c** *31/18*

U.S. Cl. 260—635 C **11 Claims**

An improved supported nickel hydrogenation catalyst is described as well as the method for producing this improved catalyst and the use of the catalyst in the hydrogenation of sucrose to yield a mannitol enriched hydrogenation product.

3,705,200

PROCESS FOR TELOMERIZING CONJUGATED DIOLEFINS WITH AROMATICS AND OLEFINS

William Bunting, Baton Rouge, La., and Arthur W. Langer, Jr., Watchung, N.J., assignors to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 15,286, Feb. 27, 1970. This application Oct. 30, 1970, Ser. No. 85,726

Int. Cl. C07c *15/00*

U.S. Cl. 260—668 **22 Claims**

An improved process for telomerizing conjugated diolefins with aromatics and olefins, which comprises contacting a diolefin with an aromatic or an olefin, at reaction conditions in the presence of an organosodium compound chelated with an alkyl or cycloalkyl tertiary polyamine. In a preferred embodiment butadiene is telomerized with toluene, in the presence of a benzylsodium catalyst complexed by heptamethyltetraethylenepentamine to yield pentenylbenzene, which is a useful intermediate for the production of detergents, surfactants, plasticizers and fire retardant additives.

3,705,201

ALKYLATION OF AROMATICS WITH ALKYL HALIDES

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed June 14, 1971, Ser. No. 153,111

Int. Cl. C07c *3/52*

U.S. Cl. 260—671 C **9 Claims**

An alkylatable aromatic hydrocarbon is alkylated with an alkyl halide at a temperature in the range from about 45° F. to about 600° F. in the presence of a catalyst comprising a molybdenum-carbon monoxide compound in which the molybdenum is present in a zero valence state.

3,705,202

ALKYLATION OF AROMATICS WITH OLEFINS

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed May 12, 1971, Ser. No. 142,819

Int. Cl. C07c *3/52*

U.S. Cl. 260—671 C **18 Claims**

An alkylatable aromatic hydrocarbon is alkylated with an olefinic hydrocarbon at a temperature in the range from about 45° F. to about 600° F. in the presence of a catalyst comprising a molybdenum-carbon monoxide compound in which the molybdenum is present in the compound in a zero valence state.

3,705,203

METHOD FOR PURIFYING BIPHENYL

William E. Smith, 3712 Chestnut Hill Drive, Midland, Mich.

Filed Nov. 23, 1970, Ser. No. 92,317

Int. Cl. C07c *7/00*

U.S. Cl. 260—674 R **2 Claims**

Biphenyl contaminated with methylbiphenyls may be purified by heating the crude biphenyl to a melt, oxidizing the methylbiphenyls to their corresponding acids by passing air or oxygen through the melt, and removing the acids formed through distillation.

3,705,204

PROCESS FOR RECOVERING CONJUGATED DIOLEFINS SELECTIVELY FROM A C_5 FRACTION

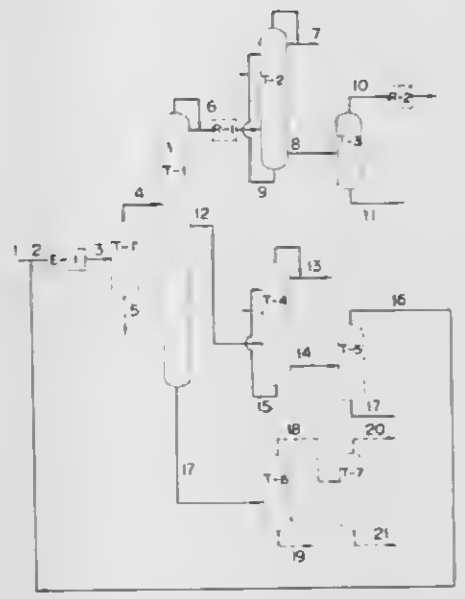
Tatsuo Horie, Tokyo, and Syunichi Yamamoto and Shinji Gotoh, Yokohama, Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Continuation-in-part of application Ser. No. 729,765, May 16, 1968. This application Aug. 7, 1970, Ser. No. 62,153

Claims priority, application Japan, May 18, 1967, 42/31,188

Int. Cl. C07c *7/08*

U.S. Cl. 260—681.5 **2 Claims**



A process for recovering useful conjugated diolefins selectively and efficiently from a C_5 fraction obtained by cracking of hydrocarbons by a combination of steps of a heat treatment of the starting C_5 fraction under relatively mild conditions, division of thus heat-treated fraction into substantially three fractions in a fractionator, i.e. first, second and third fractions, and recycling of said second fraction to the starting heat treatment step.

3,705,205

HYDROXYLATED COPOLYMERS COMPOSED OF MONOMETHYLSILOXANE UNITS AND DIPHENYLSILOXANE UNITS

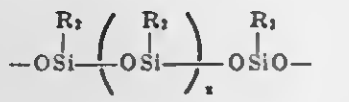
Robert C. Antonen, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Original application Feb. 25, 1969, Ser. No. 802,217, now patent No. 3,632,794, dated Jan. 4, 1972. Divided and this application Oct. 27, 1970, Ser. No. 84,515

Int. Cl. C08g *47/04, 31/32*

U.S. Cl. 260—825 **9 Claims**

Hydroxylated copolymers of $(C_6H_5)_2SiO$ units and $CH_3SiO_{1.5}$ units are disclosed. The diphenylsiloxane units are present in an amount of 20 to 50 mol percent and are bonded to monomethylsiloxane units which contain the hydroxyl groups. Also disclosed are the above hydroxylated copolymers modified by linking segments of



$$-O\overset{R_2}{\overset{|}{Si}}-\left(O\overset{R_2}{\overset{|}{Si}}\right)_x-O\overset{R_1}{\overset{|}{Si}}O-$$

where x is at least 2 and R is methyl, phenyl or 3,3,3-trifluoropropyl and the segments are present in amounts of 1 to 50 weight percent. The hydroxylated copolymers and the modified hydroxylated copolymers are resins useful in protective coatings, laminates, release coatings and molding resins.

3,705,206

VINYL ETHERIFIED EPOXY RESINS COPOLYMERIZED WITH CARBOXY AND VINYL CONTAINING MONOMERS

Bernhard Broecker, Hamburg, Germany, assignor to Reichhold-Albert-Chemie Aktiengesellschaft, Hamburg, Germany

No Drawing. Filed Dec. 23, 1970, Ser. No. 101,092

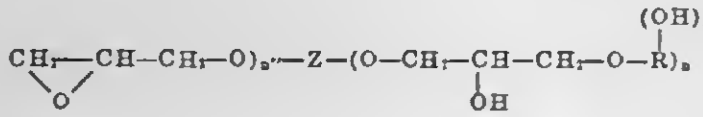
Claims priority, application Switzerland, Dec. 24, 1969, 19,207/69

Int. Cl. C08g *45/04*

U.S. Cl. 260—837 **10 Claims**

The present invention concerns a process for the manufacture of vinyl-modified synthetic resins, which can be diluted with water, based on polyethers, characterized in that

(a) compounds carrying epoxide groups and optionally also hydroxyl groups, of general formula



$$\underset{\diagdown O \diagup}{CH_2-CH}-CH_2-O)_{n''}-Z-(O-CH_2-\underset{\overset{|}{OH}}{CH}-CH_2-O-\overset{(OH)_{n'}}{\overset{|}{R}})_n$$

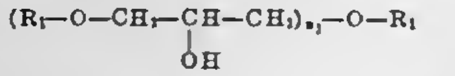
(I)

wherein

(I) Z denotes an alkyl, aryl or cycloalkyl radical, if either *n* is zero and *n''* is 1, *n'* can be 0, 1, 2 and 3 or

(II) Z denotes an alkylene, arylene or cycloalkylene radical if *n* and n'' is 1 or if *n* is zero and *n''* is 2, *n'* can be 0, 1, 2 and 3 or

(III) Z denotes the radical of the following formula:



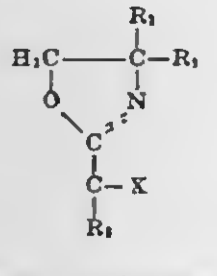
$$(R_1-O-CH_2-\underset{\overset{|}{OH}}{CH}-CH_2)_{n_1}-O-R_1$$

if *n* is zero and *n''* is 2, or if *n* as well as *n''* is 1, with n_1 in all cases being zero or a small number and with R_1 representing an aliphatic or aromatic radical,

are etherified by heating, optionally in the presence of catalysts, with

(b)(b') alkanolamides of unsaturated fatty acids and/or (b'') oxalolines of unsaturated fatty acids, of general formula:

(II)



wherein R_2 represents a hydroxymethyl or alkyl radical with 3 carbon atoms, with at least one R_2 having to be a hydroxymethyl radical, R_1 is a hydrocarbon with single or multiple unsaturation and with 3 to 18 carbon atoms, preferably 16 to 18 carbon atoms, and X denotes H_2 or $=CH_2$, and

(c) the etherification products are reacted with such quantities of α,β-ethylenically unsaturated monocarboxylic acids and/or polycarboxylic acids and, where they exist, their anhydrides and/or their half-esters with monoalcohols with 1 to 4 carbon atoms, optionally in the presence of other vinyl or vinylidene compounds, by heating, so that the reaction products have an acid number of at least 25, and

(d) thereafter the reaction products, containing carboxyl groups, are treated with such amounts of ammonia and/or strong organic nitrogen bases, up to complete or partial neutralization, that the reaction products are adequately capable of dispersion in water or dilution with water.

3,705,207

MOLTEN ADHESIVES CONTAINING POLYAMIDE AND POLYVINYL ALCOHOL

Stanley Albert Sills, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Jan. 2, 1970, Ser. No. 455

Claims priority, application Great Britain, Jan. 7, 1969, 1,034/69; May 5, 1969, 22,710/69

Int. Cl. C08g *41/04*

U.S. Cl. 260—857 **3 Claims**

Polyamides with adhesive properties by the incorporation therein of polyhydric alcohols, e.g. polyvinyl alcohol, mannitol, sorbitol. Improves bonding to unmodified polyamides, polyesters, aluminium, titanium, stainless steel and glass.

3,705,208

POLYESTER RESIN AND METHOD OF MANUFACTURING THE SAME

Masaji Nakamuta, 1260 Kitautami, Mizuki-cho; Michio Tsukui, 48, Miramikoya-cho; Junji Mukai, 336-27, Kaneido, Kuiji-cho; Toshikazu Narahara, 36, 1-chome, Nishinarusawa-cho, and Sumio Noguchi, 7-24, Li-chome, Ose-cho, all of Hitachi-shi, Japan

Filed Nov. 28, 1969, Ser. No. 880,926

Claims priority, application Japan, May 9, 1969, 44/35164

Int. Cl. C08f *21/00, 21/02, 27/12;* **C08g** *17/06, 17/10*

U.S. Cl. 260—861 **21 Claims**

A polyester resin obtained by the polycondensation from a hydrogenated polydiene having two ester conjunction forming functions at the ends of a chain thereof and an organic compound having at least one function capable of forming ester conjunction with said forming function. The present disclosure is also directed to a method of manufacturing said polyester resins and polyesters compositions produced thereby.

3,705,209

FLAME RETARDANT POLYMERIC COMPOSITIONS

Albert S. Matlack, Hockessin, and Robert J. Schwarz, Sherwood Park II, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Feb. 26, 1970, Ser. No. 14,680

Int. Cl. C09k *3/28*

U.S. Cl. 260—861 **6 Claims**

Readily flammable polymers are rendered flame retardant by the addition of 8 to 20% of a bromine-containing polyether which is a polymer of a bromo-substituted oxetane or 3 to 20% of the bromine-containing polyether and 1 to 15% of an antimony compound. When antimony is present the combined amount of bromine-containing polyether and antimony compound is at least 5% by weight of the total composition.

3,705,210

CROSS-LINKABLE COMPOSITIONS BASED ON VINYL CHLORIDE CROSS-LINKABLE COPOLYMERS AND ELASTOMERS

Alexis Mathieu, Brussels, Belgium, and Claude Barberot, Paris, France, assignors to Solvay & Cie, Brussels, Belgium

No Drawing. Filed Jan. 29, 1970, Ser. No. 6,935

Claims priority, application France, Feb. 4, 1969, 6902422

The portion of the term of the patent subsequent to Feb. 22, 1989, has been disclaimed

Int. Cl. C08f *29/24, 37/18*

U.S. Cl. 260—876 R **16 Claims**

The cross-linkable composition contains from about 1 to 18% by weight of one or more elastomers and 99 to 82% by weight of a cross-linkable vinyl polymer based on vinyl chloride. The cross-linkable vinyl polymer is obtained by polymerization of 3 to 50 parts by weight of a mixture of a diolefin and one or more monomers chosen from the nitriles and esters of unsaturated monocarboxylic acid and unsaturated polycarboxylic acid, in the presence of 100 parts by weight of a copolymer of vinyl chloride and a monomer containing at least 8 carbon atoms and which is a vinyl ester of a monocarboxylic acid, an ester of an unsaturated mono- or polycarboxylic acid or an alkyl vinyl ether. The cross-linkable composition has excellent elasticity and processability at low temperature and is cross-linked rapidly and completely to produce semi-rigid products which have good dielectric properties and excellent mechanical properties.

3,705,211

BISPHOSPHORYLATED IMIDODITHIOCARBONATES AND METHODS FOR THEIR PREPARATION

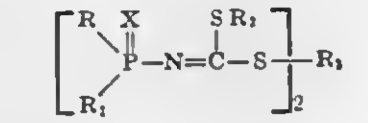
Roger Williams Addor and David Edgar Allman, Pennington, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 640,836, May 24, 1967. This application July 27, 1970, Ser. No. 58,676

Int. Cl. A01n *9/36;* **C07f** *9/40*

U.S. Cl. 260—926 **6 Claims**

Bis-N-phosphorylated compounds represented by the structure:



$$\left[\begin{matrix}R\diagdown \\ R_1\diagup\end{matrix}\overset{X}{\overset{\|}{P}}-N=\overset{SR_2}{\overset{|}{C}}-S-\right]_2 R_3$$

wherein R and R_1 are each members selected fro[illegible]e group consisting of loweralkyl, lower alkoxy and phenyl; X is sulfur and oxygen; R_2 is loweralkyl, loweralkenyl, benzyl or halo-substituted benzyl; and R_3 is a lower alkylene radical, such as methylene, ethylene, loweralkyl substituted ethylene, trimethylene, loweralkyl substituted trimethylene, oxydimethylene, tetramethylene or loweralkyl substituted tetramethylene. They find utility as insecticides and arachnicides and are highly effective against both the larval and adult stages of insects.

3,705,212

PHOSPHONYLCARBAMYLOXY-PHOSPHONATES

Henry Martin, Gellertstrasse 24, and Jozef Drabek, Herrengrabenweg 14, both of Basel, Switzerland

No Drawing. Filed Aug. 6, 1970, Ser. No. 61,819

Claims priority, application Switzerland, Aug. 11, 1969, 12,130/69

Int. Cl. C07f *9/38;* **A01n** *9/36*

U.S. Cl. 260—926 **6 Claims**

2,2,2-trihalo - 1 - [O,O - dialkylphosphonylcarbamoyloxy]-ethylphosphonic acid ester are very effective substances for combating insects, nematodes, members of the order Acarina and plant-pathogenic bacteria and fungi. They may be applied in the form of pesticidal preparations.

3,705,213

ADAMANTOYL AND ADAMANTYL (ALKYL) GLYCEROPHOSPHORYL (AND PHOSPHONYL)ETHANOLAMINES

Francis R. Pfeiffer, 201 Sussex Drive, Cinnaminson, and Jerry A. Weisbach, 207 Philellena Road, Cherry Hill, both of N.J.

Filed July 1, 1969, Ser. No. 838,327

Int. Cl. C07f *9/08;* **A61k** *27/00*

U.S. Cl. 260—945 **7 Claims**

The compounds are adamantyl substituted glycerophosphoryl (and phosphonyl)ethanolamines having renin inhibitory activity.

3,705,214

CATALYZED PROCESS FOR PRODUCING PENTAVALENT PHOSPHORUS DERIVATIVES

Donald J. Martin, Irvington, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Apr. 15, 1970, Ser. No. 28,939

Int. Cl. C07f *9/28, 9/50*

U.S. Cl. 260—969 **16 Claims**

There is disclosed a process for preparing organo pentavalent phosphorus compounds by reacting (a) an aromatic or vinyl halide with (b) a trivalent phosphorus compound having at least one alkoxy substituent on the phosphorus atom, in the presence of a divalent palladium salt catalyst.

3,705,215

PREPARATION OF 2-CHLOROETHYLPHOSPHONATE DIESTERS

Calvin Vogel and David I. Randall, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Aug. 7, 1969, Ser. No. 848,327

Int. Cl. C07f *9/40*

U.S. Cl. 260—970 **10 Claims**

2-haloethylphosphonate diesters are prepared from 1-chloro-2-bromo-ethane and an alkali metal salt of a secondary phosphite wherein the reaction is carried out in the presence of an aprotic, dipolar solvent such as N-methyl-2-pyrrolidone. Said diesters are readily hydrolyzed to 2-chloroethylphosphonic acid useful as a plant growth stimulant.

3,705,216

PREPARATION OF TRIVALENT AND PENTAVALENT THIOESTERS OF PHOSPHORUS

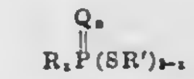
Charles Edward Farley, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 575,521, Aug. 29, 1966. This application Dec. 22, 1969, Ser. No. 887,410

Int. Cl. C07f *9/28*

U.S. Cl. 260—970 **7 Claims**

Organophosphorus thioesters of the formula



$$R_x\overset{Q_n}{\overset{\|}{P}}(SR')_{3-x}$$

where R and R' are alkyl, cycloalkyl, or aryl, Q is oxygen or sulfur, *n* is 0 or 1, and *x* is 0, 1, or 2 are prepared by reacting a phosphine of the formula

$$R_xPH_{3-x}$$

with a disulfide of the formula

$$R'SSR'$$

in an aqueous or a non-aqueous medium and in the presence or absence of a radical inhibitor.

3,705,217
PRODUCTION OF HALOETHYLPHOSPHONATE DIESTERS

Calvin Vogel, Easton, Pa., assignor to GAF Corporation, New York, N.Y.
No Drawing. Filed Oct. 17, 1969, Ser. No. 867,391
Int. Cl. C07f *9/40*
U.S. Cl. 260—969 **8 Claims**

2-haloethylphosphonate diesters are prepared by the reaction of a vinyl or vinylene compound, a trialkyl or triaryl phosphite and halogen by reaction at a temperature of about 30 to 100° C.

3,705,218
O-ETHYL-S-PROPYL-S-PHENYL-DITHIOPHOSPHATES

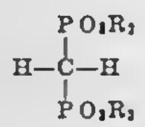
Shigeo Kishino, Akio Kudamatsu, and Kouzo Shiokawa, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Dec. 23, 1970, Ser. No. 101,139
Claims priority, application Japan, Dec. 25, 1969, 44/103,795
Int. Cl. C07f *9/18;* **A01n** *9/36*
U.S. Cl. 260—964 **9 Claims**

O-ethyl-S-propyl-S-phenyl-dithiophosphates wherein the phenyl group is optionally substituted by halogen or lower alkyl, which possess arthropodicidal, especially insecticidal and acaricidal, properties.

3,705,219
METHYLENEDIPHOSPHONATE ESTERS

Denzel Allan Nicholson, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Continuation-in-part of application Ser. No. 770,860, Oct. 25, 1968. This application Dec. 20, 1968, Ser. No. 785,741
Int. Cl. C07f *9/40*
U.S. Cl. 260—932 **2 Claims**

Methylene diphosphonate esters of the formula



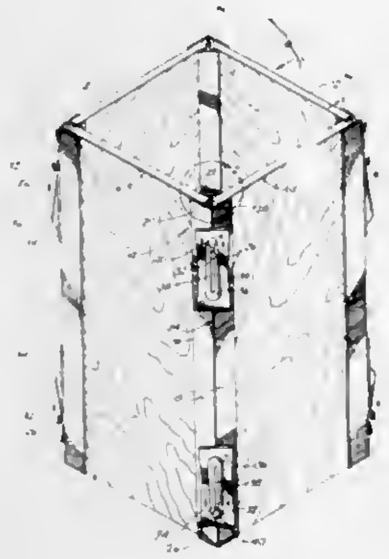
$$H-\underset{PO_3R_2}{\overset{PO_3R_2}{\underset{|}{\overset{|}{C}}}}-H$$

are disclosed wherein each R is a hydrocarbyl radical containing from 7 to 22 carbon atoms and is selected from the group consisting of alkyl, aryl, alkaryl, aralkyl, alkenyl, haloalkyl, haloaryl, haloalkaryl, haloaralkyl, haloalkenyl and nitroaryl groups. The compounds are useful as extreme pressure and anti-wear additives in lubricant compositions.

3,705,220
METHOD FOR CASTING MATERIAL USING A COLLAPSIBLE STRUCTURE

Fred L. Ecker, 1905 Liliano Place, Sierra Madre, Calif. 91024
Continuation-in-part of application Ser. No. 12,759, Feb. 19, 1970. This application June 30, 1971, Ser. No. 158,490
Int. Cl. E04g *13/02*
U.S. Cl. 264—31 **7 Claims**

Apparatus for rigidly locking together a collapsible structure including an outer clamping structure having first and second interconnected sides. The sides are spaced apart and each side receives one of a pair of form sides to be clamped. The facing surfaces of the first and second sides each have a stop defining a plane against which the edges of one of the form sides may be positioned. The outer clamping structure has at least one opening therethrough intermediate the sides. A wedge is positioned for engagement on opposite sides of each of the form sides from the first and second sides of the outer clamping structure. A coupling member movably extends through the opening and has an end coupled to the inner clamping member. A retracting and lock member retracts the wedge toward the first and second sides to thereby wedge the pair of form sides therebetween.



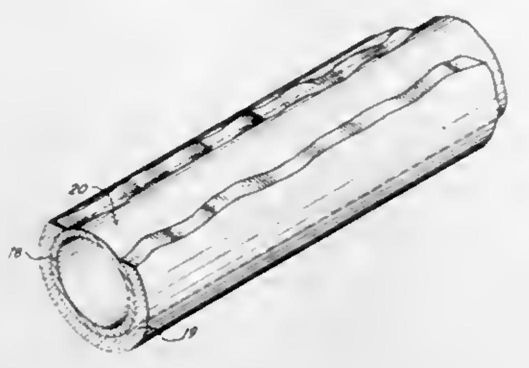
A method for constructing a concrete structure is disclosed utilizing a collapsible form which includes form sides and corner clamps, and assembled form clamps. Each corner clamp has a pair of interconnected and diverging side members, a wedge and a retracting lock member for drawing the wedge toward the side members. The steps comprise the following: Position the edges of at least two of such form sides in between the side members and wedge of at least one corner clamp. Actuate the retracting lock member of the corner clamp to draw the wedge thereof into engagement with the form sides thereby rigidly locking the form sides between the wedge and the side members to form a multi-sided form assembly. Affixing the assembled form clamps to the form assembly to thereby rigidly hold the form assembly in place while pouring liquid concrete therein. Position liquid concrete into the thus formed form assembly.

3,705,221
METHOD OF FOAM PIPE INSULATION WITH COATING OF DEFICIENT AREA AT TOP OF PIPE AFTER MOLD REMOVAL

Jimmy D. Lee, Houston, Tex., assignor to Plaskolite, Inc., Columbus, Ohio
Filed Sept. 14, 1970, Ser. No. 71,928
Int. Cl. B29d *27/04*
U.S. Cl. 264—45 **2 Claims**

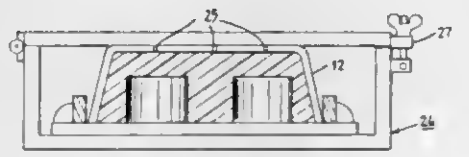
A method of insulating pipelines in the field with foamable insulating material is shown. It comprises pouring foamable polyurethane components into a mold, open at the top, positioned around the pipeline and spaced therefrom at a distance equal to the desired thickness of insulation. An insufficient amount of foam is used to

completely cover the pipe at the top to the desired thickness. The mold is removed from around the pipeline and insulation of the substantially continuous deficient area at the top of the pipeline is completed by hand spraying.



3,705,222
METHOD OF CASTING FOAM PLASTIC TO JOIN A RIGID SHELL AND THIN POLYMERIC SKIN

Frederic L. Rogers, Saint John, New Brunswick, Canada, and William W. Rogers, deceased, late of Saint John, New Brunswick, Canada, by Sarah M. Rogers, executrix, P.O. Box 2061, Station C, Saint John, New Brunswick, Canada
Continuation-in-part of application Ser. No. 499,191, Oct. 21, 1965. This application Sept. 19, 1969, Ser. No. 864,569
Int. Cl. B29d *27/04*
U.S. Cl. 264—45 **18 Claims**



A moulding process for producing an article including a cellular body having a thin protective plastic skin adhering to a first portion of the body surface with a preformed relatively-hard protective shell adhering to substantially all of the remaining body surface. In the described process the cellular body is moulded while at the same time said plastic skin and said preformed shell are simultaneously bonded thereto with said preformed shell acting to contain and mould a portion of the cellular body during the molding operation. The protective skin and the shell structure are applied relative to the cellular body such that a relatively narrow band of the cellular material of said body separates the skin from contact with said shell thereby improving the insulating properties of the insulating article thus formed.

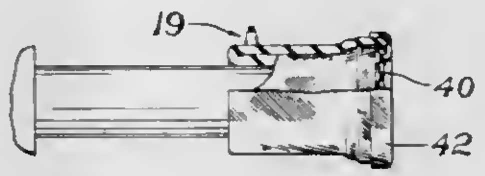
3,705,223
PRODUCING SINTERED ALUMINA FIBERS FROM AN ALUMINA SLIP OF VERY HIGH SOLIDS CONTENT

Alan Pearson, St. Louis, Mo., and John E. Marbanka, Belleville, Ill., assignors to Aluminum Company of America, Pittsburgh, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 781,979, Dec. 6, 1968. This application July 28, 1971, Ser. No. 166,967
Int. Cl. C04b *33/18, 35/10*
U.S. Cl. 264—56 **8 Claims**

Using dispersing agents, slips formed of a volatile fluid and containing 80 to 90% of discrete alpha alumina particles with a median diameter of 0.3 to 2.5 microns and having a viscosity above 5000 centipoise are made. The slip is then formed into threads in an evaporative environment to concurrently remove a portion or all of the liquid ingredient thus forming self supporting fibers which are then sintered.

3,705,224
METHOD OF MAKING A JACK

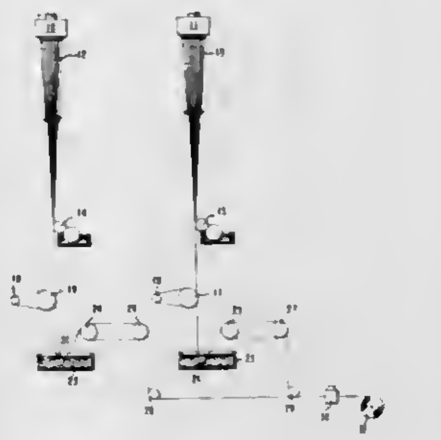
Harry F. Neff, Medina, and Stephen C. Sabo, Barberton, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.
Filed July 6, 1971, Ser. No. 159,945
Int. Cl. B29c *17/07;* **B29h** *7/03*
U.S. Cl. 264—96 **7 Claims**



A method for making an inflatable pneumatic bag jack made in the form of a cylindrical bag of impervious flexible material of a diameter several times its axial collapsed length wherein annular corrugations are in the flat end faces immediately inside the periphery.

3,705,225
PROCESS FOR PREPARING SILK-LIKE POLYESTER YARN

Robert Edward Taylor, Camden, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Application Oct. 28, 1969, Ser. No. 871,418, now Patent No. 3,608,296, which is a continuation-in-part of application Ser. No. 564,905, July 13, 1966, now abandoned. Divided and this application June 1, 1971, Ser. No. 148,701
Int. Cl. D01f *1/00;* **D02g** *1/20*
U.S. Cl. 264—103 **3 Claims**



A silk-like appearance is provided in fabric by polyester yarn prepared by melt-spinning bright polymer containing surface-modifying agent through non-round spinneret orifices to produce rough-surfaced filaments of different cross-sections, and drawing the filaments to 0.75–1.5 denier with a part being subjected to conditions different from other filaments to impart differential shrinkability. Alternatively a different polymer composition is used in part of the filaments to impart differential shrinkability.

3,705,226

ARTIFICIAL LEATHER AND A METHOD OF MANUFACTURING THE SAME

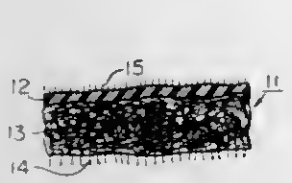
Miyoshi Okamoto, Takatsuki, and Shunji Mizuguchi and Koji Watanabe, Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed June 30, 1970, Ser. No. 51,038

Claims priority, application Japan, July 9, 1969, 44/53,754, 44/53,755

Int. Cl. B29d *27/00;* **D04h** *1/64*

U.S. Cl. 264—162 **11 Claims**



An artificial leather having an internal configuration made up of three dimensionally interlaced bundles of extremely fine synthetic fibers sandwiched by a high polymeric substance layer of suede touch and raised surface of velours touch, and a method of manufacturing such leather from one or more webby masses of islands-sea-combination type filamentary fibers through application of needle punching, impregnation with temporary binder, removal of the sea component, impregnation with elastic substance, removal of the temporary binder, formation of the additional synthetic surface layer and raising of one surface of the thus obtained fibrous sheet.

3,705,227

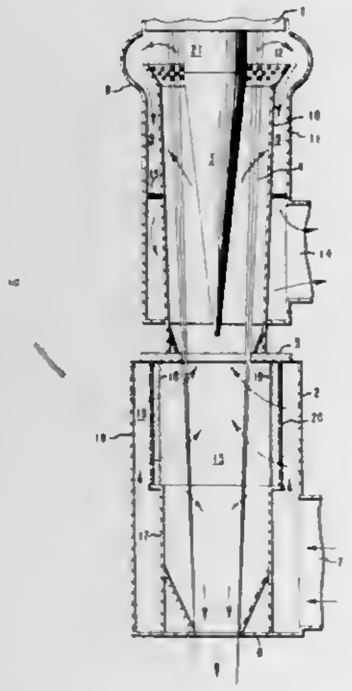
PROCESS AND APPARATUS FOR QUENCHING MELT SPUN FILAMENTS

William Achard Fintel, Donelson, Harold Hubbard Heighton, Mount Juliet, and John Guise Rossman, Jr., Hendersonville, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 13, 1971, Ser. No. 106,023

Int. Cl. B28b *3/20;* **B29c** *25/00*

U.S. Cl. 264—176 F **8 Claims**



An improved radial quench process for filaments being extruded in the form of hollow bundles wherein the radial chimney is spaced from the spinneret and a tapered deflector extends from the spinneret downwardly in the hollow part of the bundle terminating above the chimney. Gas flow restrictors at each end of the chimney are sized to direct a portion of the inwardly flowing quench gas up the hollow part of the bundle toward the deflector which, in turn, directs the gas flow outwardly through the bundle.

3,705,228

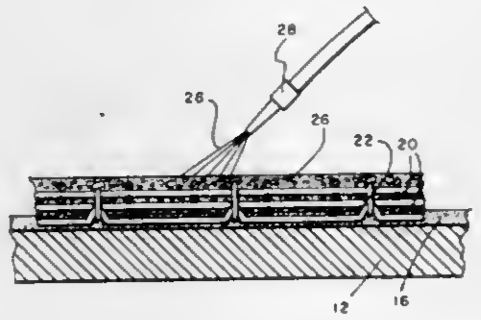
FERRO-CONCRETE MOLDING PROCESS

Charles D. Mattingly, Wichita, Kans., assignor to Mattingly, Inc., Wichita, Kans.

Filed Nov. 10, 1969, Ser. No. 875,076

Int. Cl. B28b *1/32, 23/02*

U.S. Cl. 264—256 **6 Claims**



This invention is a molding process utilizing the combination of layers of reinforcing material and concrete to achieve a new and novel ferro-concrete product. More particularly, this invention is a molding process for creating ferro-concrete structures in a manner whereupon the reinforcing material is easily and effectively anchored in a compact manner before applying the concrete material thereto so as to achieve the maximum strength requiring a minimum amount of time and resultant material thickness.

3,705,229

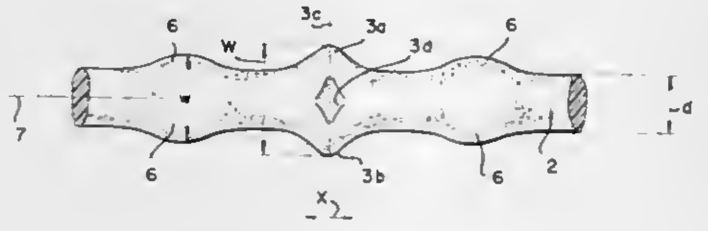
METHOD OF MAKING A SLIDE-FASTENER COUPLING ELEMENT

Helmut Helmberger, Burgackerweg 8, D-7887 Grenzach, Germany

Filed April 4, 1970, Ser. No. 33,031

Int. Cl. B29d *5/00*

U.S. Cl. 264—281 **5 Claims**



A method of making a slide-fastener coupling element from a synthetic-resin monofilament which comprises deforming the monofilament at spaced locations to provide a pair of shank bulges on opposite sides and spaced from each coupling-head bulge and coiling the monofilament to produce a multiplicity of turns each with a coupling head whose projections extend laterally of the plane of the turns and whose bulges are set back from the coupling units and are juxtaposed so that an eye is defined by each turn for receiving the coupling-head projection of the turn of another coupling element. Hence the two bulges of each turn flank the coupling head of the turn of an opposing coupling element, while each coupling head is flanked by the two bulges of a mating turn.

ERRATA

For Classes 423—471 thru 423—502 see:
Patents Nos. 3,705,007 thru 3,705,010

3,705,230

PROCESS FOR EXTRACTING MOLYBDENUM AND RHENIUM FROM RAW MATERIALS CONTAINING SAME

Jack M. Noy, Salt Lake City, Utah, assignor to Kennecott Copper Corporation, New York, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,903

Int. Cl. C22b *59/00*

U.S. Cl. 423—50 **10 Claims**

A process for extracting molybdenum and rhenium values from molybdenum and rhenium-bearing materials including the steps of roasting such a material in the presence of a calcium compound, such as burnt lime, CaO, to produce a calcine containing calcium molybdate, $CaMoO_4$, and calcium perrhenate, $Ca(ReO_4)_2$. The calcine is leached with acid at pH 1.0 or less, resulting in a solution containing dissolved molybdenum and rhenium values. Alternatively, the calcium calcine is leached with water, and the resulting slurry is subjected to leaching by acid. The solution is filtered and washed to remove insoluble residue and is then treated by means known in the art to separate and recover the molybdenum and rhenium values from the filtrate. Suitable recovery means include the use of extraction and stripping cells and ion exchange resins as described in U.S. Pat. No. 3,458,277 to Platzke, et al., and U.S. Pat. No. 2,876,065 to Zimmerley, et al.

3,705,231

SELECTIVE REMOVAL OF NITROGEN DIOXIDE FROM GASES

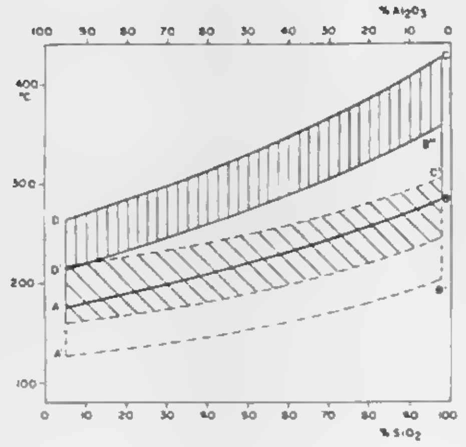
Gerhard Biberacher, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed July 21, 1970, Ser. No. 56,767

Claims priority, application Germany, July 24, 1969, P 19 37 552.1

Int. Cl. C01b *21/20*

U.S. Cl. 423—239 **4 Claims**



Nitrogen dioxide is selectively removed from gases which contain not only nitrogen dioxide in strongly diluted form but also oxygen by reaction with carbon monoxide at elevated temperatures in the presence of supported catalysts of platinum and/or palladium. The reaction takes place at temperatures of from 130° to 425° C. and the carrier used is α-aluminum oxide or silicon dioxide. The ratio of these oxides to one another is chosen in accordance with the predetermined temperature.

3,705,232

PROCESS FOR THE MANUFACTURE OF ALKALI METAL POLYPHOSPHATES

Fritz Krahl, Efferen, near Cologne, Dieter Hammel, Ladenburg, Gero Heymer, Knapsack, near Cologne, and Heinz Harnisch, Lovenich, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

No Drawing. Filed May 5, 1969, Ser. No. 822,006

Claims priority, application Germany, May 16, 1968, P 17 67 500.2

Int. Cl. C01b *25/28, 25/30*

U.S. Cl. 423—312 **5 Claims**

Production of alkali metal polyphosphates from elementary phosphorus, and alkali metal hydroxide or alkali metal carbonate, which may be used solid and/or dissolved, and a free oxygen-containing gas. The alkali metal hydroxide or the alkali metal carbonate is atomized in a reaction zone, directly into or in the immediate vicinity of a flame produced by burning liquid phosphorus, molten reaction product is removed from the reaction zone, gas issuing from the reaction zone is supplied to a gas scrubbing zone, and aqueous scrubbing solution is recycled to the reaction zone. The aqueous scrubbing solution is freed, prior to recycling it to the reaction zone, from arsenic contained in the volatile issuing gas by treatment with an alkali metal sulfide or hydrogen sulfide, and recycled to the reaction zone in a quantity sufficient to produce therein a steam partial pressure of more than 450 mm. mercury.

3,705,233

PHENYLAMINOETHANOL DERIVATIVES

Lawrence Henry Charles Lunts and Paul Toon, London, England, assignors to Allen & Hanburys Limited, London, England

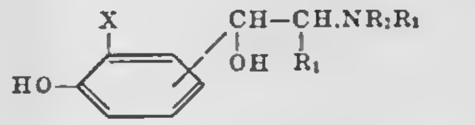
No Drawing. Continuation-in-part of application Ser. No. 669,263, Sept. 20, 1967, now Patent No. 3,644,353, dated Feb. 22, 1972. This application June 2, 1971, Ser. No. 149,356

Claims priority, application Great Britain, Sept. 23, 1966, 42,590/66

Int. Cl. A61k *27/00*

U.S. Cl. 424—45 **10 Claims**

Novel 1-phenyl-2-aminoethanol derivatives of the formula:



are disclosed, some of which have stimulant action and some of which have blocking action of β-adrenergic receptors.

In particular pharmaceutical compositions comprising a compound selected from α^1-t-butylaminomethyl-4-hydroxy-m-xylene-α^1-α^3-diol, 4 - hydroxy-α^1{[(p-methoxy-α-methylphenethyl)amino]-methyl} - m - xylene - α^1,α^3-diol and physiologically acceptable acid addition salts thereof, in association with a pharmaceutically-acceptable carrier are disclosed, the composition being preferably in dosage unit form. Also a method of treating a patient suffering from bronchospasm which comprises administering an effective amount of a compound specified.

3,705,234

SKIN-PROTECTIVE SUN-SCREENING COMPOSITION AND METHOD

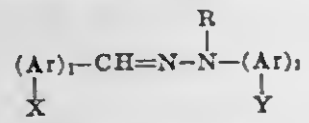
Sigmund C. Catino, Castleton, and Albert F. Strobel, Delmar, N.Y., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 517,443, Dec. 29, 1965. This application Apr. 1, 1969, Ser. No. 812,382

Int. Cl. A61l *23/00*

U.S. Cl. 424—60 **8 Claims**

Novel sun-screening agents of the formula:



$$\underset{\displaystyle X}{\underset{|}{(Ar)_1}}-CH=N-\overset{\displaystyle R}{\overset{|}{N}}-\underset{\displaystyle Y}{\underset{|}{(Ar)_2}}$$

wherein $(Ar)_1$ and $(Ar)_2$ represent benzene rings; X and Y represent a member selected from hydrogen, and a carboxylic or sulfonic acid salt-forming cation, at least one of X and Y being other than hydrogen; and R represents an aliphatic radical, preferably a lower alkyl radical. Such compounds are useful as sun-screening agents as they absorb ultraviolet light in the region of from about 2900 A. to about 3500 A. Pharmaceutical compositions including a pharmaceutically acceptable carrier and the above sun-screening agents are effective compositions to screen out both the burning and tanning rays of the sun so as to provide excellent sun-screening protection.

3,705,235

SANITIZING PLASTIC MATERIAL

Robert H. McIntosh and Ezekiel H. Hull, Greensboro, N.C., assignors to Predicted Environments, Inc., Atlanta, Ga.

No Drawing. Filed Apr. 30, 1971, Ser. No. 139,265

Int. Cl. A61l *13/00*

U.S. Cl. 424—83 **4 Claims**

An effective amount of nonionic trialkylamine and optionally one of a Group II–A or Group II–B metal salt of a monocarboxylic acid having a carbon chain length of 1 to 4, cadmium chloride, or ethylenediaminetetraacetic acid when dispersed in a thermoplastic resin is an effective and long lasting fungicidal and bactericidal agent which is effective against both Gram-positive and Gram-negative organisms including *Pseudomonas aeruginosa.*

3,705,236

METHOD OF PRODUCING CARBON FIBERS

Toshikatsu Ishikawa and Haruo Teranishi, Tokyo, Japan, assignors to Nippon Carbon Company Limited, Tokyo, Japan

No Drawing. Filed Oct. 28, 1970, Ser. No. 84,890

Claims priority, application Japan, Nov. 1, 1969, 44/87,335

Int. Cl. C09b *31/07*

U.S. Cl. 423—447 **3 Claims**

A method is provided for producing carbon fibers having a tensile strength of more than 150 kg./mm.^{2} and a Young's modulus of more than 32,000 kg./mm.^{2} by applying a vibrational energy to organic fibers under a tension in at least one of a drawing step for obtaining the precursor suitable for the production of carbon fibers, a pretreatment step for facilitating carbonization of the precursor, a carbonization step for substantially carbonizing the precursor and a graphitization step for graphitizing the carbonized fibers and for improving Young's modulus.

3,705,237

ANTIBIOTIC SUBSTANCE AND PROCESS FOR THE EXTRACTION OF SUCH AN ANTIBIOTIC SUBSTANCE FROM A NEW STRAIN OF PSEUDOMONAS

Robert Grandpierre, Bourg-la-Reine, and Alexandre Robert, Albon, France, assignors to Albert Rolland S.A., Paris, France

Filed July 17, 1970, Ser. No. 55,785

Int. Cl. C12d *9/20*

U.S. Cl. 424—115 **12 Claims**

An antibiotic, active against gram positive and gram negative organisms, is obtained from a new strain, *Pseudomonas rollandi* CBS 368.68 which has been cultured aerobically at 12–42° C. for a sufficient time to achieve the stationary growth phase. The resulting Pseudomonas is ground and dehydrated and the antibiotic extracted with methanol.

3,705,238

ANTIBIOTICS A204I AND A204II AND METHOD FOR PRODUCTION THEREOF

Robert L. Hamill, New Ross, and Marvin M. Hoehn, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of application Ser. No. 850,602, Aug. 15, 1969, which is a continuation-in-part of application Ser. No. 801,215, Dec. 6, 1968, which in turn is a continuation-in-part of application Ser. No. 707,841, Feb. 23, 1968, all now abandoned. This application Sept. 14, 1970, Ser. No. 71,965

Int. Cl. A61k *21/00*

U.S. Cl. 424—121 **10 Claims**

Antibiotics A204I and A204II are co-produced by culturing *Streptomyces albus* NRRL 3384 in an aqueous, nutrient culture medium and are isolated as antibiotic A204 mixture via ethyl acetate extraction of filtered broth and mycelium followed by purification over activated carbon. Chromatography of A204 mixture affords separation of A204I and A204II as individual antibiotics having anticoccidial, insecticidal, anti-PPLO as well as antimicrobial activity.

3,705,239

PAIN REMOVING COMPOSITIONS AND METHODS

Roy B. Gregory, 1130 N. 14th Street, Lafayette, Ind.

Continuation-in-part of Ser. No. 820,311, April 29, 1969. This application Oct. 16, 1970, Ser. No. 81,555The portion of the term of this patent subsequent to Dec. 7, 1988, has been disclaimed.

Int. Cl. A61k *27/00*

U.S. Cl. 424—166 4 Claims

Pain removing compositions for external use on warm blooded animals. A pain removing composition is made from acetic acid, urea, ammonium hydroxide, glycerol, and water and may be used with plastiquinone A in a solvent. A binder may be used to tie the components together. A binder contains lanolin, stearic acid, water, triethanolamine and mineral oil. When rubbed on an external part of an affected area of a warm blooded animal, pain is removed in a short period of time.

3,705,240

PHOSPHORIC ACID ESTERS, INTERMEDIATES FOR MAKING THE SAME, AND PEST CONTROL BY MEANS OF SAID ESTERS

Beat Bobner and Kurt Rufenacht, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Original application Nov. 17, 1967, Ser. No. 683,784, now Patent No. 3,600,474, dated Aug. 17, 1971. Divided and this application Apr. 28, 1971, Ser. No. 50,005

Claims priority, application Switzerland, Nov. 21, 1966, 16,667/66

Int. Cl. C07f *9/08*

U.S. Cl. 424—203 4 Claims

New phosphoric acid esters which contain as esterifying radical a cyclobutenol radical which is fused to a ring system are produced from novel intermediates which are α-halogeno-cyclobutanones fused to a ring system. The new esters are useful as pesticides; a method of controlling pests with the aid of the new compounds as well as pesticidal compositions containing them as active ingredients are also described.

3,705,241

FUNGICIDAL PROCESS EMPLOYING ORGANIC PHOSPHOROUS ACID ESTERS

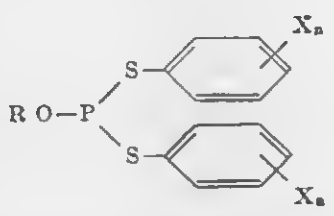
Gerhard Schrader, Kohlfurther Strasse 75, 56 Wuppertal-Cronenberg; Hans Scheinpflug, Nauener Strasse 5, 509 Leverkusen-Fettehenne, both of Germany; Herbert F. Jung, 5-14, Sekiguchi 2-chome, Bunkyo-ku, Tokyo; Shimpei Kuyama, 3-2-39, Nishi-Azabu, Minato-ku, Tokyo; Shigeo Kishino, 3-13-22, Naka-machi, Machida-shi, Tokyo, and Yasuo Yamada, 2257, Hirayama, Hino-shi, Tokyo, all of Japan

Continuation of Ser. No. 686,278, Nov. 28, 1967, abandoned. This application Oct. 20, 1970, Ser. No. 82,528

Int. Cl. A01n *9/36*

U.S. Cl. 424—223 16 Claims

Agricultural and horticultural fungicides of the formula



wherein R is selected from the group consisting of C1–4 alkyl and chloroethyl, X is selected from the group consisting of chlorine and methyl and *n* is zero or one are especially useful for the control of the blast and sheath blight, which have been regarded from the past as serious diseases of rice, processes for the preparation of active ingredients thereof and method of the utilization thereof. These fungicides have good control effects and their active ingredients contain no heavy metals harmful to men and cattle, in contrast to the conventional fungicides heretofore applied for the same purpose which give such bad influence as direct and indirect toxicity to men and cattle owing to the presence of heavy metals such as mercury and arsenic.

3,705,242

ADAMANTYLAMINO (AND PIPERAZINO) - 5,11-DIHYDRODIBENZO[b,e][1,4]THIAZEPINES AND METHOD OF USING

Harry Louis Yale, New Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed Apr. 13, 1970, Ser. No. 28,101

Int. Cl. A61n *27/00*

U.S. Cl. 424—250 **4 Claims**

Adamantylamino (or piperazino)-5,11-dihydrodibenzo [b,e][1,4]thiazepines are provided which have been found to have an inhibitory effect on DNA synthesis as well as central nervous system stimulant activity and therefore are useful as anti-depressants. In addition, a method is provided for treating depression by administering the above-mentioned compounds as well as the corresponding adamantylamino (or piperazino)-5,11-dihydrodibenz [b,e][1,4]oxazepines.

3,705,243

ANTIBACTERIAL COMPOSITION

Shozo Nakazawa, Kyoto, and Osamu Ikeda, Tokyo, Japan, assignors to Daiichi Seiyaku Co., Ltd., Tokyo, Japan

Filed June 4, 1970, Ser. No. 43,396

Claims priority, application Japan, June 4, 1969, 44/43,230

Int. Cl. A61k *27/00*

U.S. Cl. 424—250 **8 Claims**

An antibacterial composition containing from 0.5 to 10 parts by weight nalidixic acid per part by weight of rifampicin shows synergistically enhanced antibacterial activity while greatly reducing development of drug tolerance by the organisms being treated.

3,705,244

AMINO ALCOHOLS IN COMPOSITIONS HAVING BRONCHIAL SPASMOLYTIC ACTIVITY

Roland-Yves Mauvernay, Rte. de Marsat, 63 Riom, France, and Norbert Busch, Riom, France; said Busch assignor to said Mauvernay

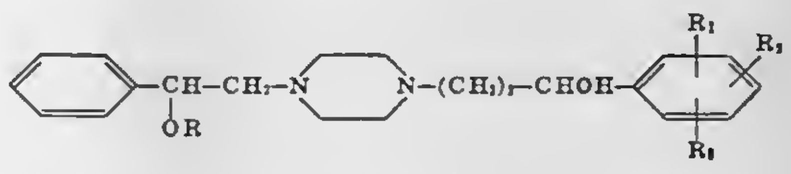
No Drawing. Continuation-in-part of abandoned application Ser. No. 654,028, June 22, 1967. This application Feb. 9, 1971, Ser. No. 114,026

Claims priority, application Great Britain, June 27, 1966, 28,801/66

Int. Cl. A61k *27/00*

U.S. Cl. 424—250 **10 Claims**

Compositions for the treatment of bronchitis and asthma comprising aminoalcohols of the formula:



wherein R is a lower alkyl radical, R_1, R_2 and R_3 are independently selected from the group consisting of a hydrogen atom, a halogen atom, an alkyl radical, an alkoxy radical, an alkenyloxy radical, and a 2-amino-alkoxy radical. The compositions are in the form of injectable ampoules, tablets, suppositories or aerosols.

3,705,245

7-AMINO - 2-CHLORO-11-(4-METHYL-1-PIPERAZINYL)DIBENZ[b,f][1,4]OXAZEPINES ACTING ON THE CENTRAL NERVOUS SYSTEM

Charles Frederick Howell, Upper Saddle River, N.J., and Eugene Newton Greenblatt, Spring Valley, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 84,221, Oct. 26, 1970, now Patent No. 3,660,406, dated May 2, 1972. This application Jan. 24, 1972, Ser. No. 220,371

Int. Cl. A61k *27/00*

U.S. Cl. 424—250 **2 Claims**

Preparation of 7-amino-2-chloro-11-(4-methyl-1-piperazinyl)dibenz[b,f][1,4]oxazepine and pharmaceutically acceptable acid addition salts by several methods is described. These compounds are useful for their effects on the central nervous system such as tranquilizers and antidepressants.

3,705,246
ANTI-DERMATOPHYTOSIC COMPOSITION AND METHOD OF USE

Togo Yamano, Yamatotakada, Teruji Henmi, Amagasaki, Yoshiro Usui, Ibaraki, Etsunosuke Noda, Yao, and Masayuki Yamada, Kawanishi, Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Mar. 26, 1969, Ser. No. 810,801
Claims priority, application Japan, Mar. 26, 1968, 43/19,590
Int. Cl. A61k *27/00*
U.S. Cl. 424—270 **9 Claims**

The present invention relates to a method for treating dermatophytosis by applying to the region of dermatophytosis the compound 3-(p-methylbenzylideneamino)-4-phenylthiazoline-2-thione as the active ingredient. The present invention also provides for compositions prepared from the aforementioned active ingredient.

3,705,247
METHOD OF CONTROLLING NEMATODES

Herman Breuer, Regensburg, Germany, assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

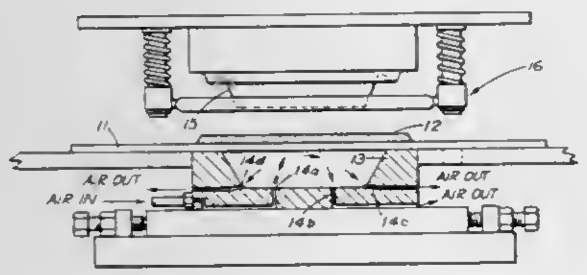
No Drawing. Original application July 24, 1968, Ser. No. 747,103, now Patent No. 3,575,997. Divided and this application June 5, 1970, Ser. No. 57,390
Int. Cl. A01n *9/28*
U.S. Cl. 424—272 **2 Claims**

3-amino-5-n-undecyl-1,2,4-oxadiazole and salts thereof and methods for their use as nematocides and aquatic herbicides.

3,705,248
MOLDING OF POWDERED OR GRANULAR MATERIAL

Vincent G. Hill, Kingston, Jamaica, and William R. Harding, State College, Pa., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed Apr. 15, 1970, Ser. No. 28,845
Int. Cl. B28b *3/02, 5/02, 7/06, 7/10, 17/02*
U.S. Cl. 264—294 **3 Claims**



Shaped articles (e.g., ceramic dishes) are molded from a moldable raw mix with a press which utilizes a separable rubber sheet within the female die. The rubber sheet (1) supports the mix to be molded; (2) distributes pressure uniformly during molding; and (3) releases the molded part from the female die after molding. The rubber sheet advantageously forms part of a conveyor belt. The use of a female die which is itself rubber, in addition to the rubber sheet, aids in pressure distribution during molding.

3,705,249
COMPOSITIONS AND METHODS FOR TREATING AMOEBIC AND BACTERIAL INTESTINAL INFECTIONS

Erika Bohni, Basel, Rudolf Ruegg, Bottmingen, and Gottlieb Ryser, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed July 16, 1971, Ser. No. 163,442
Claims priority, application Switzerland, July 24, 1970, 11,237/70
Int. Cl. A61k *27/00*
U.S. Cl. 424—274 **5 Claims**

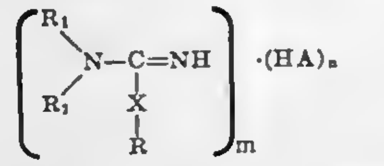
Compositions therapeutically useful as amoebicides and intestinal antispetics and containing as the active ingredient 1-methyl-4-nitro - pyrrole-2-aldehyde thiosemicarbazone are described.

3,705,250
PSEUDOTHIOUREAS AND SALTS THEREOF AS VIRUCIDES

Charles Frank Hinz, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Dec. 3, 1969, Ser. No. 881,848
Int. Cl. A01n *9/12, 9/20*
U.S. Cl. 424—322 **3 Claims**

A method of inactivating lipophilic viruses by contacting the virus with a compound of the formula:



$$\left[\begin{matrix} R_1 \\ & N-\underset{\underset{R}{|}}{\underset{X}{\underset{|}{C}}}=NH \\ R_2 \end{matrix}\right]_m \cdot (HA)_n$$

wherein X is sulfur or oxygen, R is a straight chain aliphatic hydrocarbon radical of 8 to 18 carbon atoms, R_1 and R_2 are individually hydrogen or methyl, HA is an anionic salt forming group, *n* is 0 or 1, *m* is 1 when *n* is 0, and *m* is an integer of 1 to 3 when *n* is 1 depending on the number of protons of HA partaking in salt formation.

3,705,251
FUNGICIDAL USE OF CYCLOALKYL-N-[OCTAHYDRO - 1,2,4 - METHENOPENTALENYL - (5)] OXIME-CARBAMATES

Claus Dieter Wels, Arlesheim, Basel-Land, and Karl Gatzi, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Original application Dec. 18, 1967, Ser. No. 691,135, now Patent No. 3,555,092, dated Jan. 12, 1971. Divided and this application Sept. 4, 1970, Ser. No. 69,889
Int. Cl. A01n *9/20*
U.S. Cl. 424—327 **4 Claims**

Certain oxime N-[octahydro-1,2,4-methenopentalenyl-(5)]-carbamates are disclosed as fungicides; compositions containing these carbamates as fungicidal agents and methods of controlling fungi therewith are also described.

3,705,252
2,2'-DICHLORODIISOPROPYL ETHER AS A NEMATOCIDE

Shizuo Ohga, 699, 3-chome, Amanuma, Suginami-ku, Tokyo; Hideatsu Yasutomi, 444, Shinohara-cho, Kohoku-ku, Yokohama, and Masuo Fujita, 604, Kitamikata-aza-Mukovgawarakochi, Kawasaki-shi, all of Japan

Continuation of Ser. No. 408,466, Oct. 30, 1964, abandoned. This application March 27, 1968, Ser. No. 721,549
Claims priority, application Japan, Nov. 6, 1963, 38/59334
Int. Cl. A01n 9/24
U.S. Cl. 424—342 **1 Claim**

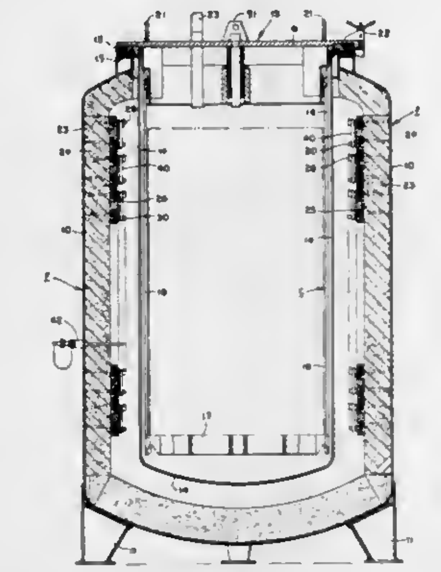
A novel nematocide containing as the effective component, 2,2'-dichlorodiisopropyl ether. The invention also includes the process of destroying nematodes by applying to the sites thereof, an effective amount of 2,2'-dichlorodiisopropyl ether. A preferred embodiment of the invention includes the use of 1,2-dichloropropane together with the 2,2'-dichlorodiisopropyl ether as the nematocide.

ELECTRICAL

3,705,253
FURNACE WALL CONSTRUCTION

Gerald W. Hicks, Elyria, Ohio, assignor to Lee Wilson Engineering Company, Inc., Cleveland, Ohio

Filed Sept. 2, 1971, Ser. No. 177,408
Int. Cl. H05b *3/06*
U.S. Cl. 13—20 **6 Claims**

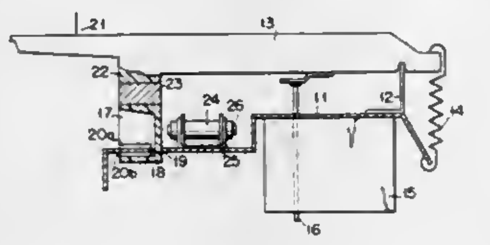


An efficient and inexpensive wall construction is provided for an electric furnace of the resistance type in which breakage is minimized and parts are easily replaced if breakage does occur. The furnace lining extends over the inside wall of the furnace and includes ceramic panels designed to receive and support electrical resistance elements, such as resistor ribbon or the like. In one form the lining comprises a layer of fibrous ceramic insulating material which is supported on the inside of a furnace outer wall or shell. Headed fastener studs extend through the insulating material and are secured to the furnace shell with their heads spaced therefrom. The ceramic heating element support panels are removably mounted on the fastener studs and held in place by the headed ends thereof. In a preferred form of the construction the ceramic panels are disposed in horizontal rows whereby the panels of one row rest on and are partially supported by the panels of the row below.

3,705,254
KEY OPERATING DEVICE FOR AN ELECTRONIC MUSICAL INSTRUMENT

Hiroshi Amano, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed April 10, 1970, Ser. No. 27,407
Claims priority, application Japan, April 15, 1969, 44/28859; April 15, 1969, 44/34150; April 17, 1969, 44/34933; April 23, 1969, 44/37268; April 23, 1969, 44/37269; April 24, 1969, 44/36969; May 26, 1969, 44/48260; Aug. 25, 1969, 44/80112; Aug. 27, 1969, 44/80768
Int. Cl. G10h *3/08*
U.S. Cl. 84—1.1 **24 Claims**

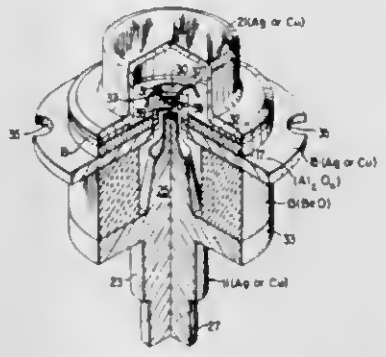


A key operating device for a keyboard electronic musical instrument comprising means for generating an electric pulse which varies in proportion to the force or the speed which is used in depressing a given key among a plurality of keys constituting the keyboard so as to vary the volume of the resulting musical tone according to the magnitude of the depressing force, means for rectifying the pulse voltage obtained by said means and means for varying the voltage level of output signals from a tone signal generator corresponding to the depressed key using the D.C. voltage obtained by the rectifier.

3,705,255
HERMETICALLY SEALED SEMICONDUCTOR

George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and David S. Jacobson, Plainfield, N.J.

Filed Oct. 27, 1970, Ser. No. 84,289
Int. Cl. H05k *5/00*
U.S. Cl. 174—52 S **6 Claims**

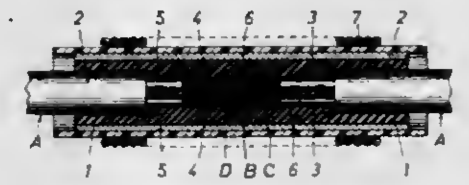


A hermetically sealed coaxial package suitable for housing microwave semiconductor components is described. The package comprises a collector stud having a flange intermediate the ends of the stud. One end of the stud is generally conically formed and has a flat top or plateau upon which the semiconductor component is mounted. An insulating ring is mounted on one surface of the flange around the conical end of the stud. An electrically conductive washer is mounted on the other side of the insulating ring so that it is adjacent the flat top of the conical end of the collector stud. Located above the metallic washer is an insulating washer and located above the insulating washer is a metallic cap. The stud, the electrically conductive washer, and the cap form the external connections to the semiconductor component.

3,705,256
ARRANGEMENT IN JOINING ELECTRIC INSULATED MULTI-CORE CABLES

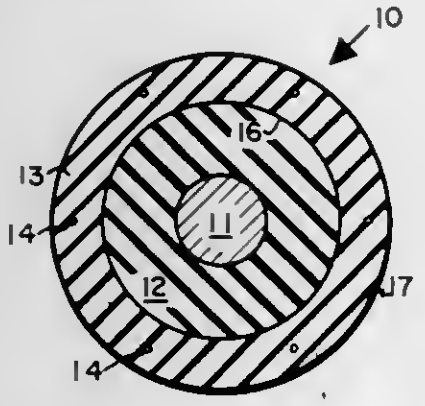
Bard Eftestol, and Tor Osteng, both of Raufoss, Norway, assignors to A/S Raufoss Ammunisjonsfabrikken, Raufoss, Norway

Filed Dec. 1, 1970, Ser. No. 94,098
Claims priority, application Norway, Dec. 2, 1969, 4753/69
Int. Cl. E02g *15/08*
U.S. Cl. 174—88 R **1 Claim**



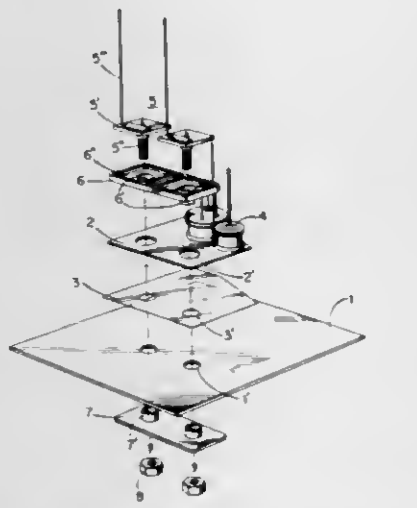
The present invention relates to an arrangement in joining insulated electric multi-core cable comprising a connecting tube of an elastomeric material, a metal tube enclosing said tube, an axial bore having a diameter corresponding to the outer diameter of the cable to be joined extending from each end of the connecting tube to a selected depth from said end, a number of axial parallel bores connecting said end bores and adapted to receive the respective insulated phase conductors, a centrally positioned copper tube in each of said parallel bores adapted to receive adjacent exposed ends of said conductors, the arrangement being such that when said metal tube is compressed the connecting tube is compressed around the end parts of the cable and around the copper tubes pinching same around said conductors procuring a mechanical and electrical effective joint protected against intrusion of moisture.

3,705,257
ELECTRIC CABLE AND METHOD OF MAKING
Robert M. Wade, Wabash, Ind., assignor to Anaconda Wire and Cable Company, New York, N.Y.
Filed March 6, 1972, Ser. No. 231,840
Int. Cl. H01b *7/02, 9/02*
U.S. Cl. 174—115 **24 Claims**



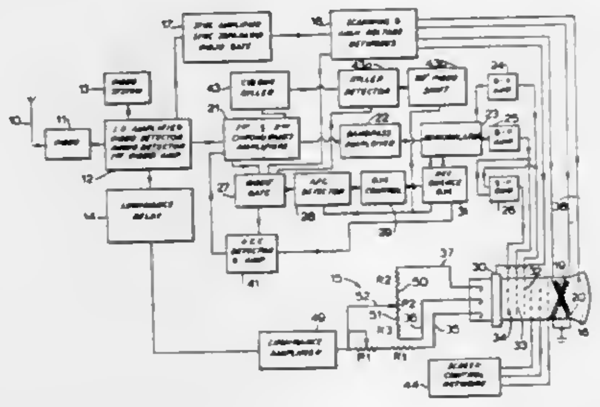
In an electric cable having a semiconducting jacket applied directly over a wall of polymeric insulation, excessive bonding of the jacket to the insulation is prevented by applying the curing agent for the jacket only to its outer surface after extrusion, and then effecting a vulcanization such that the inner jacket surface remains thermoplastic.

3,705,258
ELECTRICAL TERMINAL STRUCTURE
Floyd M. Minks, Route 1, Box 66, Kissimmee, Fla.
Filed Dec. 23, 1971, Ser. No. 211,571
Int. Cl. H01b *17/26;* **H02b** *1/02*
U.S. Cl. 174—153 R **6 Claims**



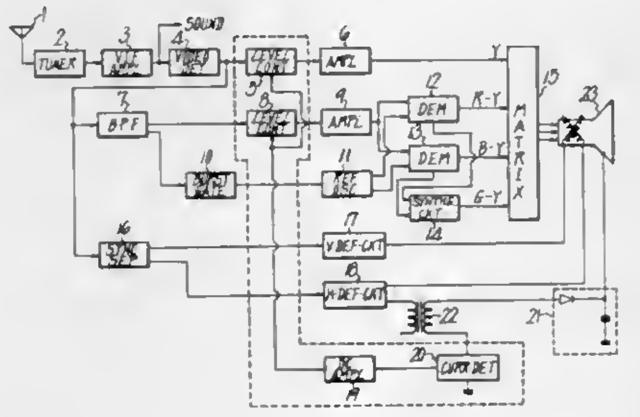
This disclosure is concerned with a novel electrical terminal structure embodying insulative clamping members having cooperative interlocking tubular extensions securing a thin housing or similar support wall and a component-mounting heat-sink plate sandwiched therebetween, and with the upper clamping member being provided with recess means for receiving and locking therein the head of a terminal post passed through the tubular members.

3,705,259
NETWORKS FOR SETTING UP AND ADJUSTING THE COLOR TEMPERATURE OF THE PICTURE REPRODUCED BY THE PICTURE TUBE OF A COLOR TELEVISION RECEIVER, assignor to John D. Lovely, Waterloo, Ontario, Canada and Electrohome Limited, Kitchener, Ontario, Canada
Continuation-in-part of Ser. No. 43,471, June 4, 1970, abandoned. This application Sept. 2, 1971, Ser. No. 177,412
Int. Cl. H04n *9/16*
U.S. Cl. 178—5.4 R **13 Claims**



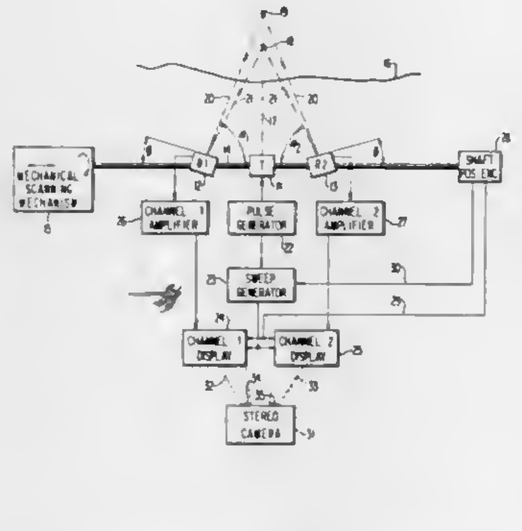
A simple network for setting up and adjusting the color temperature of the picture reproduced by the picture tube of a color television receiver and which requires that only one control be brought out to a location where it is accessible to a customer or serviceman includes a variable resistor directly connected in circuit with one of the "red" and "green" electron guns of the picture tube for varying the strength of the signal translated by the luminance signal channel of the receiver and applied to the gun without varying any D.C. potential of the gun. Another variable resistor is directly connected in circuit with the other two guns of the picture tube and varies simultaneously but in opposite directions the strength of the signal translated by the luminance signal channel and applied to the two guns without varying any D.C. potential thereof.

3,705,260
VIDEO SIGNAL CONTROL CIRCUIT FOR COLOR TELEVISION
Takashi Okada, Yamato, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Aug. 19, 1971, Ser. No. 173,104
Claims priority, application Japan, Aug. 21, 1970, 45/73354
Int. Cl. H04n *9/48*
U.S. Cl. 178—5.4 R **9 Claims**



In a color television receiver in which a luminance signal and a chrominance signal are separated from a composite color video signal for amplification and color demodulation and then both of the luminance and chrominance signals are supplied to a color cathode ray tube to produce color images on the screen of the tube, a signal control circuit arrangement for changing the levels of the chrominance and luminance signals simultaneously without varying the pedestal level in response to the brightness of the color images on the screen, thereby to ensure faithful reproduction of color images on the screen of the color cathode ray tube.

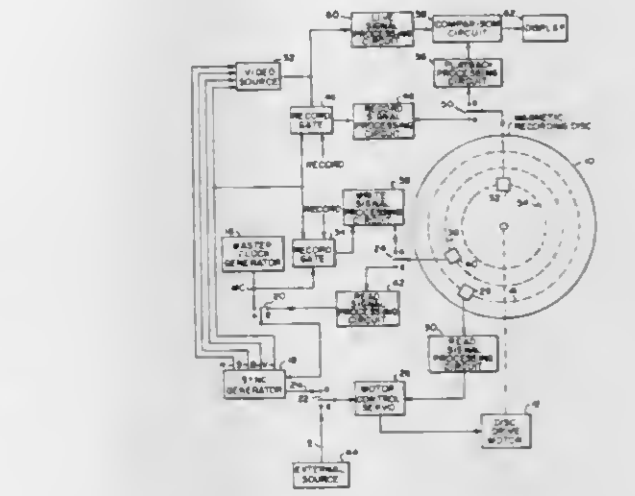
3,705,261
SCANNING SYSTEM FOR YIELDING A THREE-DIMENSIONAL DISPLAY
Lawrence W. Langley, Severna Park, Md., assignor to Symbionics, Inc., Annapolis, Md.
Filed April 9, 1970, Ser. No. 26,846
Int. Cl. H04n *7/02*
U.S. Cl. 178—6.5 **31 Claims**



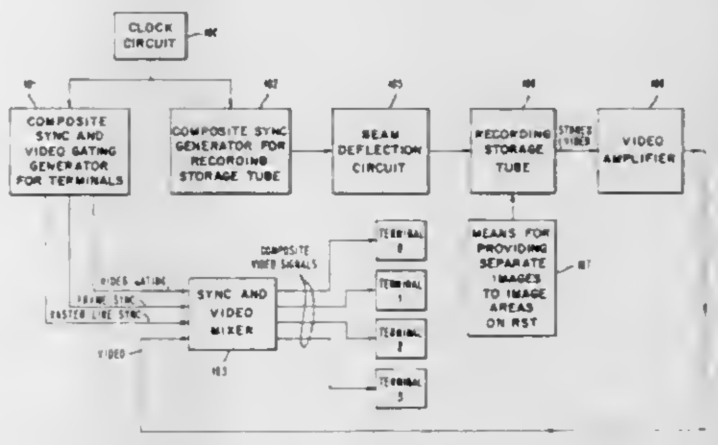
A system for scanning an object and obtaining a three-dimensional display of the features of the object is described. Internal discontinuities within the scanned object can be detected and visually displayed. The system includes a transmitting element which transmits energy to the object under investigation. The energy transmitted to the object can be of a form which will pass through the object, for example, ultrasonic waves to obtain a view of internal features. Energy passing through the object is reflected back to the surface through which it entered the object by discontinuities within the object. The reflected waves are received by the scanning device where they are divided into separate channels. The two channels individually process the received signals which are then used to actuate a read-out device such as an oscilloscope. The visual read-out from the oscilloscope is then photographed by use of a stereo camera and a three-dimensional picture is obtained.

3,705,262
SYNCHRONIZATION METHOD AND APPARATUS FOR DISC RECORDERS
Paul G. Kennedy; Rodney N. Zeigler, both of Monroeville, Pa., and Daniel J. Provine, Severna Park, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 31, 1970, Ser. No. 103,220
Int. Cl. G11b *5/82, 19/28;* **H04n** *5/78*
U.S. Cl. 178—6.6 DD **4 Claims**

A method and apparatus for synchronizing a video source, such as a television camera, with a recording disc wherein prerecorded clock signals are provided on the disc on a first track and master clock signals are recorded on a second track with the recorded master clock signals being utilized in the generation of drive and synchronizing signals for the video source so that the video source and the disc are directly synchronized and the prerecorded clock signals are compared with an external source of clock signals for controlling the speed of the disc.



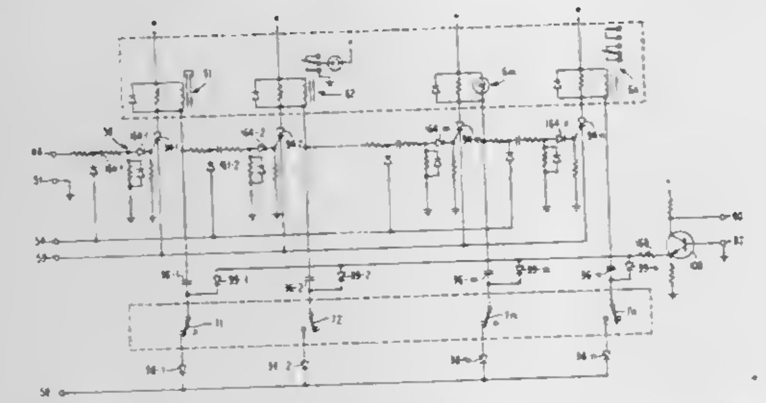
3,705,263
SCAN CONVERTER MULTIPLEXING SYSTEM
Larry E. Rittenhouse, Carmel, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 30, 1971, Ser. No. 158,487
Int. Cl. H04n *5/02*
U.S. Cl. 178—6.8 **6 Claims**



In the disclosed system, the storage screen of a scan converter or a recording storage tube is divided into a plurality of image areas such as four quadrants, for example. In each of these quadrants, there are written on the screen respective different images which are destined for four terminals. The storage screen is then read by having the reading beam therein sweep the total width of the storage screen in a raster scan. A spatial multiplexing arrangement is provided to transmit to each of the terminals the respective images to be received thereby. In this system, therefore, there is enabled the efficient use of a recording storage tube since its employment can be shared by a plurality of terminals. In an embodiment of the invention, the sync signals for the reading beam in the recording storage tube and those for the terminals can be so arranged whereby two raster lines are provided for each terminal for one raster line in the recording storage tube. Where a non-interlaced scan is employed in the terminals, then two fields are utilized per frame. However, where an interlaced scan is provided in the terminals, then four fields are utilized per frame.

3,705,264
REMOTE DIGITAL DATA TERMINAL CIRCUITRY

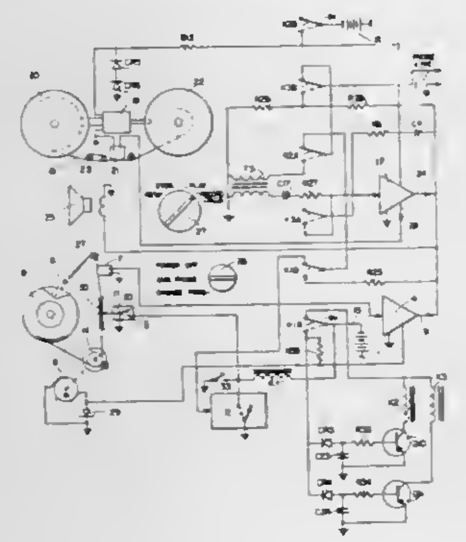
Jerome Danforth Harr, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed March 9, 1971, Ser. No. 122,392
Int. Cl. H03k *23/24*
U.S. Cl. 178—88 **12 Claims**



A digital data terminal operating from a two-wire transmission line is arranged for transmitting digital data on the same transmission line in the opposite direction. A number of electric switching elements which are opened or closed in accordance with digital data to be transmitted, are sensed with appropriate circuitry comprising a capacitor (or other electric state manifesting element) and circuit isolation diodes for each electric switching element and common initializing circuitry and sensing commutator circuitry. Preferably a shift register otherwise present for deserializing incoming data and timing wave generation is arranged for controlling the commutating function as incoming data is rippled through the shift register. Frequency division, amplitude division or time division multiplexing separates the signals on the transmission line for recognition at the terminals.

3,705,265
TELEPHONE ANSWERING DEVICE

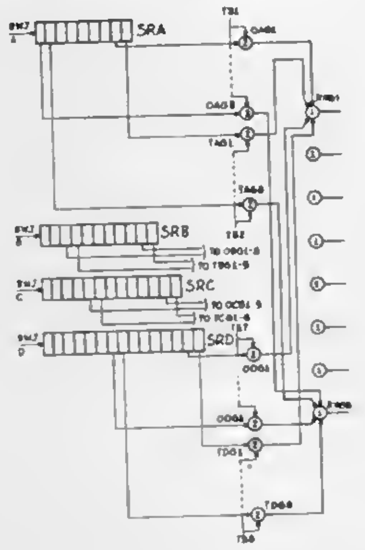
Neal J. Buglewicz, 12 Empty Saddle Road, Rolling Hills Estates, Calif.
Filed May 7, 1971, Ser. No. 141,245
Int. Cl. H04m *1/64*
U.S. Cl. 179—6 R **2 Claims**



Telephone answering and recording device in which the answering function is triggered by an incoming call and the recording function is conditioned by the charging of time limiting capacitors during the answering function. The capacitors have transistors connected therewith which are triggered by the residual voltage on the capacitors upon completion of the answering function to signal the commencement of the recording function and control the duration of the recording function.

3,705,266
TELEPHONE SWITCHING SYSTEMS

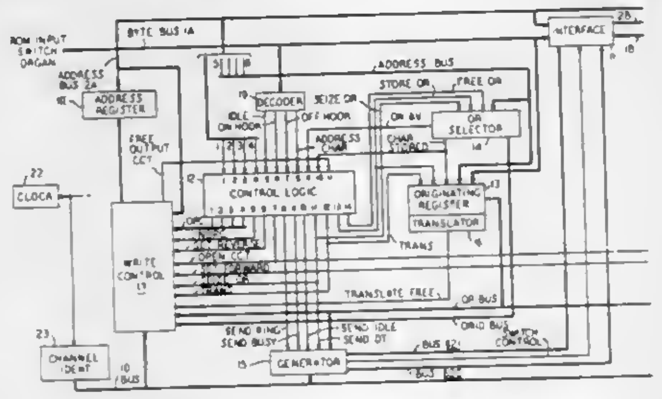
Alexander Schroder Philip, Liverpool, England, assignor to Plessey Handel Und Investments A.G., Zug, Switzerland
Filed April 29, 1971, Ser. No. 138,643
Claims priority, application Great Britain, May 8, 1970, 22,328/70
Int. Cl. H04j *3/00*
U.S. Cl. 179—15 AT **2 Claims**



The proposal allows a switching center to be loaded with a combination of bothway circuit and unidirectional circuit-carrying systems with no increase in control complexity, no new switching stage(s), no frequency changing and no alteration to the super-highway format. The bothway serial highways are assembled in groups of four, as compared with the groups of eight employed in the original unidirectional-working scheme. Each bothway channel is associated with two time-slots on the parallel super-highway, one time-slot being inherently originating and the other terminating. In the receive direction the distribution of one serial channel on a highway to two parallel channels on the super-highway is accomplished at the serial-parallel converter stage. The length of each serial-parallel shift register is increased by one bit relative to the unidirectional scheme. Two sets of multiplexing gates are then associated with the output of each such shift-register, and this gating is such that if the two sets of gates are enabled in turn, at consecutive bit-times, then the complete channel contained in one shift-register appears at consecutive time-slots (one originating, one terminating) on the super-highway. In the transmit direction a complementary function is employed.

3,705,267
SUPERVISORY CIRCUIT FOR MONITORING THE FORMATION AND TERMINATION OF INTERCONNECTIONS IN A TIME-DIVISION SWITCH

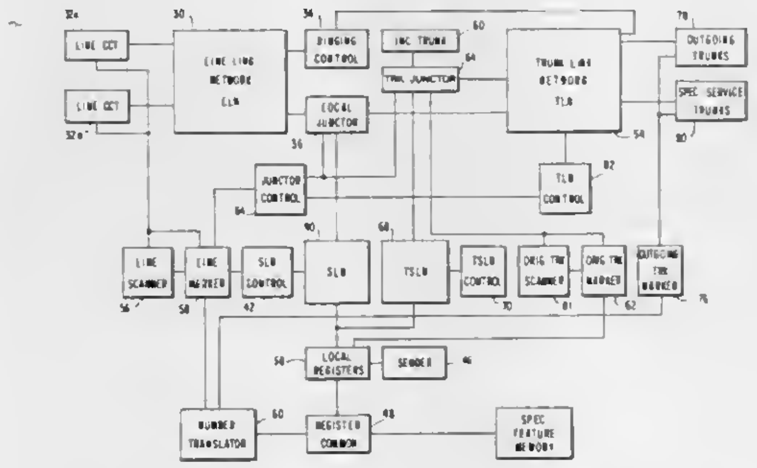
Patrick John Marino, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 3, 1971, Ser. No. 177,690
Int. Cl. H04j *3/12*
U.S. Cl. 179—15 BY **9 Claims**



A processor applies address data to individual time slots on an address bus to direct data in corresponding time slots on a data bus to outgoing channels. A supervisory circuit produces multi-byte messages describing processor transactions (formation of and taking down connections, et cetera) and produces accompanying address words to direct the messages to an outgoing monitoring path. If a time slot on the address bus does not contain an address word, indicating that this time slot is idle, a byte in the transaction message is inserted in the corresponding time slot on the data bus and the accompanying address word is written into the idle time slot on the address bus.

3,705,268
PASSIVE JUNCTOR CIRCUIT AND SELECTIVELY ASSOCIATED JUNCTOR CONTROL

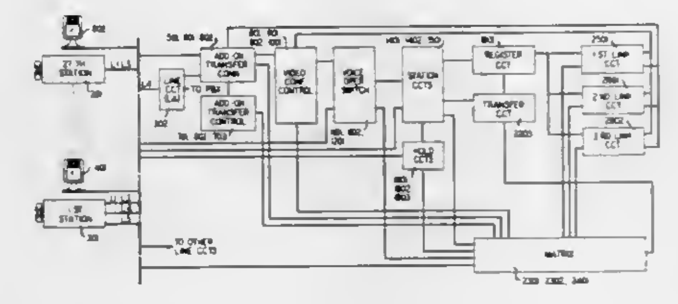
Otto Altenburger, Rochester, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.
Filed Dec. 22, 1970, Ser. No. 100,571
Int. Cl. H04q *3/48*
U.S. Cl. 179—18 E **28 Claims**



A junctor provides a connection circuit for a line link network, trunk link network and service link network, in the form of a passive switching circuit under control of a junctor control. A single junctor control is provided for a plurality of junctors on a time share basis and serves to control each junctor in response to commands from the common control equipment.

3,705,269
MULTILINK WIDEBAND INTERCOMMUNICATION SYSTEM

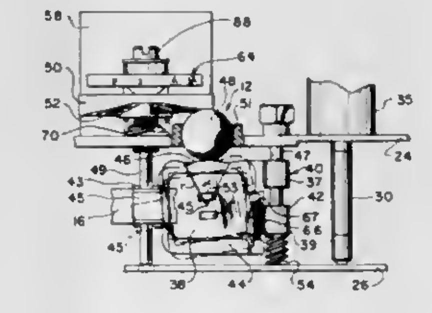
John Pringle Audesirk, Dorchester, Mass.; Charles Ernest Morse, Holmdel, N.J., and Gordon Douglas Weed, Denver, Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed March 1, 1971, Ser. No. 119,761
Int. Cl. H04m *3/42*
U.S. Cl. 179—18 B **27 Claims**



Wideband service between any two stations in a key telephone system is provided by a multilink matrix switching network. A register circuit common to all of the stations and common to all of the links monitors the status of each link and allows access to the matrix network from calling stations only when at least one link of the network is idle. On dial selective connections, signals identifying the calling station are communicated to the register circuit directly from each calling station. Signals identifying the called station are communicated to the register via the link assigned by the register to serve a given call request. On direct signaling connections, the identification signals of the called station are communicated to the register circuit from the called station in response to signals from a calling station. The system is arranged such that when a conference is desired the added stations are connected by the register circuit to the link serving the original calling and called stations so that the entire wideband conference is contained on the same link.

3,705,270
MOUNTING ARRANGEMENT FOR A MAGNETIC TAPE HEAD INCLUDING A SPHERICAL CAM FOLLOWER AND AN ARCUATELY SHAPED TAPE HEAD MOUNTING BRACKET

William B. Huber, Park Forest, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Jan. 21, 1971, Ser. No. 108,473
Int. Cl. G11b *5/56, 21/24*
U.S. Cl. 179—100.2 CA **12 Claims**

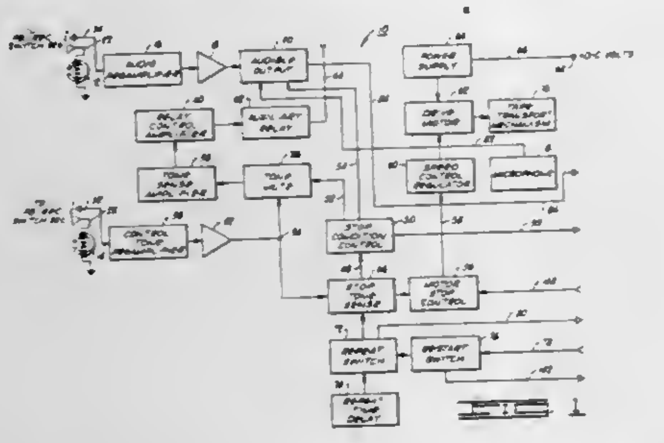


A mounting arrangement for the magnetic tape head in a tape player for playing multi-track tape cartridges comprises a mounting block movable along a vertical path in a plane adjacent the plane of the tape for positioning the tape head with respect to the tracks on the tape, and a collar receiving the tape head, connected to the block and rotatable with respect thereto for making an azimuth adjustment of the tape head with respect to the tape. A cam having a plurality of cam surfaces corresponding to different tracks on the tape is selectively coupled to the mounting arrangement through a cam follower mounted in engagement with a selected cam surface and the collar of the mounting arrangement. The cam follower includes a ball mounted in rolling engagement with a surface of the collar and the selected cam surface; the former being curved so that azimuth adjustments of the tape head do not affect the vertical positioning of the tape head along the path.

3,705,271
AUDIO TUTORING DEVICE INCLUDING RECORDING CAPABILITY

Lawrence R. De Bell, Bethany, and David D. Price, Jr., Oklahoma City, both of Okla., assignors to Economy Co., Oklahoma City, Okla.
Continuation-in-part of Ser. No. 860,292, Sept. 23, 1969, Pat. No. 3,594,919. This application March 26, 1971, Ser. No. 128,302
Int. Cl. G11b *23/18, 27/32*
U.S. Cl. 179—100.2 MD **5 Claims**

Teaching machine apparatus consisting of audio record playback apparatus for reproducing plural channel record tapes including both audio information and control tone signals, and as used in combination with specialized recorder apparatus adapted for answer recording in response to played back instructional material and including interactive control means as between playback and recording circuitry during student usage. The recorder apparatus includes control tone generation means as well as switching and control circuitry for placing audio information signals and control tone signals on



separate channels of the plural channel record tape, and automatic timing means provide control over control tone duration and tape transport drive energization.

3,705,272

NOISE DIMINISHING SWITCHING CIRCUIT FOR MAGNETIC RECORDING-REPRODUCING DEVICE

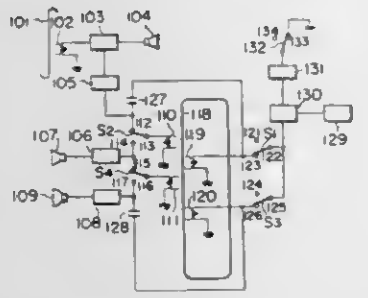
Takao Tsuji, and Minoru Yoshikawa, both of Kawasaki-shi, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed July 15, 1970, Ser. No. 55,115

Claims priority, application Japan, July 18, 1969, 44/56805; Aug. 16, 1969, 44/77416

Int. Cl. G11b *15/12*

U.S. Cl. 179—100.2 K **10 Claims**



A magnetic recording-reproducing device comprises at least one switchable recording-reproducing head and at least one erase head. In a high-frequency bias recording system, high-frequency bias is applied to the recording-reproducing head in addition to the signals to be recorded on the magnetic recording medium. Also in a high-frequency erasing system, high-frequency erasing current is applied to the erase head. In both cases, in switching the operation modes of each head from one to the other and vice versa, the annoying noise is recorded on the recording medium because of the high-frequency current applied to the respective heads. In order to eliminate the noise, prior to mode switching of the heads, the high-frequency current is interrupted and thereafter high-frequency current is supplied to the heads.

3,705,273

MAGNETIC RECORDING AND REPRODUCING APPARATUS

Yasuyuki Noyori; Elji Uehira, and Tadao Katayama, all of Kobe, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

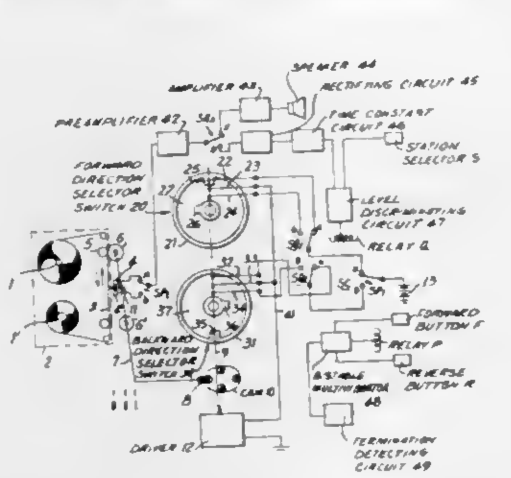
Filed Oct. 21, 1971, Ser. No. 191,210

Claims priority, application Japan, Oct. 23, 1970, 45/93214

Int. Cl. G11b *21/08, 23/04*

U.S. Cl. 179—100.2 Z **6 Claims**

A magnetic recording and reproducing apparatus which is provided with recording and reproducing functions in both forward and backward directions of a tape and a tape position selecting function in accordance with a recording mode. In order to enable carrying out of recording and reproducing operations in both forward and backward directions of a tape, two capstans and two pinch rollers are provided on both sides of magnetic heads opposed to upper and lower tracks of a tape. In addition, a special cam mechanism and a selector


SPEAKER 44
AMPLIFIER 43
RECORDING CIRCUIT 45
PREAMPLIFIER 42
TIME CONSTANT CIRCUIT 46
STATION SELECTOR S
FORWARD DIRECTION SELECTOR SWITCH 20
LEVEL DISCRIMINATING CIRCUIT 47
RELAY Q
FORWARD BUTTON F
RELAY P
REVERSE BUTTON R
BACKWARD DIRECTION SELECTOR SWITCH 30
BISTABLE MULTIVIBRATOR 48
CAM 10
DRIVER 12
TERMINATION DETECTING CIRCUIT 49

switch which selectively control the positions of the two pinch rollers are provided. A level discriminating circuit which detects the interrupting time of a reproducing signal is provided in a mechanism in order to select a recording position of a tape, so that a rapid winding mode for the two pinch rollers is maintained by the output.

3,705,274

CIRCUIT ARRANGEMENT FOR TELECOMMUNICATION INSTALLATIONS, ESPECIALLY, TELEPHONE EXCHANGE INSTALLATIONS WITH PARALLEL ALTERNATIVELY ACTING IDENTIFICATION SIGNAL TRANSMITTERS

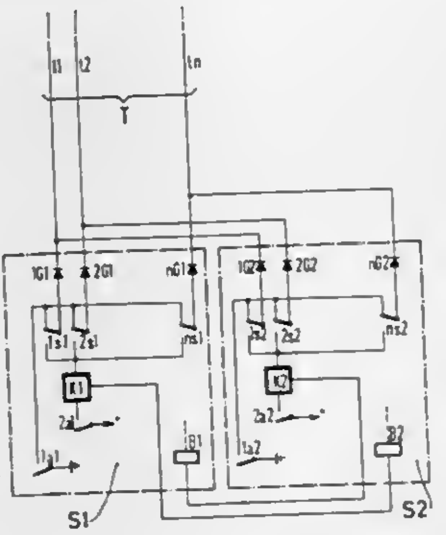
Helmuth-Joachim Bock, Zuricher-Str. 128, 8000 Munich 71, and Anton Senoefelder, Am Erdapfelgarten 10a, 8031 Gilching, both of Germany

Filed May 18, 1971, Ser. No. 144,542

Claims priority, application Germany, May 20, 1970, P 20 24 603.1

Int. Cl. H04m *3/24*

U.S. Cl. 179—175.2 R **4 Claims**



A circuit arrangement for telecommunication exchange installations is described wherein at least two identification signal transmitters are connected in parallel to common transmission line means to send over first connecting means constituted by rectifiers. The sending circuits in each transmitter corresponding to the common line means is combined into a collection line over second connecting means. A control device is provided which monitors the rectifiers for defects in the form of lowered resistance in the conduction blocking direction. Upon occurrence of such a defect, the control device limits operations to only the identification signal transmitter having the defective rectifier. The remaining transmitters are switched off and characterized as blocked.

3,705,275

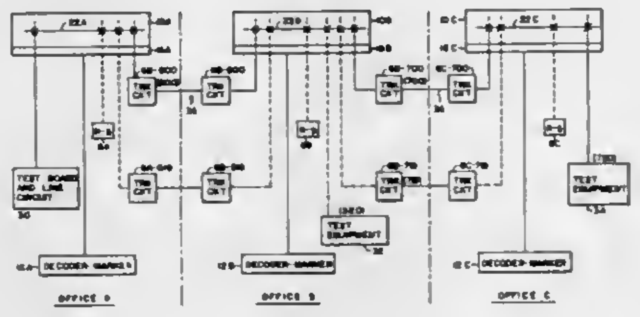
TELEPHONE TRUNK TESTING SYSTEM

Derek Leyburn, Ottawa, and Murray Allan Davey, Thornhill, Ontario, both of Canada, assignors to The Bell Telephone Company of Canada, Quebec, Canada

Filed Sept. 30, 1971, Ser. No. 185,185

Int. Cl. H04b *3/46*

U.S. Cl. 179—175.3 **6 Claims**



A system for testing telephone trunks, particularly trunks in tandem extending between three or more crossbar offices, in which each trunk circuit is given a line location and a local telephone number in its own office. The switching equipment in each office is arranged so that when it receives a trunk circuit telephone number from a test board, it establishes a connection directly to that trunk circuit, as if it were a line circuit. Thus, the test board in one office can select a trunk to a second office, thereby seizing a register-sender in the second office; it can then dial into that register-sender the telephone number of a desired trunk from the second office to a third office, thus seizing a register-sender in the third office, and it can then dial into such register-sender the telephone number of test equipment in the third office, allowing the trunks to be tested in tandem.

3,705,276

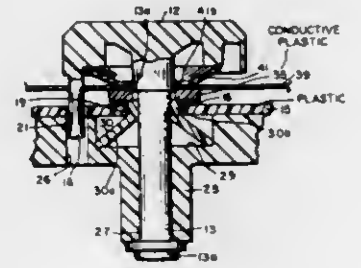
KEYBOARD SWITCH ASSEMBLY WITH CONDUCTIVE PLASTIC CONTACTOR AND ACTUATOR SPRING SLEEVE BIASING MEANS

Richard E. Seeger, Jr., Marblehead, and George T. Hodgson, Jr., Melrose, both of Mass., assignors to Chomerics, Inc., Woburn, Mass.

Filed May 20, 1971, Ser. No. 145,212

Int. Cl. H01h *13/60, 1/02*

U.S. Cl. 200—5 A **16 Claims**



An encoded switch array having a keyboard comprising a plurality of buttons, each button when depressed adapted to force a conductive contactor against a conductive wiring pattern supported on a board or the like, the contactor preferably being of a conductive plastic normally held away from the wiring pattern by resilent biasing means.

3,705,277

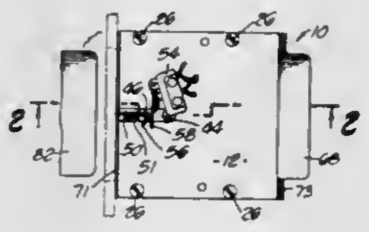
MULTI-CODE, TAMPER PROOF, CARD-OPERABLE MAGNETIC LOCKING MECHANISM

Bruce S. Sedley, Marin County, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.

Filed May 21, 1971, Ser. No. 145,701

Int. Cl. H01h *27/00;* **E05b** *47/00*

U.S. Cl. 200—45 **30 Claims**



A programmable, card-operable magnetic locking mechanism of the type having a movable tumbler-carrying core disposed above a fixed keeper plate provided with openings which normally receive the ends of tumbler magnets in the core to prevent movement of the core, some of the tumbler magnets being movable out of the keeper plate openings by a magnetically coded program card inserted into a slot above the core, and the remainder of the tumbler magnets being movable by a magnetically coded pass card inserted into a slot beneath the keeper plate. The program cards and the pass cards are coded with magnetized spots arranged to align with the tumbler magnets when the cards are inserted into their respective slots. The tumbler-receiving openings in the keeper plate are of two different sizes. If one of the tumblers extends into one of the smaller openings, the core cannot be moved. If none of the tumblers extends into a smaller opening, but one of the tumblers extends into one or more of the larger openings, the core can be moved a limited distance to actuate a first switch. If none of the tumblers extend into the keeper plate openings, the core can be moved through an extended distance to actuate a second switch. A control circuit which includes both switches is provided with a control switch for selectively rendering the first switch effective or ineffective to actuate an operator (e. g., a turnstile, parking gate, etc).

A tamper-prevention pin is slidably mounted in an opening in the core so that if tumblers are displaced from their respective openings in the keeper plate by some unauthorized means (e. g., by sharply striking the lock from above, or by turning the lock upside down), the tamper-prevention pin will move into engagement with a fixed structure in the lock to prevent movement of the core.

3,705,278

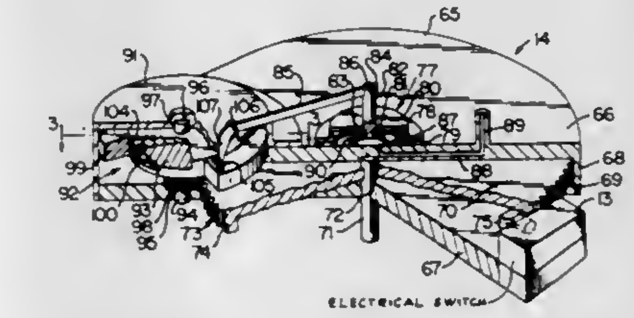
PNEUMATICALLY ACTUATED TIMER PROGRAMMING CAM MECHANISM AND SWITCH

Douglas R. Scott, 16 Susquebana Court, Elkhart, Md.

Division of Ser. No. 776,224, Nov. 15, 1968. This application Aug. 26, 1970, Ser. No. 67,236

Int. Cl. F17d *3/00;* **H01h** *7/02*

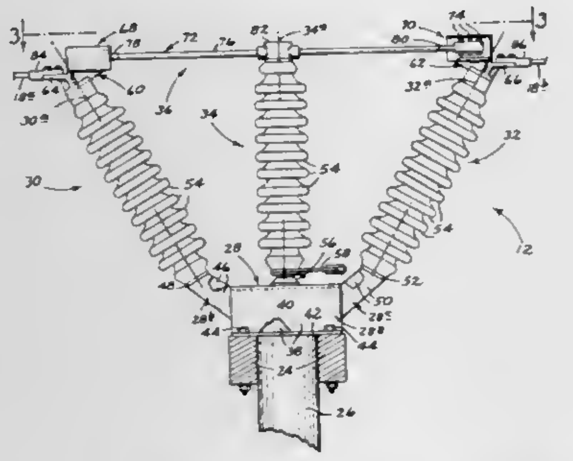
U.S. Cl. 200—33 B **5 Claims**



This disclosure relates to a laundry machine wherein the rotating laundry confining drum or tub is operatively interconnected to a vacuum pump to cause continuous operation of the vacuum pump during the entire movement of the confining means so as to provide a source of vacuum for controlling vacuum operated actuators of the apparatus. In addition, a pneumatically operated timer controlling the "on-off" operation of the laundry machine is repetitively actuated and deactuated by the movement of the laundry confining means.

3,705,279
SINGLE-POLE DOUBLE-BREAK HIGH-VOLTAGE SWITCH ASSEMBLY

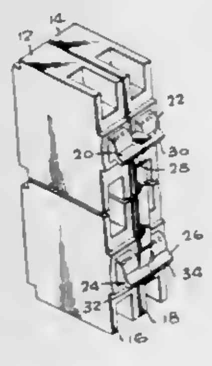
Charles F. Kerr, Jr., Hillsboro, Oreg., assignor to Eltec, Inc., Portland, Oreg.
Filed June 30, 1971, Ser. No. 158,253
Int. Cl. H01h *31/00*
U.S. Cl. 200—48 SB **4 Claims**



A high-voltage single-pole double-break switch assembly characterized by two outer, fixed, diverging, coplanar insulators whose inner adjacent ends are anchored to a base, and whose outer ends are free and carry switch contacts. Intermediate the outer insulators is an inner insulator journaled on the base for rotation about its own longitudinal axis. The inner insulator carries a switch blade whose outer ends simultaneously engage and disengage the switch contacts with rotation of the insulator. With the blade engaging the contacts, the blade and the two outer insulators bound a substantially triangular zone, one apex of which is adjacent the base.

3,705,280
INTERLOCK FOR CIRCUIT BREAKER SWITCHES

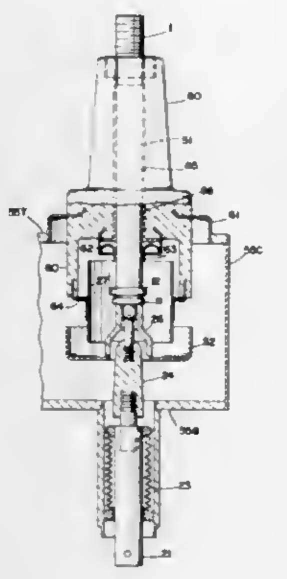
Harry Keith Harms, Los Angeles, Calif., assignor to Excel Electrical Supply Co., Van Nuys, Calif.
Filed June 4, 1971, Ser. No. 150,044
Int. Cl. H01h 9/26
U.S. Cl. 200—50 C **7 Claims**



Circuit breaker switches which have their load sides connected to the same bus, from diverse power sources, are mechanically interconnected so only one switch can be in the on condition at any one time. The passive mechanical interconnection comprises an inextensible interlock link between the handles on the circuit breaker switches.

3,705,281
BUSHING INSULATOR IMPROVEMENTS FOR A DEAD TANK VACUUM SWITCH

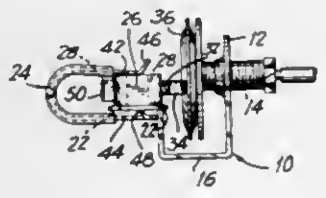
Elmer L. Luehring, Cleveland Heights, Ohio, assignor to Joslyn Mfg. and Supply Company, Chicago, Ill.
Filed April 29, 1971, Ser. No. 138,563
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **1 Claim**



A vacuum switch is of the type having a metallic or other material electrically dead enclosure through which one or more conductive terminal leads extend. Interposed between each terminal lead and enclosure is a respective, preferably ceramic, insulator bushing. Annular, semi-flexible metal sealing means are at one limit embedded in (or could be sealed to) the insulator ceramic and at other limits metal-to-metal secured to an enclosure tank part and metal-to-metal secured to terminal lead. Metal support means for metal condensing shields may extend from embedment in the ceramic material and be metal-to-metal bonded similarly.

3,705,282
MOUNTING DEVICE FOR ELECTRICAL SWITCH

Roland A. Benoit, Danielson, Conn., assignor to Interroyal Corporation, New York, N.Y.
Filed Dec. 7, 1971, Ser. No. 205,498
Int. Cl. H01h 9/08
U.S. Cl. 200—168 R **5 Claims**



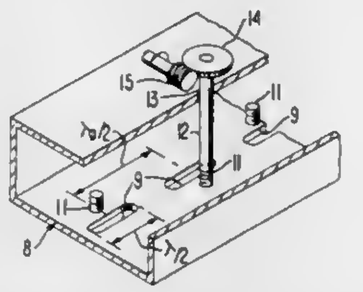
A device for holding an electrical switch including an insulating body with at least a pair of oppositely disposed apertures. The device comprises a mounting bracket including at least a pair of projecting members or dimples aligned with the pair of oppositely disposed apertures and a separate resilient spring member of a generally U-shape having a pair of facing leg members. The electrical switch is placed on a platform segment of the mounting bracket with the dimples communicating with the apertures, and the combined switch and bracket assembly is wedged between the leg members of the resilient keeper spring.

ERRATA

For Classes 219—262 thru 346—72 see:
Patents Nos. 3,705,414 thru 3,705,425

3,705,283
MICROWAVE APPLICATOR EMPLOYING A BROADSIDE SLOT RADIATOR

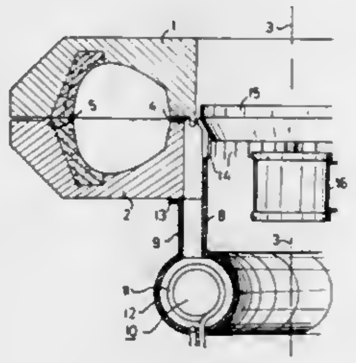
William H. Sayer, Jr., San Mateo, Calif., assignor to Varrian Associates, Palo Alto, Calif.
Continuation of Ser. No. 5,442, Jan. 23, 1970, abandoned.
This application Aug. 16, 1971, Ser. No. 172,176
Int. Cl. H05b 9/06
U.S. Cl. 219—10.55 **6 Claims**



A microwave applicator for treating material with microwave energy is disclosed. The applicator includes a broadside radiator formed by a hollow elongated waveguide having an array of resonant slots communicating through the wall of the waveguide, such slots being spaced apart on their centers along the axis of the guide by one-half a guide wavelength an array of slot loading members are disposed to project into the waveguide from alternate sides of adjacent slots for coupling microwave energy from the waveguide radiator through the slots in an in-phase relation to obtain a broadside radiator. The loading members may be separately adjusted for adjusting the energy profile coupled form the antenna to the load.

3,705,284
INDUCTOR FOR THE THERMAL TREATMENT OF A MATERIAL WHICH IS NOT VERY OR NON-ELECTRICALLY CONDUCTING CONTAINING FERROMAGNETIC OR ELECTRICALLY CONDUCTIVE PARTICLES

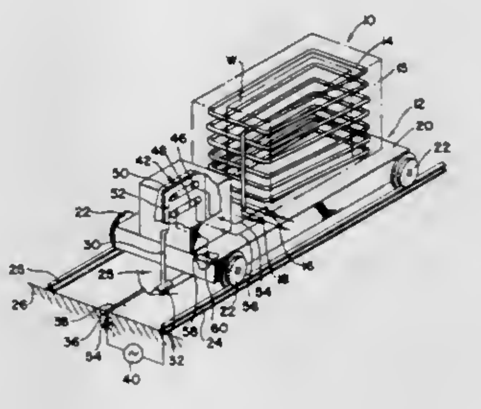
Pierre C. Binard, Embourg, Belgium, assignor to Elphiac, Bruxelles, Belgium
Filed Feb. 24, 1970, Ser. No. 13,434
Claims priority, application Belgium, Feb. 27, 1969, 70,585
Int. Cl. H05b *5/00;* **B29h** *5/02;* **H05b** 9/*02*
U.S. Cl. 219—10.49 **8 Claims**



An inductor for use in the thermal treatment of a material which is not very or non-electrically conducting containing ferromagnetic or electrically conductive particles. The inductor forms, in combination with the insulation between its conductors, a mold in which the material containing ferromagnetic or electrically conductive particles is submitted to the thermal treatment.

3,705,285
MOBILE APPARATUS FOR THE INDUCTION HEATING OF METAL INGOTS

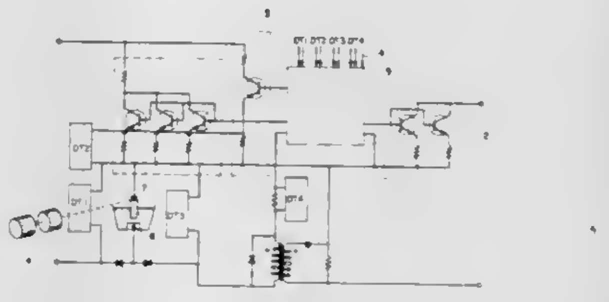
John F. Cachat, Cleveland, Ohio, assignor to Growth International, Inc., Cleveland, Ohio
Filed Nov. 5, 1971, Ser. No. 196,028
Int. Cl. H05b *5/08*
U.S. Cl. 219—10.57 **9 Claims**



Induction heating apparatus is disclosed comprised of a track mounted wheeled carrier carrying one or more induction heating coil assemblies. The carrier is adapted to be moved along the track by motor means mounted on the carrier, and electrical power for energizing the motor means and the induction heating coil assembly or assemblies is transmitted thereto by means of a contact device such as a pantograph carried by the carrier for sliding engagement with an overhead or underground conductor. All equipment necessary to the operation of the induction heating coil assembly, such as transformers, capacitor banks, cooling means and the like are mounted on the carrier.

3,705,286
ELECTRIC DISCHARGE MACHINING DEVICE

Iwao Kondo, 39-9 Kitamachi 1-chome, Nerima-ku, Tokyo; Kenjiro Taoka, 12-7 Taishido 2-chome, Setagaya-ku, Tokyo, and Kenji Sasagawa, 4-16 Higashimagome 1-chome, Oota-ku, Tokyo, all of Japan
Filed Jan. 21, 1971, Ser. No. 108,330
Int. Cl. B23p *1/08, 1/14*
U.S. Cl. 219—69 C **10 Claims**



An electrical discharge machining device comprising a plurality of detectors for detecting currents and voltages at different parts of the device and generating detection signals in response to the detection, a logic circuit for determining different machining conditions of the device by logical combination of the detection signals so as to generate different discerning signals corresponding to the different machining conditions, and a control means for controlling the machining device based on relative frequency ratios of different discerning signals. Said relative ratios may be determined by using integrating circuits.

3,705,287

PROCESS FOR SHAPING WORKPIECE BY ELECTRICAL DISCHARGE AND APPARATUS THEREFOR

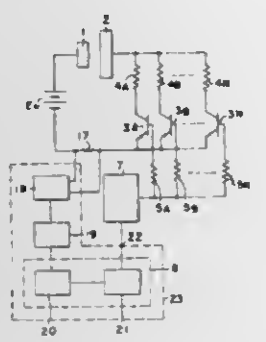
Nagao Saito; Kazuhiko Kobayashi, both of Nagoya, and Shigeru Takagi, Kasugai, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed April 8, 1971, Ser. No. 132,519

Claims priority, application Japan, July 2, 1970, 45/47389

Int. Cl. B23p *1/08*

U.S. Cl. 219—69 P **6 Claims**



A process for shaping a workpiece using an electrical discharge and an apparatus for practicing the process is disclosed. According to the process, a workpiece is shaped by intermittently impressing a voltage pulse across a working gap between the workpiece and an appropriately shaped electrode. The process includes the step of controlling the duration of the electrical discharge in the working gap in accordance with operating conditions in the working gap to control the average current flow. The apparatus includes a control circuit having a capacitor circuit which controls the duration of the current discharge depending directly upon the time during which the no-load voltage exists in the working gap.

3,705,288

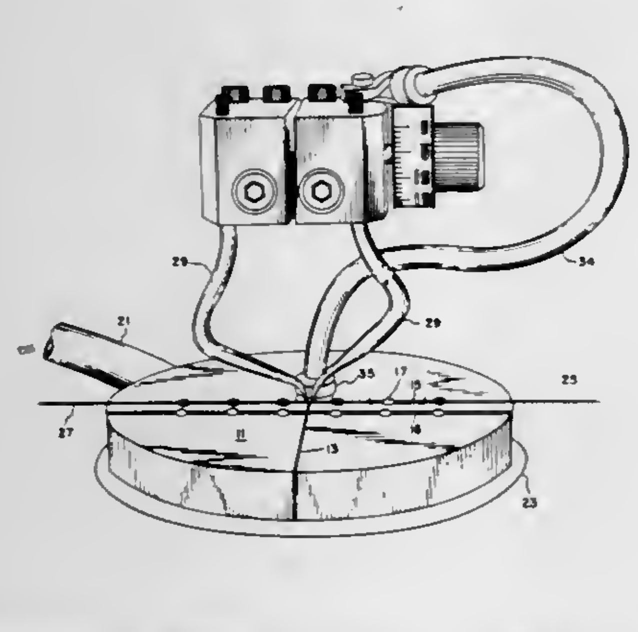
BUTT WELDER FOR FINE GAUGE TUNGSTEN/RHENIUM THERMOCOUPLE WIRE

Walter P. Kabana, and Charles B. King, both of Hampton, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 31, 1970, Ser. No. 103,230

Int. Cl. B23k *9/02*

U.S. Cl. 219—101 **7 Claims**



An electrical resistance butt welder for welding fine wire or other metal parts having small cross sections through the use of a vacuum groove and bow-shaped electrodes to hold the wires alined and abutted.

3,705,289

ELECTRONIC COPYING EQUIPMENT WITH CONTROLLED HEATER

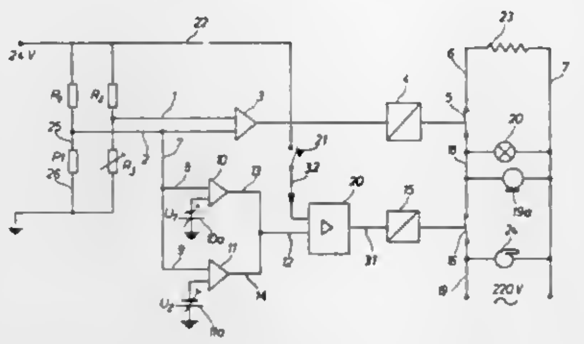
Roland Szostak, Grunwald; Karl Hartwig, Unterhaching, and Gunter Maurischat, Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 23, 1971, Ser. No. 182,986

Claims priority, application Germany, Sept. 30, 1970, P 20 48 076.6

Int. Cl. H05b *3/00*

U.S. Cl. 219—216 **8 Claims**



A temperature varying resistor is in one branch of a bridge circuit. The voltage across the diagonal of the bridge controls the heater cut in and cut off under normal operation. The voltage across the temperature varying resistor is applied to two threshold circuits and the lamp motor and heater are disconnected from the power supply the ventilator remains connected, if the voltage across the temperature varying resistance is outside of the two limits set by the threshold circuits.

3,705,290

ELECTRICAL GAS HEATING APPARATUS USING FREQUENCY MULTIPLYING CIRCUIT AND INDUCTION BLOWER

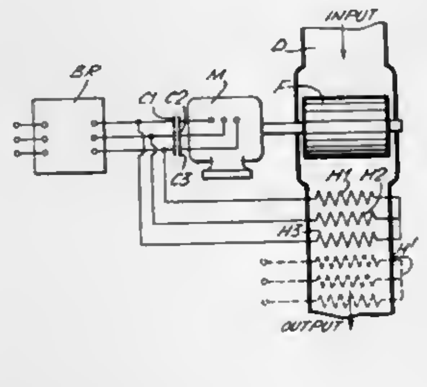
Clive Lynn Jones, Swansea, Wales, assignor to National Research Development Corporation, London, England

Division of Ser. No. 829,920, June 3, 1969, Pat. No. 3,611,434. This application April 12, 1971, Ser. No. 133,123

Claims priority, application Great Britain, June 7, 1968, 27,259/68; Jan. 2, 1969, 325/69

Int. Cl. H05b *3/00;* **F24h** *3/04*

U.S. Cl. 219—364 **6 Claims**



An electric motor is fed through a frequency multiplying circuit formed by a rectifying circuit with a bypass circuit connected across the motor for removing the DC component of the rectified current so that the motor is fed with an AC current having a higher frequency than that of the supply, the motor being mechanically coupled to drive a gas blower and the bypass circuit comprising a heater in the gas path through the blower.

3,705,291

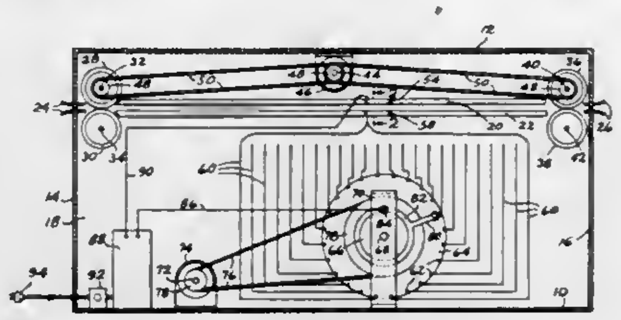
METHOD AND APPARATUS FOR MAKING PERFORATED SIGN TEMPLATES

Lawrence E. Thompson, West Linn, Oreg.

Continuation-in-part of Ser. No. 43,338, June 4, 1970, abandoned. This application March 23, 1971, Ser. No. 127,172

Int. Cl. H05b *7/18*

U.S. Cl. 219—384 **16 Claims**



Artwork for a sign is outlined on paper or other dielectric sheet material with pencil lead or other electrically conductive marking material to form a sign pattern. A pair of spaced apart electrodes are arranged to receive the outlined sheet material between them, and they are energized for intermittent conduction between predetermined areas thereof only when said conductive marking material is interposed between said areas. The sheet material and electrodes then are moved relatively one to the other in a direction to cause small spaced apart portions of the conductive marking material to be interposed sequentially between the electrodes, whereby to cause conduction between the areas of the electrodes intercepted by the marking material and produce a plurality of spaced apart holes in the sheet material along the lines of marking material outlining the sign artwork. In one form of apparatus one of the electrodes of the pair is a single, elongated electrode and the other electrode of the pair comprises a plurality of laterally spaced electrode segments each connected sequentially to a source of intermittent electric potential to produce sequential conduction between the first named electrode and each of the electrode segments. In another form of apparatus one of the electrodes of the pair is a single, elongated, fixed electrode and the other electrode of the pair is an elongated electrode mounted spirally around an electrically non-conductive rotor. In still another form of apparatus one of the electrodes of the pair is a plate of electrically conductive metal on which the outlined sheet is supported and the other electrode of the pair is mounted on an elongated roller supported by a handle for hand manipulation over the sheet.

3,705,292

AUTOMATIC DEVICE FOR PREPARING PERFORATED CARDS OR BANDS FOR LOOM JACQUARDS

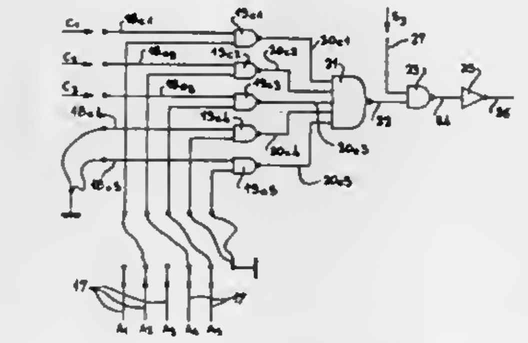
Pierre Frappe, Lyon, France, assignor to Societe Verdol S.A., Lyon, France

Filed Sept. 17, 1971, Ser. No. 181,469

Claimes priority, application France, Nov. 5, 1970, 7040904

Int. Cl. G06k *1/00*

U.S. Cl. 235—61.6 A **8 Claims**



An automatic device to be used in the preparation of perforated cards or bands for loom Jacquards in accordance with a colored drawing, comprises a number of weave circuits, each including a grid one series of bars of which corresponds to the warp threads and the other one to the weft threads, the bars of a series being selectively connectable with the bars of the other series in accordance with the particular weave. The bars of the first series receive in succession a line signal each time the main photo-electric means which scans the drawing passes from one line thereof to the next one while the bars of the other series are connected with individual gates which are conditioned in succession just before the main photo-electric means scans a thread crossing in the drawing. The signals from the various weave circuits are applied to a combination circuit. The latter may comprise individual gates which also receive the color signals from the main photo-electric means and the outlets of these latter gates are applied to a general gate which is conditioned when the said main photo-electric means scan the center of the representation of a thread crossing in the drawing. The combination circuit may also comprise a grid with two series of bars selectively connectable with each other in order that each color of the drawing may correspond to any one of a number of different weaves.

3,705,293

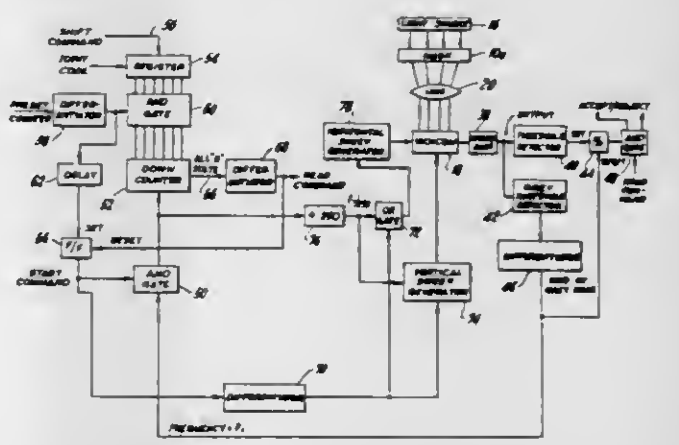
HIGH-CAPACITY OPTICAL IMAGE SCANNING MEMORY SYSTEM AND CARD VERIFICATION SYSTEM

Melvin S. Cook, Upper Saddle River, N.J., assignor to Holobeam, Inc., Paramus, N.J.

Filed Dec. 21, 1970, Ser. No. 100,004

Int. Cl. G06k *7/08*

U.S. Cl. 235—61.7 B **8 Claims**



A memory storage and readout system using a camera as an optical image scanning device operating on the image of a mask which has a pattern formed thereon corresponding to the stored data. Addresses on the mask or its image for data storage correspond to specific locations in the pattern formed on the memory mask. In one embodiment, grey areas are regularly arranged between data areas on the mask to provide clocking signals to the addressing and readout circuits. Also disclosed is a personnel identification and credit card checking system utilizing this memory.

3,705,294

DATA CARD AND METHOD OF ENCODING SAME

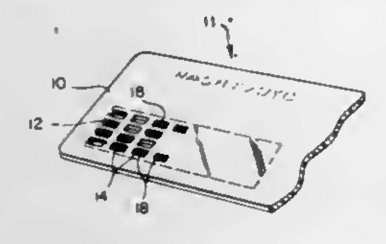
Manfred R. Kuehnle, Lexington; Jurgen Kok, Bedford, and Dieter Jochimsen, Winchester, all of Mass., assignors to Elliott Business Machines, Inc., Randolph Industrial Park, Randolph, Mass.

Filed April 8, 1970, Ser. No. 26,514

Int. Cl. G06k *19/06*

U.S. Cl. 235—61.12 N **11 Claims**

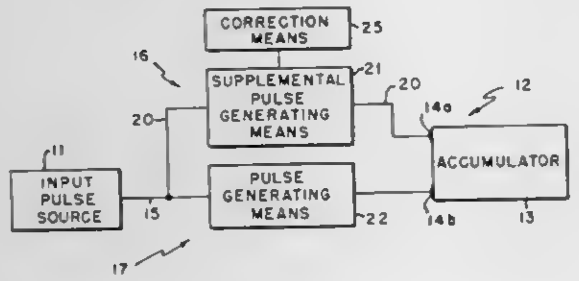
A data card which can be encoded by the user without special encoding facilities has a substrate with a first light reflection characteristic. The substrate carries a code field embracing all possible "bit" locations in the code. Selected bit areas in the field are treated to give them a different light reflection characteristic from the substrate in the remainder of the field,



thereby impressing a code pattern in the code field consisting of "bit" locations having one of two different light reflection characteristics.

3,705,295
CONVERSION SYSTEM

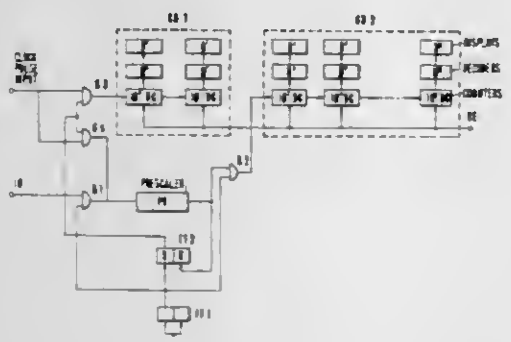
Bernard K. Betz, Hennepin, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Continuation of Ser. No. 773,678, Nov. 5, 1968, abandoned. This application Feb. 8, 1971, Ser. No. 113,663
Int. Cl. H03k *21/02*; **G06m** *3/14*
U.S. Cl. 235—92 PL **17 Claims**



A system for converting electrical input pulses generated by an input pulse source to a predetermined unit of measure. Electronic scalers, triggered by the input pulses, sequentially generate a preselected number of output pulses. In the conversion system each output pulse represents a fixed integral number. The conversion factor per pulse is the total of output pulses divided by the number of input pulses.

3,705,296
COUNT DISPLAY SYSTEM

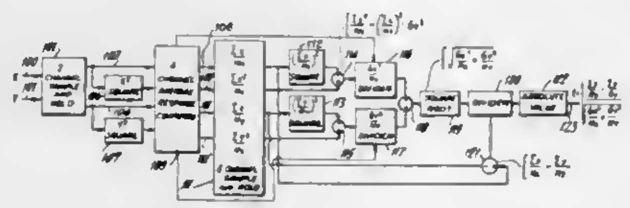
Kiyoshi Kochi, Tokyo, Japan, assignor to Iwatsu Electric Company Limited, Tokyo, Japan
Filed Feb. 22, 1971, Ser. No. 117,374
Claims priority, application Japan, Feb. 24, 1970, 45/15354; Feb. 24, 1970, 45/15355; Feb. 24, 1970, 45/15356
Int. Cl. H03k *21/18*
U.S. Cl. 235—92 EA **5 Claims**



A count display system having count display devices for counting and displaying numerals of different orders of magnitude, a prescaler having a ratio of frequency division preset in accordance with the lower orders, a first gate circuit responsive to a gate control signal for supplying input signals to the prescaler for a predetermined time interval, a second gate circuit responsive to the gate control signal for supplying the output from the prescaler to the count display device of higher orders, additional circuits responsive to the gate control signal and the output from the prescaler for applying a supply of reference pulses, to the prescaler and for applying reference pulses of the same number as the reference pulses supplied to the prescaler to the count display device of the lower orders so as to calculate the difference between the limiting value of the frequency division of the prescaler and the value actually counted by utilizing the reference pulses.

3,705,297
SIGNAL AVERAGER

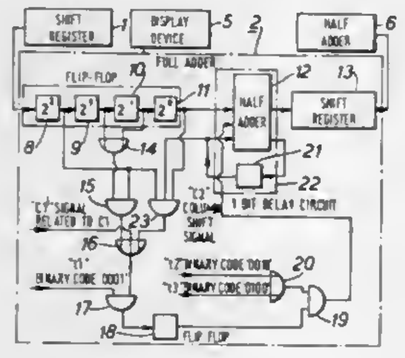
Erwin Roy John, Riverdale, N.Y., assignor to Neuro-Data, Inc., Cliffside Park, N.J.
Continuation-in-part of Ser. No. 878,158, Nov. 19, 1969, abandoned. This application June 28, 1971, Ser. No. 157,363
Int. Cl. G06g *7/28*; **G06j** *1/00*
U.S. Cl. 235—150.53 **6 Claims**



A special purpose computer is used to calculate the statistical T-test as a measure of the significance of the difference between two sample populations. The computer includes a four channel average response computer, squaring circuits, square root circuits, dividing circuits, differential circuits and summing circuits.

3,705,298
CONVERSION SYSTEM FOR USE IN ELECTRONIC CALCULATORS

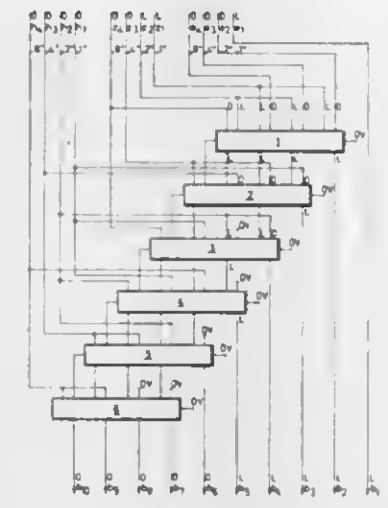
Isao Hatano; Akira Nagano, and Kenzi Yosimoto, all of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto-shi, Japan
Filed Dec. 17, 1970, Ser. No. 99,090
Claims priority, application Japan, Dec. 17, 1969, 44/101959
Int. Cl. G06f *5/02*
U.S. Cl. 235—154 **9 Claims**



A conversion system for an electronic calculator employs a shift register and a full adder circuit to convert binary digit signals for decimal display purposes. The shift register and full adder include appropriate gating and delay-feedback circuitry for serial conversion, column shift, and read-out.

3,705,299
CIRCUIT ARRANGEMENT FOR CONVERTING A DECIMAL NUMBER CODED IN THE BCD CODE INTO A PURE BINARY NUMBER

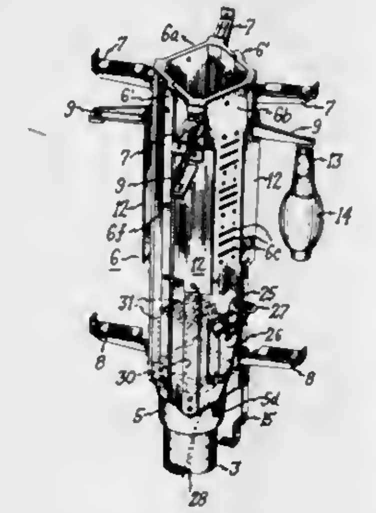
Ingbert Bastian, Munich, and Horst Brogl, Unterhaching, both of Germany, assignors to Messerschmitt-Bolkow-Blohm, Munich, Germany
Continuation of Ser. No. 854,831, Sept. 3, 1969, abandoned. This application Sept. 24, 1971, Ser. No. 183,602
Int. Cl. G06f *5/00*
U.S. Cl. 235—155 **5 Claims**



A circuit arrangement, for converting a decimal number expressed in the BCD code into a pure binary number, comprises plural binary full adder circuits arranged successively in ascending binary digit order and each having signal inputs and binary digit outputs. Plural BCD code input terminals have applied thereto the decimal number to be converted, and lines connect each code input terminal commonly to all those signal inputs of the adder circuits which are associated, in correct decimal column position, with those 2^n numbers which yield, as their sum, the decimal number, expressed in the BCD code, and indicated, with consideration of its decimal column position, at their respective code input terminals. The adder circuits are interconnected in such a manner that the carryover and output signals of each binary full adder circuit are supplied in correct decimal column position to the signal inputs of the respective succeeding binary full adder circuit.

3,705,300
LUMINAIRE

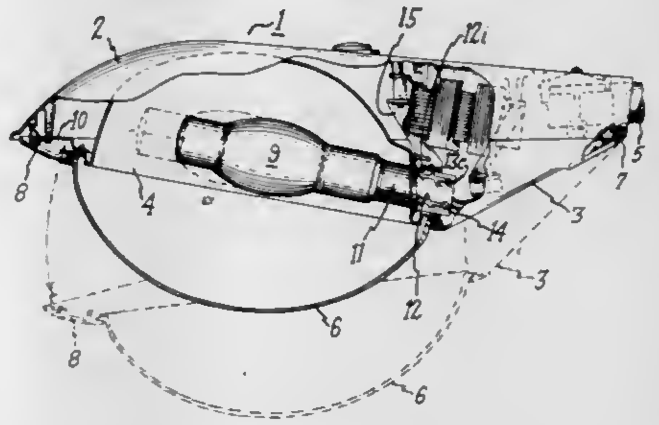
Jerry R. Plemmons, Asheville, and Mark H. Raymond, Dana, both of N.C., assignors to General Electric Company
Filed April 22, 1971, Ser. No. 136,402
Int. Cl. F21s *1/10, 3/10, 13/10*
U.S. Cl. 240—25 **17 Claims**



Post top luminaire having a plurality of gaseous discharge lamps is adapted to accommodate differently shaped globes for enclosing the lamps and ballast components for operating the same. An axially extending tubular support formed of separable parts carries the ballast components in its interior and the lamps on its exterior. A collar at the bottom of the globe is detachable to allow removal of the lamps through the open bottom of the globe, as well as to allow access to electrical operating components carried by the central support tube. A louvered canopy at the top of the globe allows outward flow of heated air from the luminaire interior. A slipfitter for mounting the luminaire on a hollow support post is connected to the bottom of the tubular support and has a slot to allow free passage of lead wires from the interior of the post to the interior of the luminaire for connection to the electrical operating components.

3,705,301
LUMINAIRE REFLECTOR AND LAMPHOLDER MOUNTING

John S. Franklin, and William C. Pursley, both of Hendersonville, N.C., assignors to General Electric Company
Filed Oct. 27, 1971, Ser. No. 192,874
Int. Cl. F21s *1/10*
U.S. Cl. 240—25 **10 Claims**

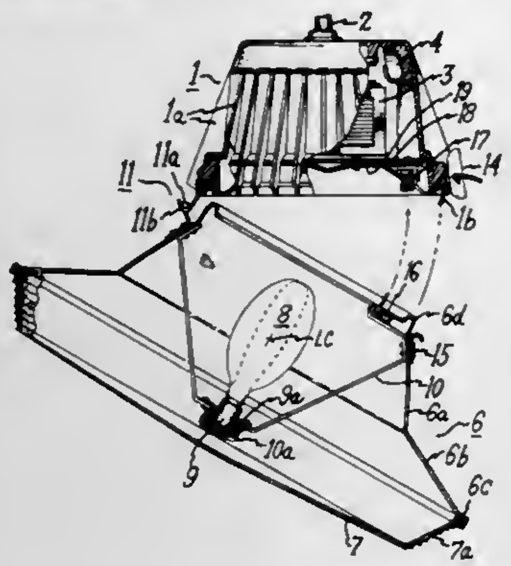


Luminaire includes an assembly of a reflector and lamp socket holder which provides for a tight seal between the reflector and a refractor when the refractor is moved into closed position against the reflector, while maintaining a fixed relationship between the lamp and the reflector. The front end of the reflector is fixedly secured to the luminaire housing, and at the rear end of the reflector the lamp socket extending through an opening in the reflector is adjustably secured to a socket holder fixed to the reflector. A leaf spring attached to a fixed support urges the socket holder downwardly for maintaining the reflector rim gasket in firm engagement with the mating refractor rim in the closed position. Tabs on the socket bracket projecting over the fixed support serve to prevent the reflector from falling out of the housing when the refractor is dropped to open position.

3,705,302
LUMINAIRE

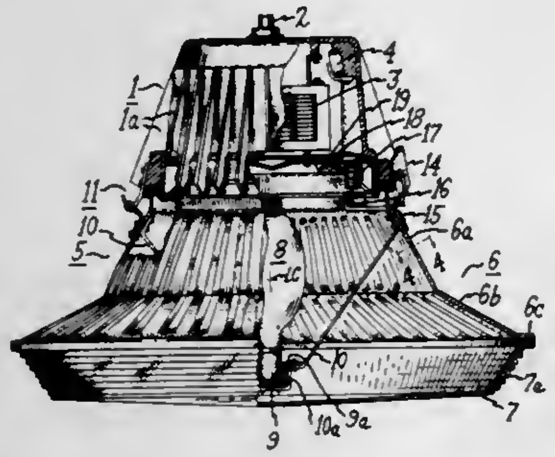
John R. Judge, Mobile, Ala., and Robert G. Kilpatrick, Hendersonville, N.C., assignors to General Electric Company
Filed March 12, 1971, Ser. No. 123,685
Int. Cl. F21s *1/02*
U.S. Cl. 240—78 LH **10 Claims**

Luminaire for indoor industrial use has an optical assembly having a diameter substantially greater than its height and adapted to be mounted at relatively low height above the floor. The optical assembly includes a dish shaped refractor sealed at its periphery to a reflector and a lamp mounted therein with its base down. The optical assembly is hingedly connected at one side to an upper ballast housing to enable the optical assembly to be swung down to provide access to its interior for servicing the lamp.



3,705,303
LUMINAIRE

Candler A. Willis, Jr., Zirconia, N.C., and John R. Judge, Mobile, Ala., assignors to General Electric Company
Filed March 12, 1971, Ser. No. 123,553
Int. Cl. F21v *13/04*
U.S. Cl. 240—93 **8 Claims**

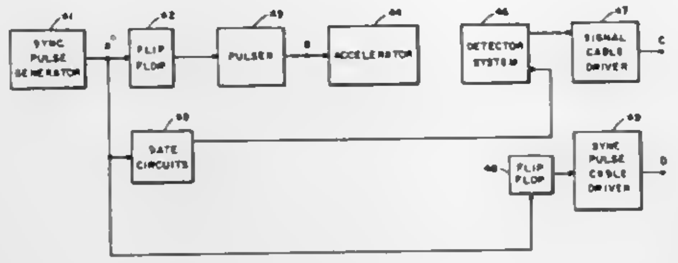


Luminaire for indoor industrial use has an optical assembly having a diameter substantially greater than its height and adapted to be mounted at a relatively low height above the floor. The optical assembly comprises a reflector with fluted concave upper portion and an outwardly flaring lower skirt portion to which a large diameter dish-shaped refractor is secured. The refractor has an annular side wall formed with horizontal rows of prisms which depress part of the incident light and reflect the remaining light rays upwardly toward the ceiling. The bottom panel of the refractor is formed with radial light dispersing flutes.

3,705,304
PULSED NEUTRON WELL LOGGING APPARATUS HAVING MEANS TO VARY THE NEUTRON GENERATOR PULSE REPETITION RATE

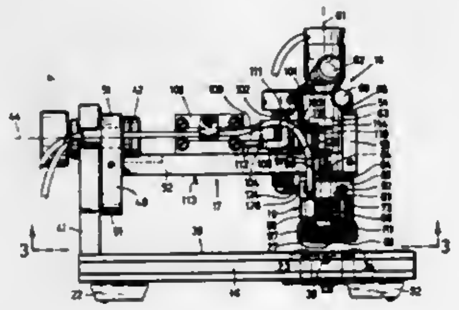
Eric C. Hopkinson, and Arthur H. Youmans, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed May 31, 1967, Ser. No. 642,592
Int. Cl. G01v *5/00*
U.S. Cl. 250—83.3 R **10 Claims**

A bistable multivibrator or scale of two circuit is inserted in the sync pulse line before a pulsed neutron generator to reduce the pulse repetition rate by a factor of two. The radiation detection system within the borehole instrument is gated in the conventional manner without the repetition rate of its detection gates being reduced by the factor of two. A second bistable multivibrator circuit is inserted in the sync pulse line before the sync pulse cable driver, the second multivibrator circuit causing the surface electronics to accept signal information during the first half of an elongated cycle which has not been corrected for activation background, and to accept information during the second half of the cycle which relates only to activation background. The signal information is combined with the background information to provide data relating to the decline of the thermal neutron population which is independent of the activation background counting rate.



3,705,305
INSTRUMENT FOR MEASURING THE THICKNESS OF LAYERS WITH RADIO-ACTIVE NUCLEIDES

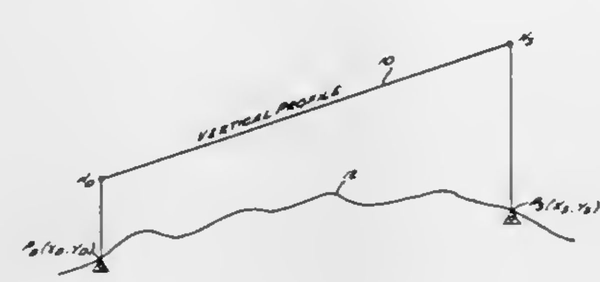
Helmut Fischer, Bergwaldstrasse 28, Gecbingen, Germany
Filed Sept. 14, 1970, Ser. No. 66,706
Claims priority, application Germany, Aug. 10, 1970, P 20 39 646.7
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 D **26 Claims**



An instrument for measuring the thickness of layers by means of radiation emitted from radio-active nucleides which interact with material of the layer and are then absolved by a radiation detector. A sighting mechanism determines the area of the layer to be irradiated and a diaphragm is interposed between the radio-active nucleide and the layer to define this area. A radiation detector on a supporting device can be moved into and out of a measuring position relative to this area. The sighting mechanism is operational when the radiation detector is out of measuring position and vice versa.

3,705,306
AIRCRAFT NAVIGATION SYSTEM WITH VERTICAL GUIDANCE

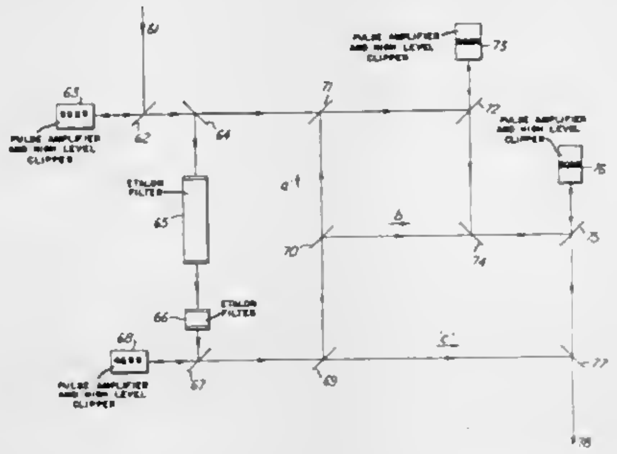
Lloyd E. Lydon, Northridge; Charles J. Steigleder, Encino, and Warren E. Carpenter, Malibu, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Sept. 30, 1970, Ser. No. 76,877
Int. Cl. G06f *15/50*
U.S. Cl. 235—150.2 **17 Claims**



An aircraft navigation system with vertical guidance in which a vertical profile is computed based on the difference in altitudes between start and destination points and the distance therebetween. The vertical profile and aircraft altitude are used to derive a displayed error signal which indicates the required aircraft altitude correction needed to reach and maintain the aircraft on the profile so that when it reaches the destination point it is at the selected altitude above it. Also displayed is a vertical speed which should be maintained to maintain the aircraft on the profile or on a line parallel thereto.

3,705,307
OPTICAL REPEATER WITH PHASE ERROR CORRECTION

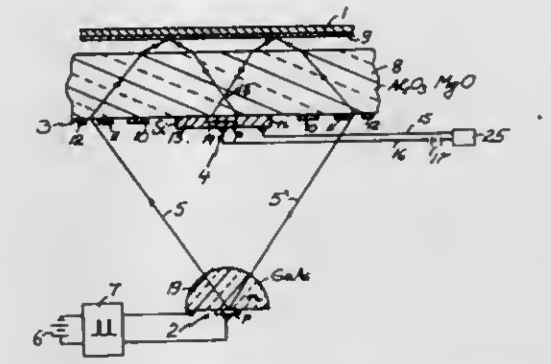
Alec Harley Reeves, Harlow; Melvin Murray Ramsay, Broxbourne; Anthony Edmund Mounter, and Simon French Laurence, both of Harlow, all of England, assignors to International Standard Electric Corporation, New York, N.Y.
Filed May 22, 1970, Ser. No. 39,833
Int. Cl. H04b *9/00*
U.S. Cl. 250—199 **5 Claims**



A phase modulated pulsed carrier wave transmission system wherein binary information is conveyed in the form of pulses such that the significance of each signal pulse is represented by the phase of the carrier. An optical frequency repeater for the system employs self-quenching super-regenerative devices to correct phase errors in the pulses before they are relayed down the system.

3,705,308
PULSE CODED SOUND REPRODUCTION USING OPTICAL READ-OUT OF THE MICROPHONE MEMBRANE

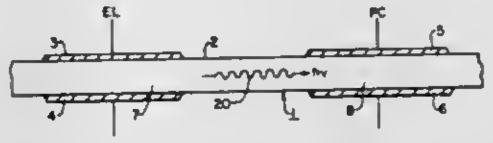
Kurt Lehovec, 11 Woodlawn Drive, Williamstown, Mass. Continuation-in-part of Ser. Nos. 692,051, Dec. 20, 1967, Pat. No. 3,546,469, and Ser. No. 32,160, April 27, 1970, Pat. No. 3,649,837. This application Nov. 16, 1970, Ser. No. 89,843
Int. Cl. G01d *5/34;* **G02b** *5/18;* **H01j** *39/12*
U.S. Cl. 250—217 SS **9 Claims**



The vibrations of a membrane are read out by means of a pulsed light beam incident on a photoelectric sensor. Integrated sensor amplifier structures are used.

3,705,309
THIN FILM OPTOELECTRONIC SEMICONDUCTOR DEVICE USING LIGHT COUPLING

Thomas P. Brody, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Feb. 5, 1971, Ser. No. 112,972
Int. Cl. G02f *1/28;* **H01j** *39/12*
U.S. Cl. 250—217 S **16 Claims**

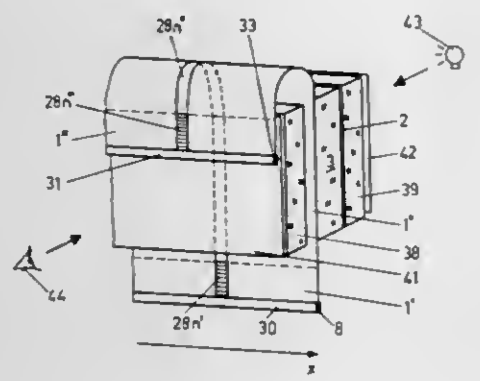


An electro-optical switch composed of a film of semiconductor material, such as for example CdS, CdSe, containing suitable dopants and in which a first electro-luminescent region for generating photons of radiation is disposed in one portion of the film and a second photo-conductive region for receiving the photons is disposed in another portion of the film, which film has a thickness of from about 2000 A to about 3 microns, and means being provided for inducing the generation of photons in the first region, optically guiding the photons in the plane of the film to the second region and for receiving the photons in the second region.

3,705,310
LIQUID CRYSTAL VOLTAGE DISPLAY DEVICE HAVING PHOTOCONDUCTIVE MEANS TO ENHANCE THE CONTRAST AT THE INDICATING REGION

Peter Wild, Wettingen, Switzerland, assignor to Brown, Boveri & Company Limited, Baden, Switzerland
Filed May 24, 1971, Ser. No. 146,196
Claims priority, application Switzerland, May 27, 1970, 7839/70
Int. Cl. G02f *1/16*
U.S. Cl. 250—229 **19 Claims**

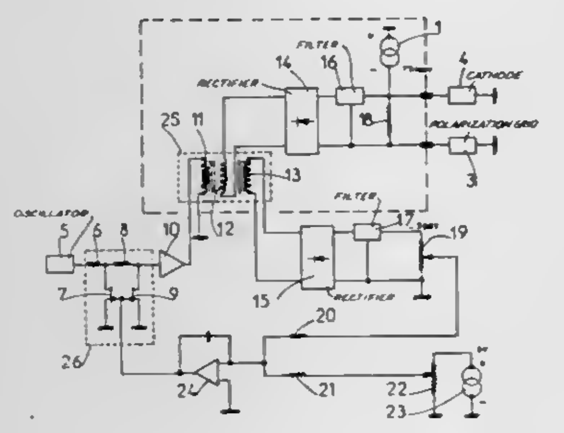
In the optical display disclosed, a pair of flat electrodes sandwich a two-dimensionally extending electro-optical medium that exhibits one optical characteristic in an area subjected to a voltage in excess of a threshold voltage and another opti-



cal characteristic where subjected to a voltage less than the threshold voltage. A potential gradient is applied along one electrode and segment wise constant voltages applied to the band electrode so that the voltage to which the medium is subjected varies locally from below to above the threshold voltage. The voltage to be displayed is added to the voltage on one electrode so that the threshold level and the boundary between the zones moves along the medium with the voltage to be displayed. The band electrode is formed of discreet bands parallel to the zone-separating boundary. An additional constant voltage is applied lengthwise across each band. A portion of each band is photo-resistive. When this portion senses the one zone that is subject to the higher voltage it increases the voltage applied locally to the medium in the form of a positive feedback. This accentuates the steepness of the threshold. Photosensitive means also change the applied voltages in response to changes of the threshold level. For this purpose circuit means respond to the photosensitive means by changing the applied voltages.

3,705,311
REGULATABLE CONTINUOUS HIGH VOLTAGE GENERATOR

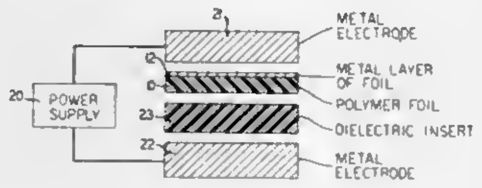
Helenio Llop, Creteil, France, assignor to Societe D'Optique, Precision, Electronique et Mecanique-Sopelem, Paris, France
Filed Jan. 5, 1971, Ser. No. 104,096
Claims priority, application France, Jan. 8, 1970, 7000551
Int. Cl. H02j *1/00*
U.S. Cl. 307—4 3 Claims



A regulatable continuous high voltage generator has a source of alternating voltage with the primary winding of a transformer connected thereto through a variable gain modulator. A first secondary of the transformer is connected through a rectifier and filter to a load receiving the operating voltage. A second secondary of the transformer is connected through a rectifier and filter to a counter reaction circuit which controls the variable gain modulator.

3,705,312
PREPARATION OF ELECTRET TRANSDUCER ELEMENTS BY APPLICATION OF CONTROLLED BREAKDOWN ELECTRIC FIELD

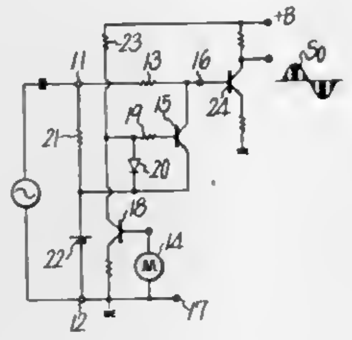
Gerhard Martin Sessler, Summit, and James Edward West, Plainfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 2, 1970, Ser. No. 85,882
Int. Cl. H04r *19/04*
U.S. Cl. 307—88 ET 11 Claims



A thin film electret with excellent surface charge properties is produced by placing a thin polymer film between two electrodes together with a dielectric plate and by applying a voltage of about 30 keV across the resulting sandwich of elements for about 1 minute. The process is carried out at room temperature and at atmospheric pressure. By using an auxiliary dielectric plate that is much thicker than the film and has the proper resistivity, a high voltage drop can be applied across the film without a resulting destructive breakdown. Charge-densities of up to 1.5×10^{-6} C/cm^2, which are greater by a factor of 3 than those previously reported, are produced.

3,705,313
TRANSISTOR CIRCUIT PERFORMING GATING OPERATION

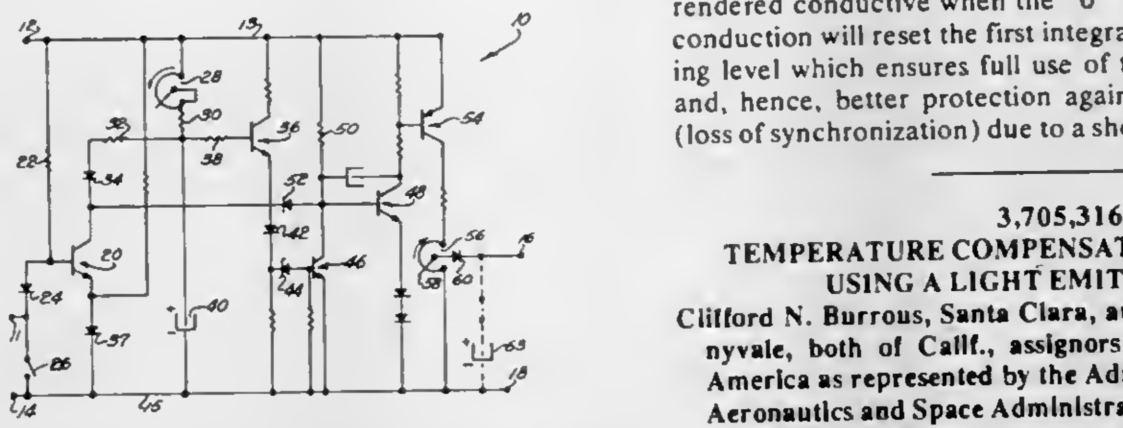
Mitsuo Ohsawa, Fujisawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed June 7, 1971, Ser. No. 150,441
Claims priority, application Japan, June 9, 1970, 45/49604; June 9, 1970, 45/49605; June 12, 1970, 45/50825
Int. Cl. H03k *17/56*
U.S. Cl. 307—239 10 Claims



In a signal gating circuit in which a switching transistor provides a shunt path for the input signal when switched to its conductive condition by the application of a gating signal thereto, the transistor is biased to be completely inactive when in its nonconductive condition, whereby to avoid any distortions in the intermittently gated signal regardless of the nature of the input signal. The signal gating circuit is suitable for fabrication as an integrated circuit, and may be embodied in modulator or demodulator circuits.

3,705,314
PULSE GENERATOR

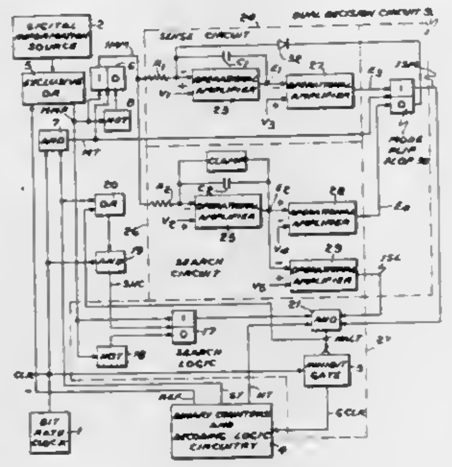
John M. Hauryklewicz, Kenosha, Wis., assignor to Eaton Corporation, Cleveland, Ohio
Filed July 1, 1971, Ser. No. 158,921
Int. Cl. H03k *1/12*
U.S. Cl. 307—266 9 Claims



A control circuit for providing a voltage pulse of a variable height and width upon the occurrence of a predetermined condition includes, a pair of input terminals, a pair of output terminals, first switch means connected to the input terminals and being nonconductive upon the occurrence of the predetermined event, second switch means responsive to the first switch means and having a conductive condition when the first switch means is nonconductive and third switch means having a conductive condition when the second switch means is conductive establishing a pulse on the output terminals. Means are provided for controlling the width of the output pulse by controlling the period of conduction of the second switch means and means connected to the output of the third switch means are provided for controlling the height of the pulse.

3,705,315
FRAME SYNCHRONIZATION SYSTEM

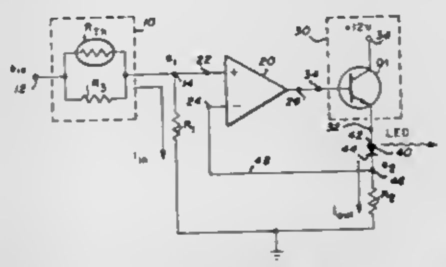
James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Continuation of Ser. No. 31,337, April 23, 1970, abandoned. This application Nov. 1, 1971, Ser. No. 194,596
Int. Cl. H03k *5/13*; H04l *7/00*
U.S. Cl. 307—269 5 Claims



There is disclosed a framing control circuit for a frame synchronization system. The circuit includes a sense circuit having a first integrator with a relatively long time constant and a first amplitude comparator to detect an out-of-synchronization condition, and a search circuit having a second integrator with a relatively short time constant, a second amplitude comparator and a third amplitude comparator to detect an in-synchronization condition. The third amplitude comparator produces a high output and a mode flip flop having its "1" input coupled to the first comparator produces a high output on its "1" output when an out-of-synchronization condition is present. The simultaneous presence of these two signals activates the search logic of the frame synchronization system. The "0" input of the flip flop is coupled to the second comparator and produces a high output on its "0" output when an in-synchronization condition is present. A diode is coupled between the "0" of output of flip flop and the input of the first integrator, said diode being rendered conductive when the "0" output is low. This diode conduction will reset the first integrator to a reference operating level which ensures full use of the time constant thereof and, hence, better protection against accidental phase shift (loss of synchronization) due to a short fade.

3,705,316
TEMPERATURE COMPENSATED LIGHT SOURCE USING A LIGHT EMITTING DIODE

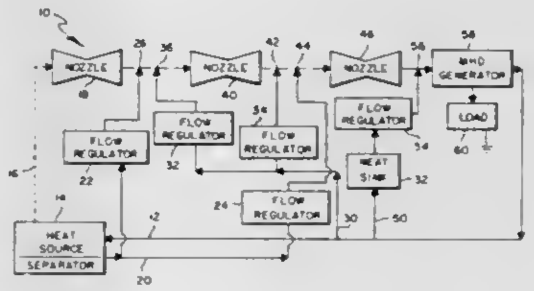
Clifford N. Burrous, Santa Clara, and Gordon J. Deboo, Sunnyvale, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 27, 1971, Ser. No. 212,028
Int. Cl. H03k *19/14*; H05b *33/08*
U.S. Cl. 307—311 12 Claims



A temperature compensated light source including a thermistor, several resistors, an operational amplifier and a light emitting diode combined in such a manner that the non-linear characteristics of the thermistor cause the operational amplifier to vary the energizing current supplied to the light emitting diode to compensate for the non-linear temperature characteristics of the diode. The radiant energy output of the light source is constant if a fixed input voltage is applied to its input terminal, or will vary in direct proportion to a variable input voltage applied to its input terminal.

3,705,317
ENERGY CONVERSION SYSTEM UTILIZING EXOTHERMIC REACTIONS

Lawrence L. Prem, Tarzana, Calif., assignor to North American Rockwell Corporation
Filed Oct. 4, 1971, Ser. No. 186,210
Int. Cl. H02n *4/02*
U.S. Cl. 310—11 20 Claims

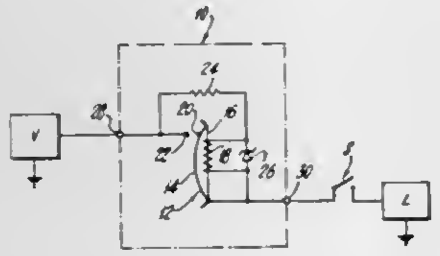


An energy conversion system utilizing a working fluid having at least two components that are chemically reactive so that desired exothermic reactions can be developed at one or more selected points in the system so that the vapor quality of the working fluid is either increased or maintained.

3,705,318

VOLTAGE AND LOAD INDEPENDENT FLASHER UNIT

Hemming G. Silberg, Summit, N.J., assignor to Wagner Electric Corporation
Filed Jan. 18, 1971, Ser. No. 106,967
Int. Cl. B60q *1/46;* **H01b** *37/00*
U.S. Cl. 307—132 T **5 Claims**

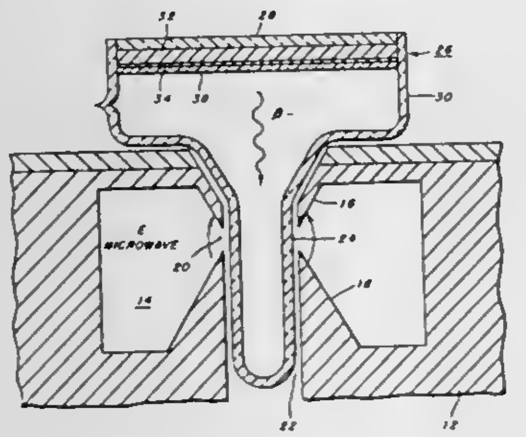


A flasher unit comprising an indirectly heated shunt flasher in combination with a voltage-regulating network comprising a resistor and a zener diode connected in series between the terminals of the flasher unit, with the zener diode being connected in parallel with the heater element of the flasher.

3,705,319

ELECTRODELESS GAS DISCHARGE DEVICES EMPLOYING TRITIUM AS A SOURCE OF IONS TO PRIME THE DISCHARGE

Harry Goldie, Randallstown, and Michael Goldman, Pikesville, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 18, 1971, Ser. No. 172,847
Int. Cl. H01p *1/14*
U.S. Cl. 313—54 **7 Claims**

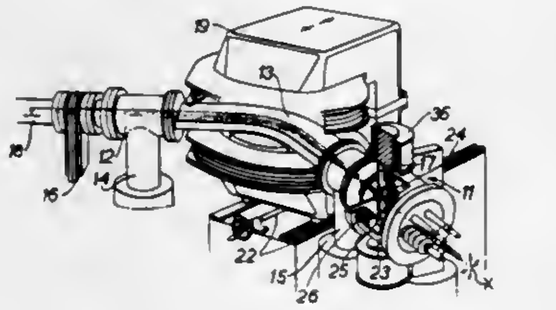


An electrodeless, halogen gas microwave-induced discharge device, particularly adapted for use as a power limiter stage, which has no wires connected to it. Incorporated into the discharge device is a free electron emitter comprising tritium adsorbed into a layer of material such as titanium or yttrium. The tritium yields sufficient initiatory electrons to prime the microwave gap so as to yield a short interval for radio-frequency breakdown of the gas, and to yield repeatable discharge characteristics with each incident radio-frequency pulse.

3,705,320

ION BEAM SOURCES WITH TILTABLE FIRING ANGLE

James Harry Freeman, Abingdon, England, assignor to The United Kingdom Atomic Energy Authority, London, England
Filed Jan. 19, 1970, Ser. No. 3,958
Claims priority, application Great Britain, Feb. 5, 1969, 6,289/69
Int. Cl. H01j *3/04, 3/10*
U.S. Cl. 313—63 **4 Claims**

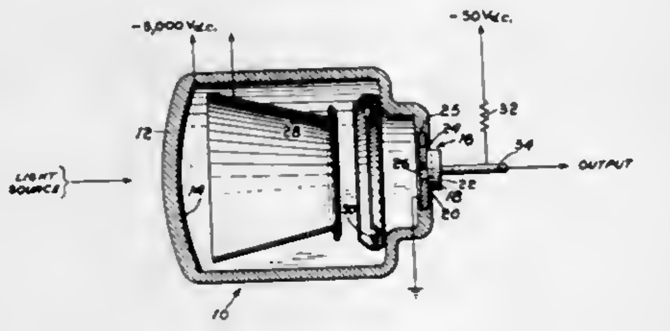


An ion source for an electromagnetic separator is tiltably mounted upon the ion beam passageway. Adjustment of the inclination to the passageway of the ion beam trajectory is thus provided.

3,705,321

ELECTRON TUBE WITH BONDED EXTERNAL SEMICONDUCTOR ELECTRODE

Lozure G. Wolfgang, Fort Wayne, Ind., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Nov. 13, 1970, Ser. No. 89,190
Int. Cl. H01j *31/26, 39/14*
U.S. Cl. 313—65 AB **12 Claims**



A semiconductor element is hermetically sealed to an evacuated electron tube envelope to provide a target electrode which collects electrons within the tube while the junction area and output electrode are external to the vacuum environment. This minimizes interaction of contaminating materials between electrodes such as a photocathode and the semiconductor.

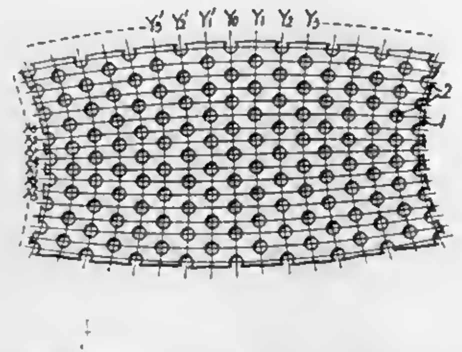
3,705,322

SHADOW MASK HAVING APERTURES AT INTERSECTIONS OF BARREL-SHAPED HORIZONTAL AND PIN-CUSHION-SHAPED VERTICAL LINES

Yohsuke Naruse; Ryosuke Ashiya; Takehiko Nii, and Yuzo Fuse, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed May 27, 1970, Ser. No. 40,868
Claims priority, application Japan, May 31, 1969, 44/42143
Int. Cl. H01j *29/06, 31/20, 29/80*
U.S. Cl. 313—85 S **5 Claims**

In a cathode ray tube having a curved phosphor screen, a shadow mask having apertures therein and electron beam generating means for generating three in-line electron beams aligned in a horizontal direction, the apertures of the shadow

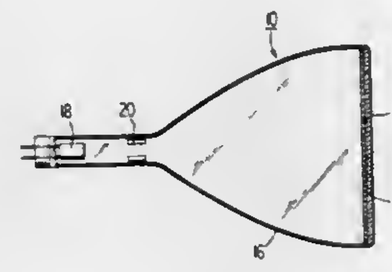
mask are aligned in the form of barrel-shaped lines extending in a horizontal direction and are aligned in the form of pin-cushioned lines extending in a vertical direction. The apertures are circular at the central portion of the mask but become gradually elliptic as the peripheral portion of the mask is approached from its center, and the longer axis of the elliptic apertures are inclined at predetermined angles to a horizontal direction corresponding to their particular locations.



3,705,323

CATHODOCHROMIC SODALITE AND CATHODE RAY TUBE EMPLOYING SAME

Igal Shidlovsky, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Jan. 13, 1971, Ser. No. 106,036
Int. Cl. H01j *29/12;* **G03g** *9/02*
U.S. Cl. 313—91 **3 Claims**



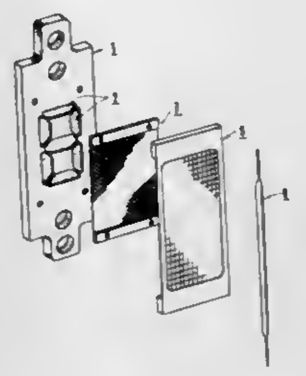
A cathodochromic cathode ray tube comprises an image screen employing improved cathodochromic sodalite. The cathodochromic sodalite is prepared by forming an amorphous mass from a mixture of a sodium halide, sodium hydroxide, aluminum oxide and silicon dioxide. The mass is calcined at an elevated temperature so as to drive out hydrated water from the mass. The calcined mass is crushed to a powder and then sintered so as to form crystalline sodalite. The temperature is raised from the initial sintering temperature to 1,000°C or more so as to cause a portion of the sodium halide in the sodalite to be evaporated therefrom thereby resulting in an non-stoichiometric crystal having vacancies in the positions which sodium and halide ions normally occupy in the crystal.

3,705,324

FLUORESCENT DISPLAY TUBES

Mitsuru Masuda, Ise, Japan, assignor to ISE Electronics Corporation, Ise, Japan
Filed Sept. 23, 1971, Ser. No. 183,054
Claims priority, application Japan, Sept. 25, 1970, 45/94834; Sept. 25, 1970, 45/94835
Int. Cl. H01k *7/04*
U.S. Cl. 313—109.5 **5 Claims**

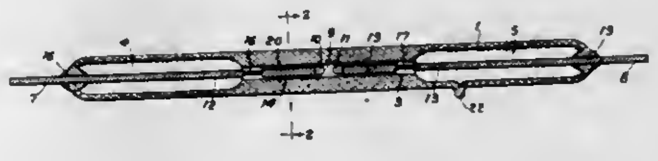
In a fluorescent display tube of the type comprising an insulator base having a plurality of recesses on one surface thereof which are disposed to form selected patterns to be displayed, a phosphor segment and an electrode contained in each recess and a source of electrons for impinging electrons upon the phosphor elements to cause them to luminesce there is provided a relatively low resistance path directly on the surface of the insulator base for draining electrons impinging upon the surface thereof.



3,705,325

SHORT ARC DISCHARGE LAMP

Helge Austad, Lebanon, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jan. 21, 1971, Ser. No. 108,658
Int. Cl. H01j *61/33*
U.S. Cl. 313—182 **7 Claims**



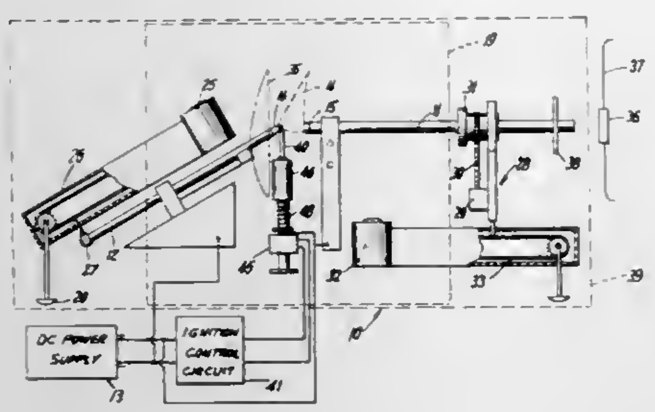
A xenon arc discharge lamp for short pulse operation includes an elongated quartz tube and a pair of electrodes disposed along the longitudinal axis of the tube. The tube has a central axial bore of a relatively narrow cross section and two longitudinal gas reservoirs of relatively wider cross section disposed at the two outer end portions thereof. Two ends of the electrodes are spacedly disposed in the central bore to provide a short arc discharge gap and the axial bore is so dimensioned that the electrodes fit snugly therein. The electrodes or the internal surface of the axial bore include longitudinally disposed channels or grooves to permit the gas to flow between the arc gap and each reservoir. The discharge lamp of the present design advantageously relieves the high pressure that builds up at the arc discharge gap, replenishes gas into the arc gap as it is depleted by ionization and reduces the sputtering of the arcing surfaces of the electrodes.

3,705,326

ARC IGNITION SYSTEMS

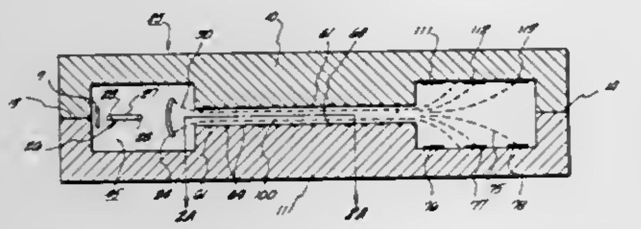
Bruce E. Ashcraft, and Clarence S. Ashcraft, Jr., both of Williston Park, N.Y., assignors to C. S. Ashcraft Manufacturing Company, Inc., Long Island City, N.Y.
Filed July 30, 1971, Ser. No. 167,645
Int. Cl. H05b *31/30*
U.S. Cl. 314—34 **7 Claims**

An automatic arc striking ignition system is provided for establishing an arc between two electrodes. The system includes a third arc striking electrode. When the absence of an arc is sensed, the striking electrode is moved into contact with one of the other electrodes. After contact with the other electrode, the striking electrode moves away from the other electrode thereby establishing an arc.



3,705,327
MICROWAVE GENERATOR WITH INTERLEAVED FOCUSING AND INTERACTION STRUCTURES

Allan W. Scott, 1272 Windimer Drive, Los Altos, Calif.
Filed June 2, 1971, Ser. No. 149,191
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.5 19 Claims

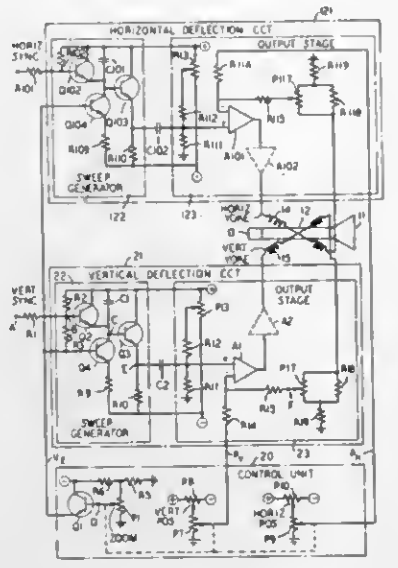


A microwave generator comprising an electron beam focused by a novel focusing means is described. The lines of the focusing means are interleaved with a microwave interaction structure that assists in the focusing function. Klystron and travelling wave tube configurations are depicted with the interleaved focusing and interaction structures printed on ceramic sheets in one preferred embodiment. The ceramic sheets may be notched around and between the printed lines of the focusing and interaction structures to reduce radio frequency and DC arcing.

3,705,328
ELECTRONIC ZOOMING IN VIDEO CAMERAS BY CONTROL OF THE DEFLECTION SYSTEM

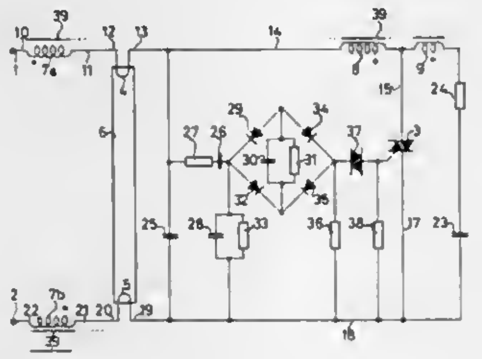
Gabor Peter Torok, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 1, 1970, Ser. No. 33,784
Int. Cl. H01j *29/70*
U.S. Cl. 315—26 5 Claims

Circuitry is disclosed for providing manually controlled electronic size variation (zooming) of the scanned raster in television camera systems. A single control provides a zoom signal which is applied independently to the horizontal and vertical deflection circuits. The zoom signal simultaneously affects the amplitudes of both sweep signals so that the area of the target which is scanned (raster area) maintains a constant aspect ratio while the size of the raster may be varied by the single control. An area of constant size is used to display the video signals for all camera raster sizes, and zooming is achieved when a portion of the image formed on the camera target is reproduced on the full size display.



3,705,329
STARTING UNIT FOR HEATED GAS DISCHARGE TUBES

Ernst Jakob Vogeli, Friesenbergstrasse 40, Zurich, Switzerland
Filed April 8, 1971, Ser. No. 132,487
Claims priority, application Austria, April 9, 1970, 3284
Int. Cl. H05b *41/18*
U.S. Cl. 315—103 6 Claims

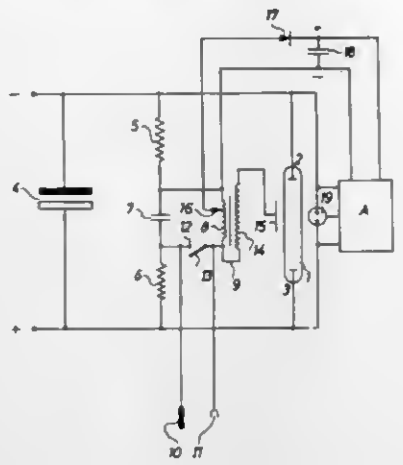


A starting unit for heated gas discharge tubes, particularly fluorescent gas tubes which includes a heating circuit containing both tube electrodes and a controlled electronic switch.

3,705,330
ELECTRONIC FLASH CIRCUIT FOR PHOTOGRAPHY

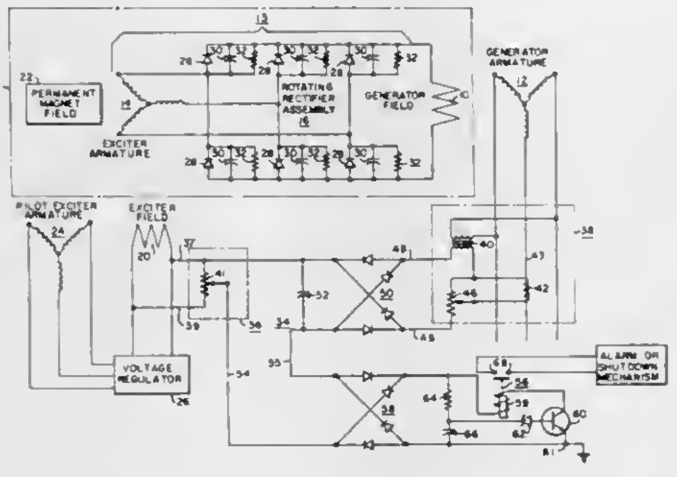
Otto Rosenberg, Grunwald, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Jan. 28, 1970, Ser. No. 6,423
Claims priority, application Germany, Jan. 31, 1969, P 19 04 711.1
Int. Cl. H05b *37/02*
U.S. Cl. 315—149 6 Claims

An electronic flash unit has a flash tube ignited through an ignition circuit, and a control circuit with a photoelectric element for receiving the light utilized during a photographic process and terminating the light flash after the light has reached a desired value. The operating voltage for the control circuit is furnished from the ignition circuit of the flash tube by connecting one end of the primary winding of the ignition transformer and a tap on said transformer to the control circuit in such a way that the voltage between the two points constitutes the operating voltage for the control circuit.



3,705,331
AC GENERATOR SYSTEM INCLUDING DIFFERENTIAL PROTECTION OF EXCITER

William H. South, McKeesport, and Thayer L. Dillman, North Versailles, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed March 16, 1972, Ser. No. 235,276
Int. Cl. H02h *7/06*
U.S. Cl. 317—13 R 6 Claims

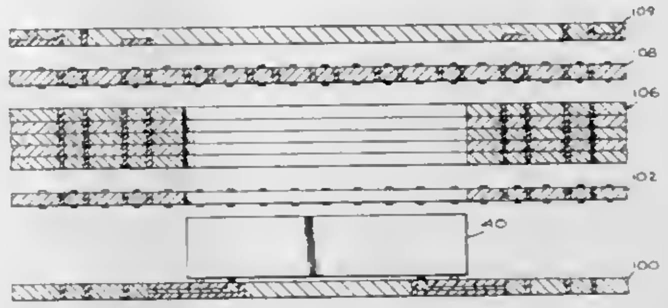


A differential protection system is connected to detect and indicate faults in an exciter by comparing signals developed from the exciter field and from the generator armature. A first signal is developed representing the magnitude of the voltage on the exciter field winding and a second signal is developed representing the vectorial sum of the current and voltage on the armature winding. These signals are compared and a fault indication produced when the magnitude of their difference is at least of a certain value. The differential protection in brushless exciters permits avoiding the use of a fuse in series with each diode of a rotating rectifier.

3,705,332
ELECTRICAL CIRCUIT PACKAGING STRUCTURE AND METHOD OF FABRICATION THEREOF

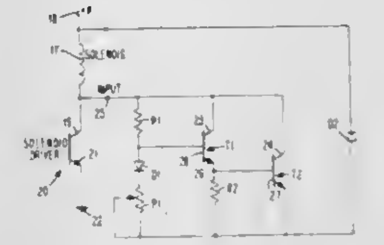
Howard L. Parks, 23335 Calvert St., Woodland Hills, Calif.
Continuation-in-part of Ser. No. 613,652, Feb. 2, 1967, abandoned. This application June 25, 1970, Ser. No. 49,873
Int. Cl. H05k *1/08, 1/18*
U.S. Cl. 317—101 CM 6 Claims

An electrical circuit packaging structure and method of fabrication thereof. The packaging structure is comprised of one or more batch fabricated electrically conductive wafers stacked together under pressure to form a parallelpiped structure containing one or more active components (e.g., integrated circuit chips) as well as conductor means providing coaxial interconnections in X-, Y-, and Z-axis directions. A stack is normally comprised of conductive wafers of different types including component wafers, interconnection wafers, and connector wafers. Z-axis interconnections, i.e., through-connections in a wafer, are formed by slugs contained within the wafer profile extending between the top and bottom wafer surfaces. Each slug is surrounded by dielectric material which supports the slug and electrically isolates it from the remainder of the wafer material. X–Y axis interconnections are formed by conductors also contained within the wafer profile and surrounded by dielectric material providing support and electrical isolation. The Z-axis slugs and X–Y axis conductors are preferably formed in a wafer by selective chemical etching of the wafer from opposite surfaces thereof. The removed wafer material is replaced with dielectric material to physically support and electrically isolate the slug or conductor from the remaining wafer material.



3,705,333
ADJUSTABLE ACTIVE CLAMP CIRCUIT FOR HIGH SPEED SOLENOID OPERATION

Louis V. Galetto, Apalachin, and David A. Ramsey, Endicott, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 9, 1972, Ser. No. 224,702
Int. Cl. H01h *47/32*
U.S. Cl. 317—148.5 R 7 Claims

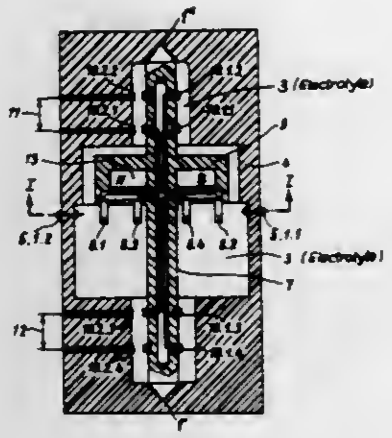


An adjustable clamp circuit comprising a Darlington switching pair of transistors biased by a voltage divider for permitting the maximizing of a solenoid repetition rate without exceeding the breakdown limit of the solenoid driving transistor.

3,705,334
APPARATUS FOR DETERMINING TRANSPOSED COMPONENTS OF A VECTOR

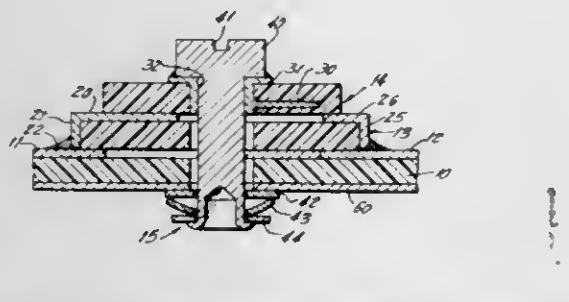
Egidius Arens, Achim; Dieter Muller-Lindemann, and Karl-Friedrich Triebold, both of Bremen, all of Germany, assignors to Fried Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Dec. 20, 1971, Ser. No. 209,657
Claims priority, application Germany, Dec. 23, 1970, P 20 63 471.3
Int. Cl. H01g *9/00*
U.S. Cl. 317—231 15 Claims

An apparatus for reproducing a two-dimensional vector and determining its transposed components in a given coordinate system. Voltages proportional to the cartesian components of the vector are applied to groups of aligned electrodes cooperating with a common electrolyte so as to electrolytically reproduce the vector by means of the resulting electric field. The transposed components of the thus reproduced vector are then detected by means of a pickup arrangement including at least three sensors which can be arbitrarily oriented in the plane of the reproduced vector.



3,705,335
LOW HEIGHT CERAMIC CAPACITOR FOR PRINTED CIRCUIT BOARD MOUNTING

Louis G. Metzger, Closter, N.J., assignor to JFD Electronics Corp., Brooklyn, N.Y.
Filed Aug. 19, 1971, Ser. No. 173,117
Int. Cl. H01g *5/06*
U.S. Cl. 317—249 D **15 Claims**

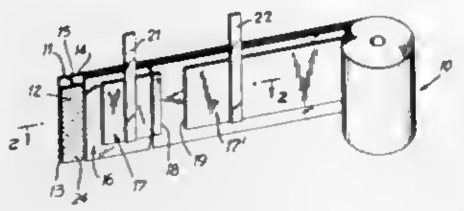


A trimmer capacitor having painted conductive leads is soldered directly to appropriate conductive sections of a printed circuit panel. A portion of the adjustment mechanism of the printed circuit board is disposed at least partly within an opening in the printed circuit board so that the capacitor height above the surface of the board is reduced by the thickness of the board. In one disclosed embodiment, the rotor electrode is electrically connected to an electrode on the bottom of the stator body, which electrode is soldered to the printed circuit board. The rotor body has a diameter smaller than that of the stator body and is enclosed by a tubular soldering shield while the capacitor is being connected to the printed circuit board.

3,705,336
ELECTRIC CAPACITOR UNIT

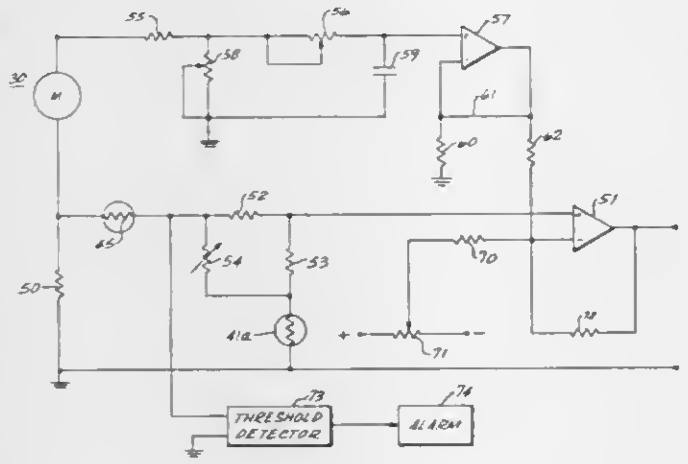
Abraham G. Kalstein, New Bedford, Mass., assignor to Aerovox Corporation, New Bedford, Mass.
Filed June 17, 1971, Ser. No. 154,085
Int. Cl. H01g *1/14*
U.S. Cl. 317—260 **3 Claims**

A capacitor unit incorporating at least two capacitor sections and comprising a strip of dielectric material having a metallized layer electrode thereon extending to one edge of said strip of dielectric material and being spaced from the other edge of said strip of dielectric material, a second strip of dielectric material extending the length of said first strip and positioned against said metallized layer and a plurality of longitudinally spaced strips of metal foil defining a corresponding plurality of electrodes to each of which a terminal tab is secured, the various strips and electrodes being wound into a coil and with the end of the coil at which the edges of the convolutions of the metallized electrode is exposed, being metallized and having a terminal tab connected to said metallized end.



3,705,337
MOTOR CONTROL SYSTEM WITH BRIDGE SENSING EMF

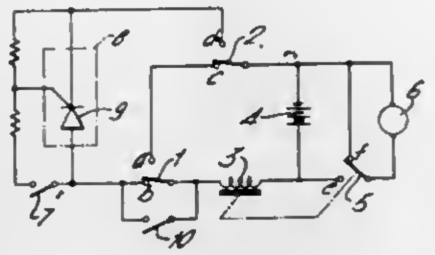
Sebastian E. Grabl, Thousand Oaks, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed Oct. 12, 1970, Ser. No. 80,082
Int. Cl. H02p *5/16*
U.S. Cl. 318—331 **17 Claims**



The rotational speed of a motor armature is controlled by sensing the counter EMF of the motor. The motor is excited responsive to the difference between a motor command signal and a feedback signal representative of the motor counter EMF. A temperature sensor changes the feedback signal responsive to changes in the armature temperature. A stream of fluid is directed from the armature to the temperature sensor so as to couple thermally the armature thereof. The feedback signal is generated across the output terminals of a bridge network to the input terminals of which the motor excitation signal is applied. The motor armature comprises one arm of the bridge and the other arms of the bridge are resistive elements of predetermined value. The change in the feedback signal responsive to temperature is effected by a thermistor that has a negative temperature coefficient substantially larger than that of the armature resistance. The thermistor forms part of one of the resistive elements of the bridge. The thermistor is also employed to sense overheating of the motor and discontinuance of the fluid stream. A low-pass filter connected across one output terminal of the bridge compensates for the inductance of the motor.

3,705,338
MOTOR DRIVING SYSTEM FOR A STILL CAMERA

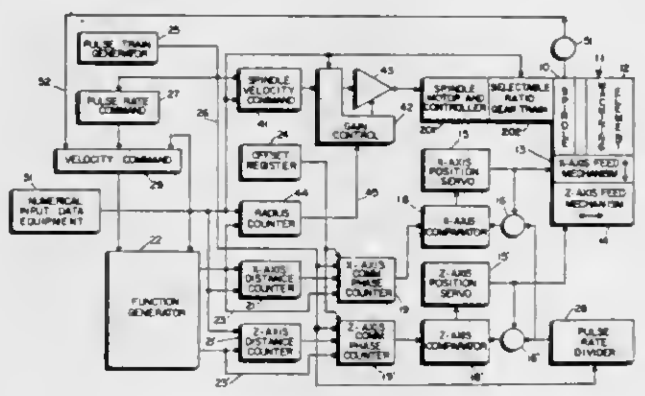
Kayoshi Tsujimoto, Osaka; Yoshio Kuramoto, Toyonaka, and Toshio Kobori, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Oct. 5, 1971, Ser. No. 186,640
Claims priority, application Japan, Oct. 7, 1970, 45/88479
Int. Cl. H02p *1/18*
U.S. Cl. 318—446 **20 Claims**



In a still camera, the winding up of its film and the cocking of its shutter is controlled by an electric motor, which is linked to a film winding shaft through a planetary gear system, wherein the shafts of the planetary gears are pivoted to a cam for driving a shutter releasing member and driving a phase-motion switch. The motor is controlled by a relay which is connected to be controlled by a thyristor, the said phase-motion switch and abutton-linked switch, so that the start of the motor is triggered by the thyristor, and timing is exact.

3,705,339
AUTOMATIC SERVOMOTOR CONTROL FOR LATHES PROVIDING SFM AND CHIP THICKNESS CONTROL

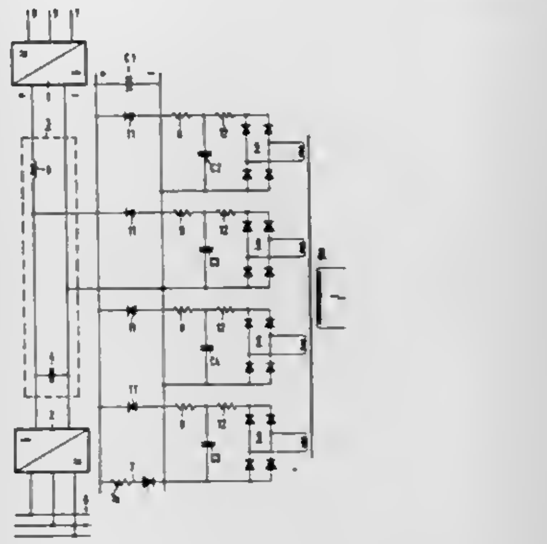
John M. Rhoades, Waynesboro, and Carroll C. Cooper, Staunton, both of Va., assignors to General Electric Company
Filed Aug. 22, 1969, Ser. No. 852,255
Int. Cl. G05b *19/24*
U.S. Cl. 318—571 **21 Claims**



An SFM control for automatically controlled lathes and other turning machines including feed supply means for automatically feeding a part being machined relative to a cutter tool of the lathe along at least one axis of movement. A spindle motor speed control is included for controlling the spindle speed of the lathe and a change-in-radius control is provided for deriving a speed control signal related to the change-in-radius of a part being machined on the automatically controlled lathe. The output speed control signal from the change-in-radius speed control is supplied to control the spindle speed controller whereby the spindle speed of the lathe is adjusted automatically with changes in radius of a part being machined to maintain a desired value of surface feet per minute (SFM) moving past the lathe cutter tool independently of the operation of the feed supply. The control may be operated in an SFM mode with or without chip thickness control or may be operated in an RPM mode with or without chip thickness control.

3,705,340
BUFFER SYSTEM FOR STATIC TRANSVERTERS

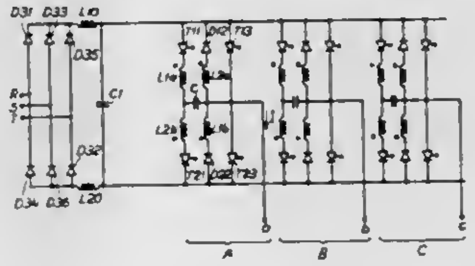
Wolfgang Weisser, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Oct. 15, 1971, Ser. No. 189,627
Claims priority, application Germany, Oct. 22, 1970, P 20 51 765.1
Int. Cl. H02m *5/40, 5/46*
U.S. Cl. 321—2 **5 Claims**



A static transverter, of the type in which semi-conductor controlled rectifiers (thyristors) provide the commutation and in which variation of the direct current link circuit is used to control the output frequency, is provided with a buffer system connected to the direct current link circuit for keeping the transverter in operation during short power failures. Buffer capacitance is distributed in a series of capacitors respectively charged to different voltages by a separate source. These capacitors are connected in parallel to the direct current link circuit through diodes.

3,705,341
INVERTER

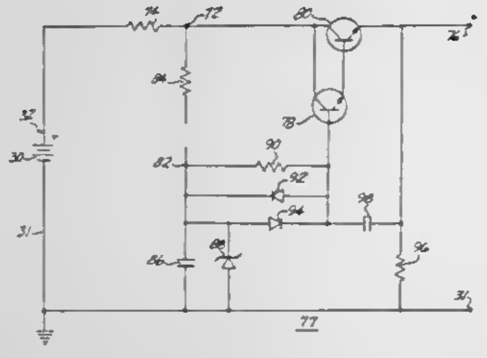
Kjell Frank, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed May 7, 1971, Ser. No. 141,175
Claims priority, application Sweden, May 15, 1970, 6689/70
Int. Cl. H02m *7/48*
U.S. Cl. 321—5 **2 Claims**



An inverter is formed of at least one connection group which is connected to and arranged to be fed from a DC source. Such connection group includes two controlled main rectifiers connected in series with each other between the poles of the DC source, with their connection point forming the output terminal for the output voltage. The rectifiers are ignited alternately. There are also two controlled commutating rectifiers forming in series with each other a part of a connection between the two poles of the DC source and alternately ignited to extinguish the main rectifiers. Between the connection point of the main rectifier and a point in said series connection there is a commutating capacitor. An inductive element is connected with the commutating capacitor to form a series oscillating circuit to recharge the capacitor at each commutation. Limiting rectifiers are connected between each pole of the DC source and the terminal of the commutating capacitor which is connected to the alternating output. The limiting rectifiers have such a polarity that they block for the voltage of the DC source. The inductive element is formed of two reactors each having two windings inductively connected to each other, one of the windings connected in series with a commutating rectifier connected to one pole of the DC source and the other winding in series with a limiting rectifier connected to the other pole of the source.

3,705,342
DC VOLTAGE REGULATOR AND IMPEDANCE CONVERTER

James A. Dalke, Seattle, Wash., assignor to MetroData Corpration, Seattle, Wash.
Continuation of Ser. No. 878,284, Nov. 20, 1969, abandoned.
This application June 21, 1971, Ser. No. 155,179
Int. Cl. G05f : H04m *1/74*; H02j
U.S. Cl. 323—22 T **12 Claims**

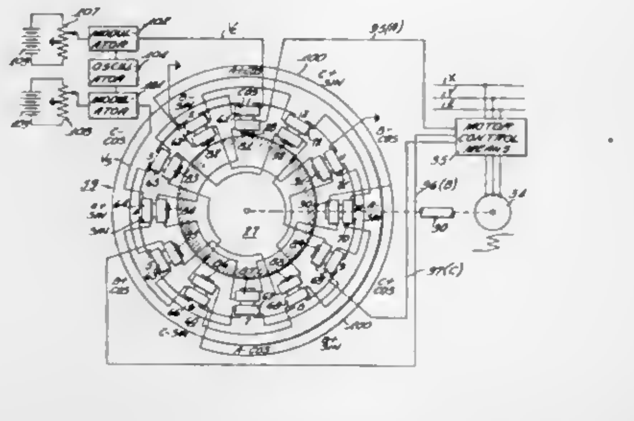


A voltage regulator and impedance converter is interposed in the connections between a DC power supply and an intercom system having common communication and power circuits. The regulator and converter comprises a series connection of a resistor and an amplifier, preferably two transistors connected in a Darlington configuration. The amplifier regulates the DC output voltage under control of a source reference diode which is coupled to the amplifier's control electrode through a pair of limiting diodes and a second resistor. The amplifier is connected as an emitter follower, and the output voltage is regulated at the reference voltage of the reference diode minus the base-emitter voltage drop of the amplifier's transistors. Output transient voltage swings are limited to the forward drops of the limiting diodes. A connection is also provided from the output to the amplifier's control electrode through a capacitor. The RC time constant of the second capacitor and the second resistor connected to the amplifier's control electrode provides an output impedance which is low at DC and relatively high at voice frequencies, allowing the use of many communication sets on the common communication and power circuits.

3,705,343
THREE PHASE ROTARY INDUCTOR VECTOR ADDER

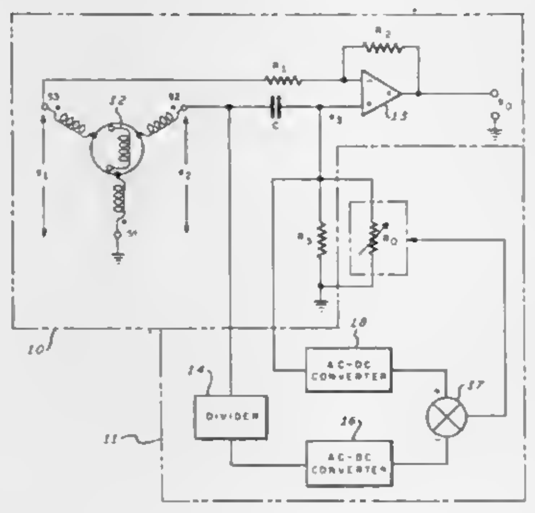
William L. Ringland, 8215 West Edgerton Avenue, Greendale, Wis., and Ernst K. Kaeser, 2204 South 89th Street, West Allis, Wis.
Division of Ser. No. 824,176, May 13, 1969, Pat. No. 3,641,467. This application April 26, 1971, Ser. No. 137,351
Int. Cl. G05f *1/14*
U.S. Cl. 323—48 **19 Claims**

A rotary inductor has an annular stator with angularly displaced radial teeth, an energizing winding having turns encircling individual teeth to induce magnetic fluxes therein, an output winding having turns encircling individual teeth preferably displaced 180 electrical degrees apart connected in subtractive relation to cancel the base component of the magnetic flux, and a ferromagnetic rotor rotatable within the stator to cyclically modulate the permeances of the flux paths extending through the teeth and across the air gap into the rotor and thus cyclically vary the magnitude of the magnetic flux linking the turns of the energizing and output windings encircling each tooth. The preferred embodiment is a three phase vector adder and has two energizing windings having turns surrounding sets of first and second teeth displaced 90 electrical degrees, three phase output winding each of which has turns surrounding individual first teeth and second teeth, the three phase output windings surrounding teeth displaced 120 electrical degrees on the stator, and the rotor being contoured so that the permeances of the magnetic flux paths through the teeth and across the air gap into the rotor vary substantially sinusoidally.



3,705,344
WIDEBAND CONSTANT AMPLITUDE-VARIABLE PHASE CIRCUIT

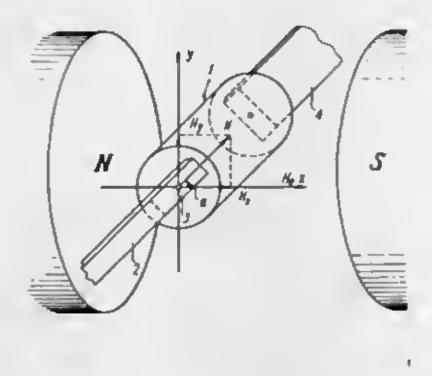
David A. Espen, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Nov. 8, 1971, Ser. No. 196,294
Int. Cl. G08c *19/00*
U.S. Cl. 323—109 **9 Claims**



An electronic circuit for converting three-wire synchro-type amplitude modulated carrier frequency signals to an equivalent two-wire constant amplitude-variable phase signal including frequency compensating means for maintaining a prescribed relation between certain resistive and reactive components of the circuit to assure accuracy of the output phase information over a wide range of carrier frequencies and component values.

3,705,345
METHOD OF INVESTIGATION OF ELECTRONIC PARAMAGNETIC RESONANCE

Semen Efimovich Bresler, Lesnoi prospekt, 61, kv. 244; Embek Nikolaevich Kazbekov, prospekt Morisa Toreza, 9, kv. 8, both of Leningrad, and Viktor Nikolaevich Fomichev, prospekt 25 Oktyabrya, 49, kv. 4, Gatchina, Leningradoskoi oblasti, all of U.S.S.R.
Filed Feb. 12, 1970, Ser. No. 10,726
Int. Cl. G01n *27/78*
U.S. Cl. 324—0.5 R **2 Claims**

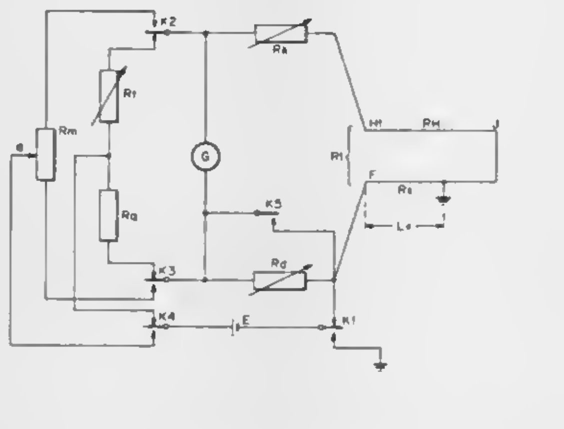


A method of investigation of electronic paramagnetic resonance whereby a specimen under test placed within a balanced cavity resonator is exposed simultaneously to an external permanent magnetic field of variable intensity and a microwave field, the magnetic intensity vector of the latter being at an angle of 45° to the intensity vector of the external magnetic field.

When the conditions for resonance are established, the plane of polarization of microwave oscillations rotates and the measured level of the microwave signal changes.

3,705,346
METHOD FOR MEASURING THE DISTANCE TO A LEAKAGE FAULT IN AN ELECTRICAL CONDUCTOR

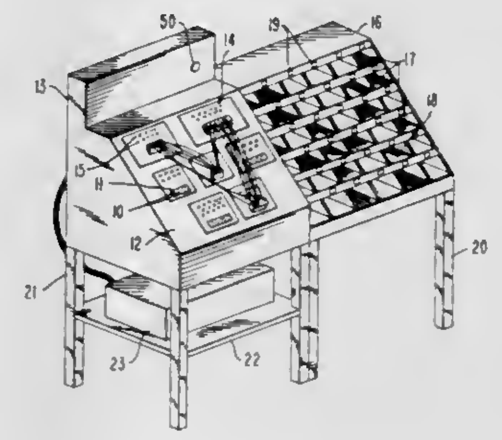
Gustaf I. Jedvall, deceased, late of Stockholm, Sweden, and by Arne Morgensen, administrator, Crusebjoerns Vaeg 27, S-140 30 Uttran, Sweden
Filed April 27, 1971, Ser. No. 137,910
Int. Cl. G01r *31/08*
U.S. Cl. 324—52 **1 Claim**



A bridge circuit is calibrated with specific variable resistors set in accordance with the diameter of the faulted conductor and with the temperature of the faulted conductor. The bridge circuit is then modified by shorting out the variable resistor set in accordance with the conductor diameter and by substituting a potentiometer resistor for the two sections of the bridge circuit which make up one loop across the current detector. The potentiometer contact is then adjusted to balance the bridge, and the position of that adjustment is directly calibrated in terms of distance to the fault.

3,705,347
WIRING ASSIST DEVICE FOR USE IN THE FABRICATION OF WIRE HARNESSES

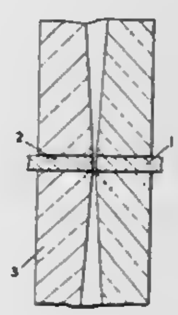
Elry D. Tuller, Detroit, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Aug. 21, 1970, Ser. No. 65,909
Int. Cl. G01r *31/02*
U.S. Cl. 324—66 **11 Claims**



A system for providing a successive step-wise indication of electrical terminals to be interconnected within one or more arrays thereof, where an indication of the next connection to be made is automatically given whenever all preceding connections have been properly made. Any preceding connections becoming faulty during a connecting sequence are indicated by the system one at a time in the required order until all connections are repaired, at which time the next connection to be made in the sequence is indicated.

3,705,348
METHOD OF AND AN APPARATUS FOR DETERMINING THE LENGTH OF FIBERS SUSPENDED IN A LIQUID

Gerardus Henricus Johannus Maria Jacobs, Proost Frederikstraat 21, Meerssen, Netherlands
Continuation of Ser. Nos. 876,155, Dec. 4, 1969, and Ser. No. 682,789, Nov. 14, 1967. This application Dec. 21, 1970, Ser. No. 100,416
Claims priority, application Netherlands, July 31, 1967, 67105
Int. Cl. G01n *27/00*
U.S. Cl. 324—71 R **1 Claim**



A method of measuring the length of fibers suspended in a liquid which, together with a physical flux, flows through the measuring opening of a measuring device. This device comprises a passage converging toward its exit, with a measuring opening provided at the narrowest point thereof, through which the fibers are passed at a high rate and are held in a stabilized condition without agglomeration and folding.

3,705,349

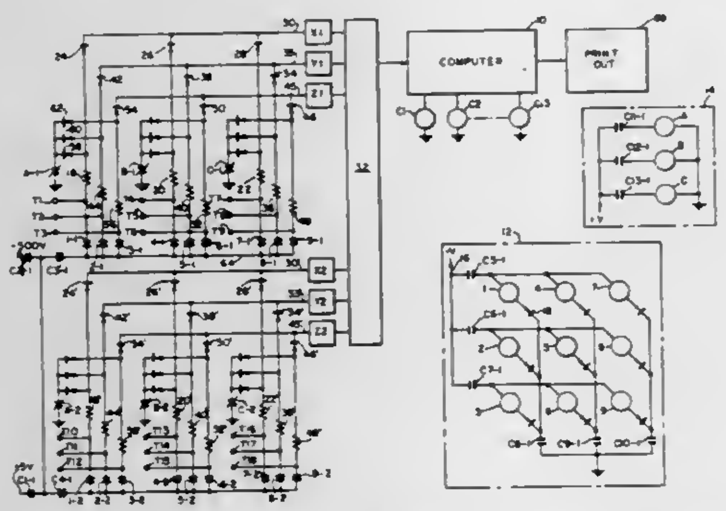
COMPUTER CONTROLLED WIRING NETWORK TEST SYSTEM

Wayne E. Arnold, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1969, Ser. No. 860,475

Int. Cl. G01r *15/12, 31/02*

U.S. Cl. 324—73 R **5 Claims**



A system wherein a voltage is applied in sequence to a plurality of terminals on a wired panel, and a computer is employed to scan all other terminals on the panel to determine where the applied voltage appears and does not appear, thereby establishing that connections exist between the terminal or terminals to which the voltage was applied and those scanned terminals where the voltage appeared. The computer then compares the resulting voltages with a master wire list and prints-out any wiring errors. The master wire list may be stored in the computer by the operator or the computer may be utilized to analyze an existing panel or wiring network to obtain the same.

3,705,350

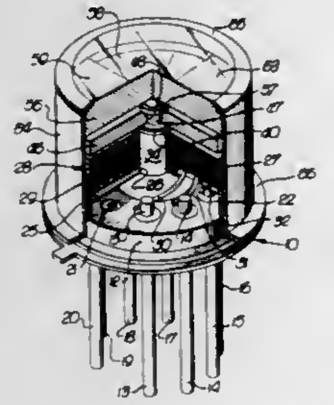
ROTARY MAGNETIC DISC CIRCUIT INDICATOR

Robert L. Martin, 959 Calle Collado, Thousand Oaks, Calif.

Filed Feb. 4, 1971, Ser. No. 112,571

Int. Cl. G01r *19/14*

U.S. Cl. 324—133 **8 Claims**



A magnetic disc with north and south poles and with alternating light and dark segments is rotatably mounted adjacent a stator having circumferentially spaced pole elements of like polarity near the respective north and south poles of the magnet. A translucent disc having circumferentially spaced light and dark segments matching the segments of the magnetic element is stationarily mounted over the magnetic element. When the magnetic element is in one position, the dark segments of the magnetic element underlie dark segments of the translucent disc and hence the over-all appearance is one of light and dark segments. When the stator is magnetized by energizing an electric coil mounted within it, the magnet is shifted rotatably a distance sufficient to have the dark segments of the magnet align with light segments of the translucent disc whereupon the over-all appearance of the device is completely dark in contrast with the appearance first mentioned. The difference in appearance is depended upon to indicate the energized or de-energized condition of an electric circuit connected to the coil.

3,705,351

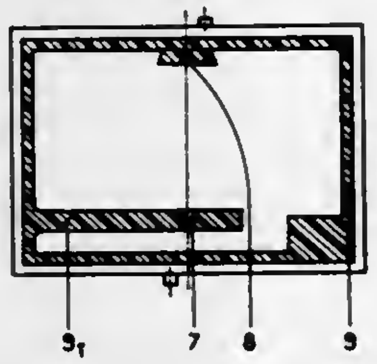
MOVING FRAME MEASURING DEVICE

Jacques Palencher, and Michel Penard, both of Troyes, France, assignors to Societe dite: Lebocey Industrie, Troyes, France

Filed Jan. 25, 1971, Ser. No. 109,147

Int. Cl. G01r *1/16*

U.S. Cl. 324—151 R **3 Claims**



The invention relates to a moving frame measuring device comprising a fixed magnet creating a magnetic field in which a coil carrying an indicating pointer can move, the moving part consisting of a frame, with spindle locating holes, carrying a coil.

3,705,352

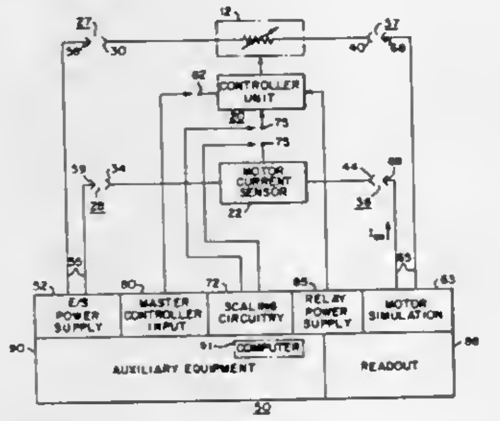
TESTING SYSTEM FOR MOTOR DRIVEN APPARATUS

Frank S. Restivo, Randallstown, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 25, 1971, Ser. No. 118,810

Int. Cl. G01r *15/00, 15/12*

U.S. Cl. 324—158 MG **13 Claims**



A test system which replaces the traction motors of a transit car with an analog equivalent thereof operable at a much lower voltage rating than the motors. The system provides a similarly scaled down power supply as well as amplifiers for providing the transit car's controller with a sensed motors current equivalent to a normal operating condition.

3,705,353

APPARATUS FOR THE TREATMENT OF INFORMATION SIGNALS

Jean-Martial Randoing, Boissise-le-Roi, France, assignor to Centre National D'Etudes Spatiales, Paris, France

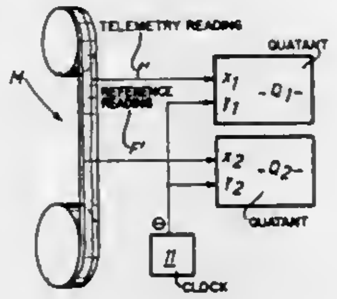
Filed July 13, 1970, Ser. No. 54,142

Claims priority, application France, July 16, 1969, 6924195

Int. Cl. H04l *27/10;* **G11b** *15/52*

U.S. Cl. 325—42 **3 Claims**

The processing of an information carried by a frequency with the object of digitizing it is performed along the so-called "quasi-constant" system used in PFM type telemetric data analysis. Two like but distinct circuits each operating in accordance with the "quasi-constant" system are used — the recorded information signal and a fresh reference frequency delivered by a clock are respectively applied to the two inputs of one of these circuits, whereas the recorded reference signal and the same fresh reference frequency as above are respectively applied to the two inputs of the other of these circuits.



3,705,354

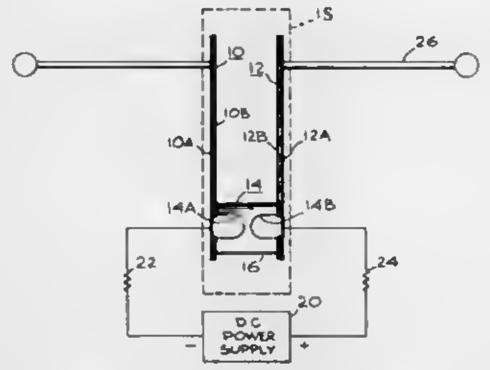
GENERATION OF HIGH-POWER HIGH-FREQUENCY RADIO IMPULSES

George N. Oetzel, Palo Alto, Calif., assignor to Standard Research Institute, Menlo Park, Calif.

Filed Oct. 2, 1970, Ser. No. 77,457

Int. Cl. H04b *1/04*

U.S. Cl. 325—106 **3 Claims**



High-power, high-frequency, radio impulses are derived from the energy stored in a low-impedance, resonant transmission line. The energy is discharged by a suitable switching device, generally a spark gap, and the resulting R.F. oscillations are coupled to an antenna.

3,705,355

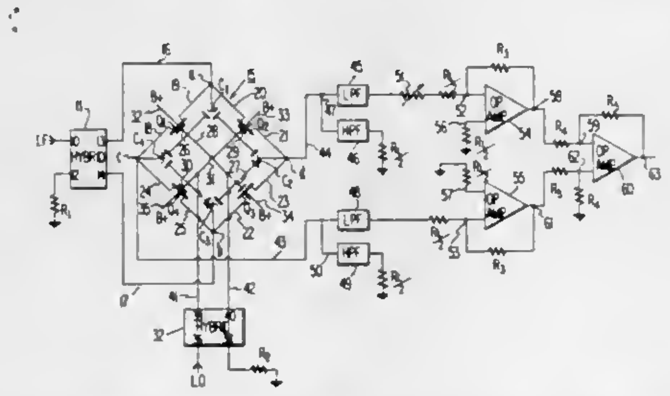
WIDE DYNAMIC RANGE PRODUCT DETECTOR

Fred Irwin Palmer, Moorestown, and John Richard Fogleboch, Cherry Hill, both of N.J., assignors to RCA Corporation

Filed Oct. 26, 1970, Ser. No. 83,857

Int. Cl. H04b *1/26*

U.S. Cl. 325—450 **6 Claims**



A first signal, having at least one frequency tone, is applied in push-pull to a signal combiner. A second signal is also applied to the signal combiner. The product of the first and second signal at one phase forms a first signal component at a first signal combiner output terminal, a second signal component at the first output terminal being intermodulation products. The product of the first and second signal, 180° out of phase with respect to the first signal component at the first output terminal, forms a first signal component at a second signal combiner output terminal, a second signal component at the second output terminal being intermodulation products. The signals at the first and second signal combiner output terminals are filtered and passed through a difference circuit, the undesired intermodulation products being substantially reduced at the system output terminal.

3,705,356

AFT SYSTEM FOR SIGNAL RECEIVER OF TYPE HAVING TUNER EMPLOYING VARACTOR DIODE

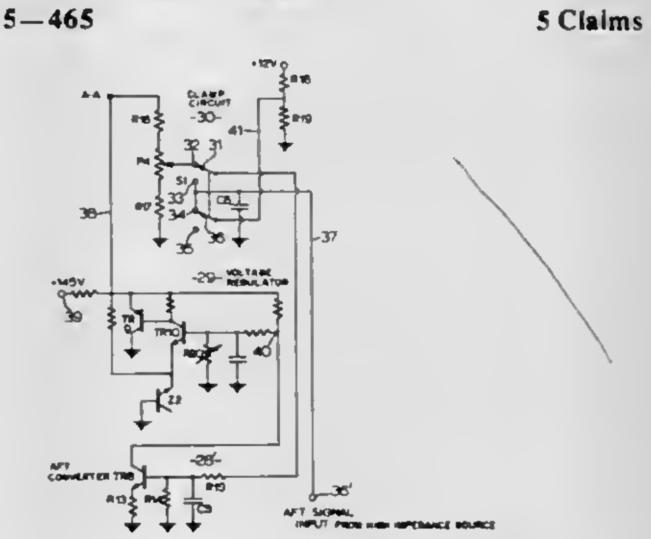
William G. Russell, Kitchener, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada

Filed Oct. 5, 1970, Ser. No. 77,906

Claims priority, application Great Britain, Oct. 7, 1969, 49,151/69

Int. Cl. H04b *1/16*

U.S. Cl. 325—465 **5 Claims**



A signal receiver of a type including an AFT network providing an AFT signal and also of a type employing a varactor tuner and a plurality of channel selecting networks for selecting different channels to which the receiver may be tuned has a source of D.C. potential for the channel selecting networks that is regulated by a voltage regulator to which the AFT signal is supplied to change the voltage regulated by the voltage regulator.

3,705,357

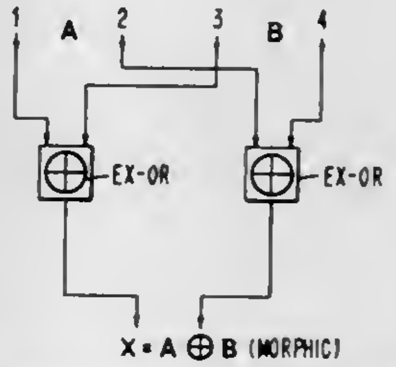
MORPHIC EXCLUSIVE-OR CIRCUITS

William C. Carter, Ridgefield, Conn.; Donald C. Jessep, Jr., Poundridge, and Aspi B. Wadia, Chappaqua, both of N.Y., assignors to International Business Machines Coporation, Armonk, N.Y.

Filed March 23, 1971, Ser. No. 127,114

Int. Cl. H03k *19/32, 19/38*

U.S. Cl. 328—93 **7 Claims**



The present invention relates to a logic circuit for testing the condition of a set of self-testing logic variables. More specifically, it relates to such a logic circuit for forming an Exclusive-Or function on such variables. The circuit has particular utility in high reliability systems for checking the conditions of a plurality of line pairs wherein each line pair constitutes a morphic self-testing variable and wherein the circuit output is itself a morphic self-testing function.

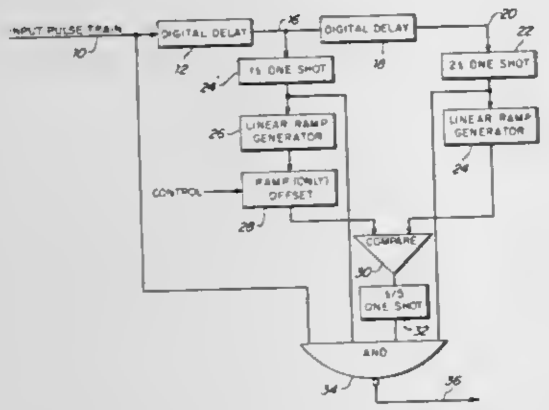
3,705,358
DIGITAL PRF FILTER

Weldon W. Bauman, Sunnyvale, and Edward Collins, IV, San Jose, both of Calif., assignors to Itek Corporation, Lexington, Mass.

Filed Aug. 9, 1971, Ser. No. 171,817

Int. Cl. H03k *5/18*

U.S. Cl. 328—110 **11 Claims**



A pulse repetition frequency (PRF) filter circuit for selectively passing pulse trains over a wide bandwidth. The filter circuit utilizes the pulse repetition interval (PRI) between the first and second pulses in a pulse train to gate the third pulse with a gating signal which anticipates the third pulse at the PRI of the first and second pulses. A first pulse from an input pulse train is delayed respectively by first and second fixed delay lines, and then triggers a circuit to develop a first sawtooth wave pattern over a time period 2T. A second pulse from the input pulse train is delayed by only the first delay line, and then triggers a circuit to develop a second sawtooth wave pattern over a time period of T. The second sawtooth wave pattern has a slope twice the slope of the first sawtooth wave pattern. The relationship between the first and second sawtooth wave patterns is such that the point when the amplitudes of both patterns are equal defines the PRI of the pulse train as indicated by the first and second pulses. A comparator circuit compares the amplitudes of the first and second sawtooth wave patterns, and when the amplitudes are equal develops a gating signal which anticipates a third and undelayed pulse at the PRI of the pulse train as indicated by the first and second pulses. The PRF filter circuit filters pulse trains on a random, first-come, first-served basis, and the circuit is time-shared equally among incoming pulse trains within the bandwidth of the circuit.

3,705,359
PCM DECODER WITH EXPANSION CHARACTERISTIC

Werner Kappes, Berlin, Germany, assignor to Krone GmbH, Berlin-Zehlendorf, Germany

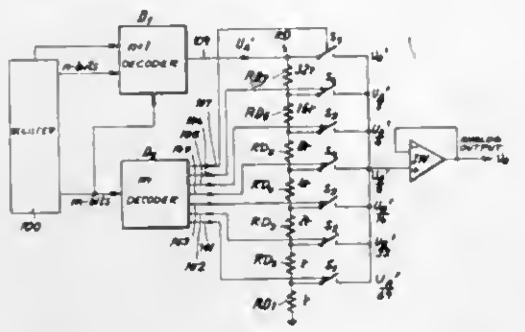
Filed March 8, 1971, Ser. No. 121,940

Claims priority, application Germany, March 9, 1970, P 20 11 056.9

Int. Cl. H03k *9/00*

U.S. Cl. 329—104 **10 Claims**

Incoming binary code words of $n+m+1$ bits, the highest-ranking of them being a polarity indicator, are fed to a first decoding stage which converts the lower-ranking n-bit group into a corresponding analog voltage of up to 2^n incremental steps and, in the presence of at least one bit of logical value "1" in the higher-ranking m-bit group, superimposes upon this analog voltage a fixed voltage of 2^n incremental steps. A second decoding stage simultaneously receives the m-bit group and derives from it a stepdown factor, ranging from 0 to 2^m, by which a switching circuit controlled by that stage divides the output of the first stage.



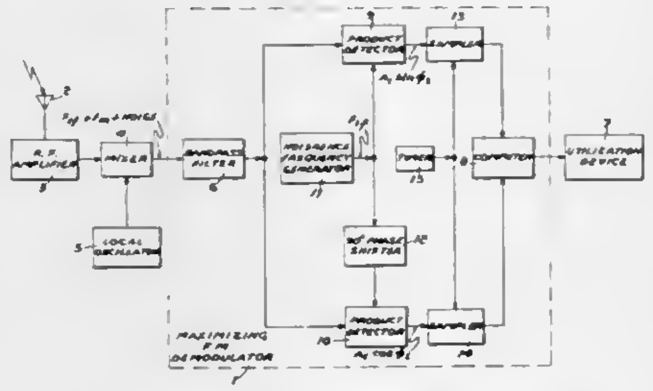
3,705,360
FREQUENCY MODULATION DEMODULATION SYSTEM

Gerald Rabow, Nutley, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Continuation of Ser. No. 827,183, May 23, 1969, abandoned. This application April 1, 1971, Ser. No. 130,502

Int. Cl. H03d *3/00*

U.S. Cl. 329—110 **2 Claims**



A maximizing computational type FM demodulator to obtain optimum detection of an FM signal in the presence of noise. The FM signal at the IF frequency level is passed through a filter having a given bandwidth. The output signal of the filter is operated on to generate a signal $A_l \sin \phi_l$ and a signal $A_1 \cos \phi_l$, where A_1 equals the amplitude of the FM signal and ϕ_l equals the phase of an estimated noise with respect to an estimated FM signal for each sample. The signals $A_l \sin \phi_l$ an $A_l \cos \phi_l$ are sampled at a rate equal to the reciprocal of the bandwidth. A computer determines the value of A_l and 100 $_l$ for each sample and produces an output signal for the demodulator the modulating signal with a minimum amount of additive noise.

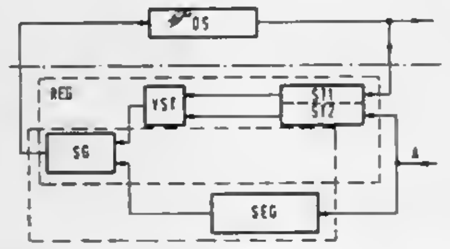
3,705,361
ARRANGEMENT FOR THE GENERATION OF TIMING PULSES

Guenther Haass, Munich, and Heinz Kurek, Olching, both of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed July 23, 1971, Ser. No. 165,538

Int. Cl. H03b *3/04*

U.S. Cl. 331—11 **5 Claims**



An arrangement for the generation of timing pulses for a receiver system in which the timing pulses are continuously synchronized with the pulses (input pulses) supplied by a transmitter system. The frequency of an oscillator which generates the timing pulses is changed in accordance with the phase difference between the timing pulses and the input pulses and in accordance with the frequency of the input pulses

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3,705,362
ASTABLE MULTIVIBRATOR CONTAINING TWO COMPLEMENTARY TRANSISTORS

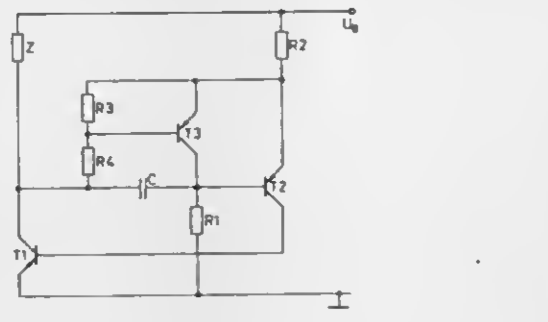
Hans Keller, and Wolfgang Sauer, both of Freiburg, Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Dec. 22, 1971, Ser. No. 210,700

Claims priority, application Germany, Jan. 16, 1971, P 21 02 025.7

Int. Cl. H03k *3/26*

U.S. Cl. 331—111 **3 Claims**



This invention relates to an astable multivibrator provided with two complementary transistors and an additional transistor which discharges the capacitor at a definite time independent of the current gain of said two complementary transistors. Applicable in one-coil electronic clock circuits.

3,705,363
CONTROL SIGNAL GENERATOR WITH SELECTIVELY SWITCHABLE DURATION CONTROL CIRCUIT

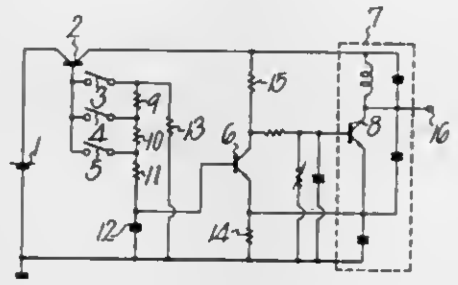
Hisao Okada, Kanagawa, and Koji Morita, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sept. 24, 1971, Ser. No. 183,511

Claims priority, application Japan, Sept. 26, 1970, 45/95471; Sept. 26, 1970, 45/95472

Int. Cl. H03b *3/18*

U.S. Cl. 331—174 **13 Claims**



A transmitter for producing control signals of precisely predetermined duration, for example, for remote control of a television receiver or other apparatus, has an oscillator operable to generate a signal, a switching transistor operable to connect the oscillator with an operating voltage source, and a switching assembly selectively operable to cause operation of the switching transistor and also to determine the charging time constant of a charging circuit by which the period of operation of the oscillator is controlled.

3,705,364
APPARATUS FOR GENERATING MICROWAVES HAVING A GENERATING ELEMENT AND VARIABLE REACTANCE ELEMENT IN A CAVITY RESONATOR

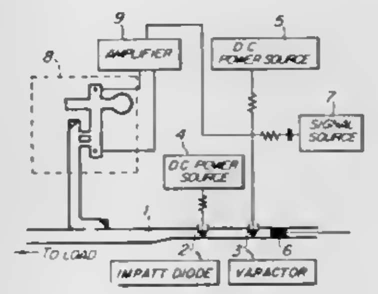
Masumi Takeshima, Takatsuki-shi, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed Sept. 29, 1969, Ser. No. 861,671

Claims priority, application Japan, Oct. 4, 1968, 43/72666

Int. Cl. H03c *3/08*

U.S. Cl. 332—18 **2 Claims**



Apparatus for generating microwaves comprising a cavity resonator, a microwave generating element and a solid-state variable reactance element such as a variable capacitance diode, both of these elements being disposed within the cavity resonator. It is possible to obtain a controlled and/or a modulated microwave output from the apparatus by varying the reactance of and/or by supplying a modulating signal to the variable reactance element.

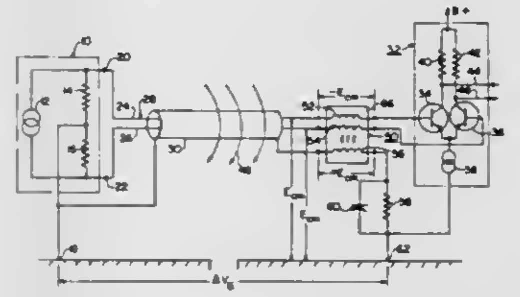
3,705,365
COMMON MODE NOISE CANCELLATION SYSTEM

Andras I. Szabo, Export, and Miklos Sarkozi, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 11, 1971, Ser. No. 114,473

Int. Cl. H04b *3/28, 3/30*

U.S. Cl. 333—12 **16 Claims**



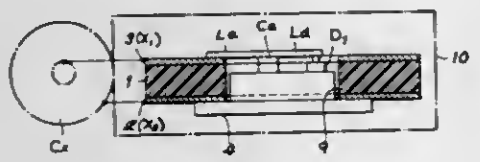
For use with a pair of signal conductors supplying signals to a utilization circuit, means for reducing unwanted common mode noise comprising a transformer device having two highly symmetrical windings each connected at one end to a different one of the two conductors and connected at their opposite ends to an electrical utilization circuit, for example and preferably having a balanced input (such as a differential amplifier) affording a degree of common mode rejection capability. A third winding on the transformer, having the same number of turns as each of the first two windings has supplied to it a voltage substantially equal to the common mode voltage of the signal conductors, whereby the voltages across all three windings will be substantially the same, those across the first two windings acting to oppose and cancel common mode voltages.

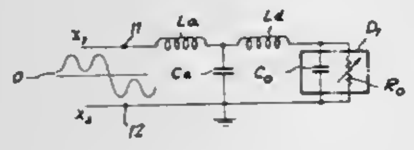
3,705,366

TWO-TERMINAL REACTIVE HYBRID MICROCIRCUIT HAVING CAPACITIVE DIODE TERMINATION

Claude Vergnolle, Limours, France, assignor to Thomson-CSF, Paris, France

Filed Dec. 14, 1970, Ser. No. 97,750
Claims priority, application France, Dec. 16, 1969, 6943511
Int. Cl. H01p *1/18*
U.S. Cl. 333—31 R 7 Claims





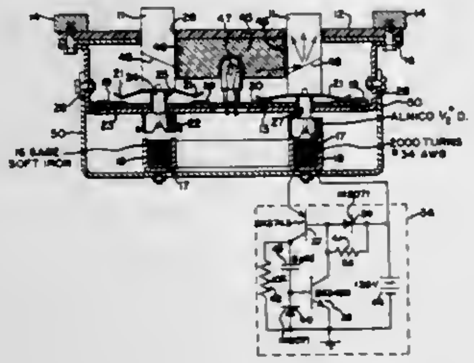
A phase shifter, detector and/or modulator for superhigh-frequency waves includes a two-terminal reactance network whose inductive branches consist of short linear conductors, measuring a small fraction of the free-space wavelength of an oscillation to be controlled, and whose capacitive branch or branches are lumped condensers; the network is terminated in a diode, with or without a large-capacitance series condenser, which can be selectively blocked or unblocked by the application of a suitable biasing potential to vary its impedance between a very high and a very low value. The components of the network are mounted on a conductive block received in a cutout of a two-conductor or three-conductor line strip.

3,705,367

PUSH-BUTTON SWITCH ASSEMBLY

William Peil, North Syracuse; Peter R. Daino, Syracuse, and Lon J. Sauter, Mattydale, all of N.Y., assignors to General Electric Company

Filed Oct. 22, 1971, Ser. No. 191,924
Int. Cl. H01h *3/12*
U.S. Cl. 335—186 13 Claims



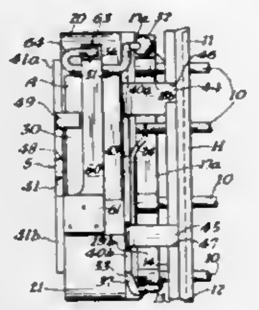
A push-button switch assembly that is suitable for applications requiring a relatively large number of push-button switches and in which no more than one switch is depressed at any one time. The assembly utilizes individual switches which are provided with permanent magnetic elements and a clearing coil which upon energization repels the magnets to clear any previously depressed switches as a new one is depressed. One application of the present invention is in channel selection of an electronically tuned television receiver.

3,705,368

MICROMINIATURE RELAY

Richard H. Williams, Jr., Batesburg, S.C., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed July 23, 1971, Ser. No. 165,626
Int. Cl. H01h *3/60*
U.S. Cl. 335—193 12 Claims



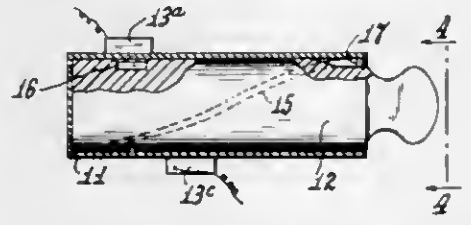
An all-welded hermetically sealed microminiature relay is substantially free of armature bounce. The relay includes an electromagnet and a pivotal armature which is spring biased in a unique manner to remove some of the kinetic energy from the armature as it moves to its deenergized position. The relay includes a contact arrangement having a plurality of fixed contacts and at least one movable contact actuated by the movement of the armature for performing the transfer switching functions of the relay. It has been found that the dropout to pickup current ratio of any given relay may be changed by varying the length of the pole faces.

3,705,369

KEY ACTUATED SWITCH

Wayne C. Schwendeman, Jr., 4708 Garfield, Lisle, Ill.

Filed Nov. 1, 1971, Ser. No. 194,372
Int. Cl. H01h *27/00, 27/06*
U.S. Cl. 335—206 4 Claims



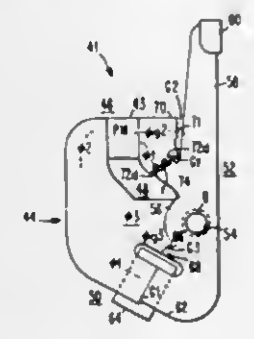
Switch means incorporating means to energize an electric circuit upon use of a key of predetermined characteristics but which will energize an alarm system upon use of an improper key, or fail to work at all.

3,705,370

MAGNETICALLY ACTUATED AND RESTORED PRINT HAMMER

Hi D. Chai, Vestal; Stephen H. Mills, Newark Valley; Joseph P. Pawletko; Francis E. Peters, both of Endwell, and Carl T. Young, Binghamton, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed April 15, 1971, Ser. No. 134,176
Int. Cl. H01f *7/08*
U.S. Cl. 335—229 5 Claims



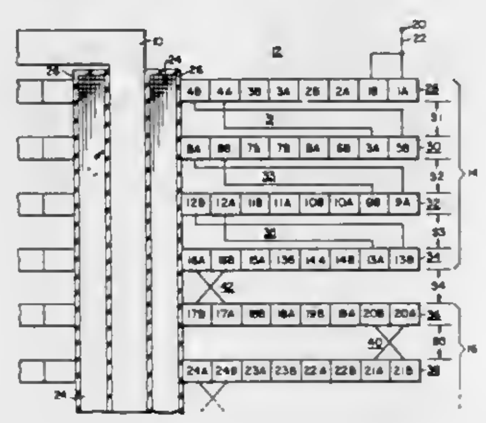
A magnetic actuator comprises a three-legged magnetic core with an armature pivotally mounted at the middle leg to have portions on either side thereof with an abutting gap relation with one outer leg and an abutting plus a peripheral gap relation with the other. A winding on the one abutting leg provides drive flux, and a winding or permanent magnet on the other leg provides a restore or detent flux between teeth on the armature and core.

3,705,371

ELECTRICAL WINDING

Robert I. Van Nice, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 22, 1972, Ser. No. 228,076
Int. Cl. H01f *15/14*
U.S. Cl. 336—70 7 Claims



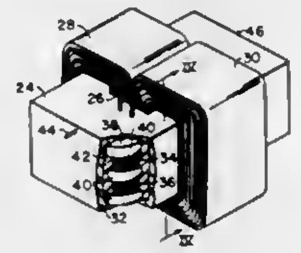
Winding structures having two or more interconnected winding groups. The winding groups have different levels of surge voltage strength, with the group having the highest level being electrically located nearest to a line end of the winding structure. In a first embodiment, the winding group nearest the line end is a single disc winding with the disc spacing adjusted to provide a uniform series capacitance throughout the winding structure. In a second embodiment, an interleaved turn winding group is connected between the winding groups of the first embodiment and the line end of the winding.

3,705,372

CAST-TYPE WINDING STRUCTURE FOR ELECTRICAL INDUCTIVE APPARATUS

Joseph Gotal, Parrell, Pa., and Edmond E. Conner, Brookfield, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 7, 1971, Ser. No. 205,584
Int. Cl. H01f *27/32*
U.S. Cl. 336—182 6 Claims



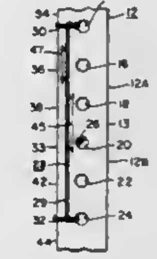
Transformer winding structure having a low-voltage winding, a rubber spool positioned around the low-voltage winding, and a plurality of high-voltage winding sections which are positioned in channels of the spool. The high-voltage winding sections are divided into layers by epoxy impregnated paper insulating strips and the assembly is covered with a filled epoxy resin. The entire structure is encapsulated in a molded rubber casing. The resiliency of the rubber spool relieves stresses in the filled epoxy material.

3,705,373

CURRENT LIMITING FUSE

Frank L. Cameron, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 24, 1971, Ser. No. 146,207
Int. Cl. H01h *85/04*
U.S. Cl. 337—160 6 Claims



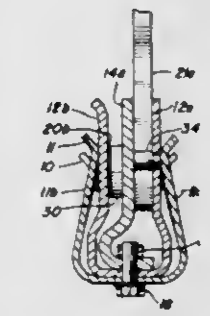
A current limiting fuse having a fusible element with a plurality of longitudinally spaced holes or slots or otherwise reduced cross section and utilizing in addition at least one point along the element a small quantity of a low melting point material, such as tin. The low melting point material and at least a portion of the holes or reduced sections is shunted by a length of high resistance, highly reactive exothermic wire. Since the exothermic wire is close to the main piece of fuse material, the proximate force of the explosion blows out or melts other sections of the main fusible element in the weakened areas near the holes or reduced sections to quickly limit any overcurrent.

3,705,374

MOUNTING MEANS FOR ELECTRICAL SWITCH BLADE AND FOR FUSE BLADE TERMINAL

Harris I. Stanback, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill.

Filed Nov. 17, 1971, Ser. No. 199,646
Int. Cl. H01h *3/00*
U.S. Cl. 337—215 4 Claims



An elongated generally U-shaped mounting member is disposed within a pair of substantially longitudinally aligned U-shaped spring members, and a generally L-shaped mounting member coextensive in length with the U-shaped mounting member has one leg dividing the space between the legs of the U-shaped mounting member and its other leg secured to the bight portion of the U-shaped mounting member. An end portion of a switch blade is disposed within the U-shaped mounting member adjacent one end thereof and on one side of the dividing leg of the L-shaped mounting member. A pivot pin for the switch blade has a shank portion received in bearing relationship in aligned openings provided respectively in one leg of the U-shaped mounting member, in the end portion of the switch blade, and in the dividing leg of the L-shaped mounting member. An enlarged head portion of the pin extends with clearance through an opening in the other leg of the U-shaped mounting member. A leg portion of one of the spring members engages an outer face of the head portion and presses an annular inner face thereof into engagement with the other side of the dividing leg. A blade terminal of a cartridge fuse is disposable within the U-shaped mounting member adjacent the other end thereof and on the other side of the dividing leg.

3,705,375

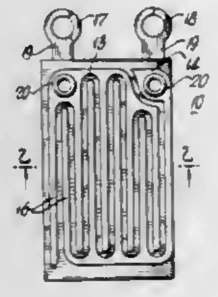
ELECTRODE FOR ELECTRIC HUMIDITY SENSOR

Abe Hershler, Flushing, N.Y., assignor to Phys-Chemical Research Corp., New York, N.Y.

Filed July 7, 1971, Ser. No. 160,383

Int. Cl. H01c *13/00*

U.S. Cl. 338—35 **10 Claims**



An electric humidity transducer includes a body member coated with a sensing layer having a resistivity responsive to ambient humidity and a pair of spaced thin electrodes adherent to the sensing layer. The electrodes each comprise a porous, flexible, polymeric resin, adhesive binder bonding a mixture of carbon black and graphite. The ratio of carbon black to graphite is between 2:8 and 6:4, and the electrode contains between 7 and 11 parts of the binder and 8 to 12 parts of the carbon black and graphite mixture.

3,705,376

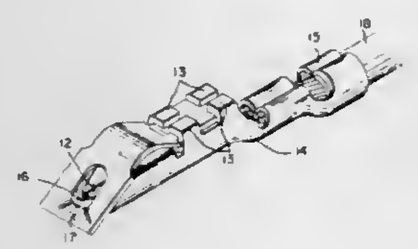
CONNECTOR WITH RELEASABLE SPRING CONTACT AND RELEASING TOOL

Robert John Kinkaid, New Cumberland, and John Carl Asick, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 25, 1970, Ser. No. 92,742

Int. Cl. H01r *11/20, 13/20*

U.S. Cl. 339—30 **11 Claims**



A connector assembly including a contact body having a crimped wire barrel portion and a channel portion with a finger-like spring mounted on the channel portion. An opening near a free end of the spring is located opposite one end of the channel permitting insertion of a conductive post through the opening and into the channel. The spring is appropriately biased to bite the post along one edge of the opening while releasing the post by use of a tool which applies a force at the end of the spring in the direction of the channel.

3,705,377

RECEPTACLE FOR SNAP-IN MOUNTING OF CONNECTORS

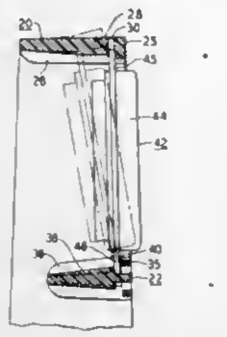
Eric Lowell Hansen, Westminster; Larry Benjamin McNoldy, Broomfield, and Karl-Heinz Pohl, Boulder, all of Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 21, 1970, Ser. No. 100,010

Int. Cl. H01r

U.S. Cl. 339—121 **2 Claims**

A receptacle for mounting connectors including a pair of opposed flange portions and a plurality of contacts intermediate the flange portions. The receptacle includes a pair of spaced parallel walls between which the connector is positioned, each wall including elements defining a slot for accommodating the end of one of the flange portions of the connector. The slot elements of one of the walls includes an integral cantilever beam that is deflected as the connector is being inserted, the beam returning to its undeflected position when insertion is completed to secure the connector in place.



3,705,378

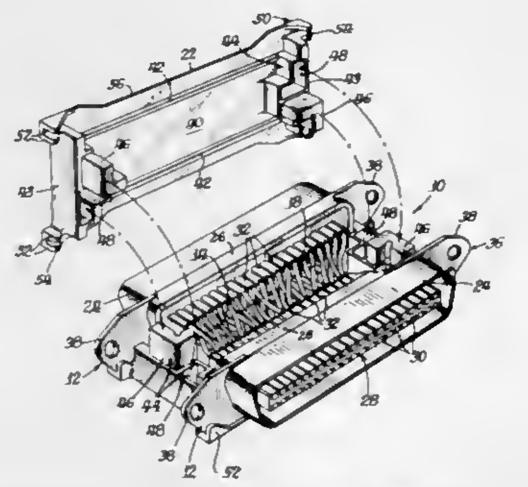
COVER FOR FEED-THROUGH CONNECTOR

Luejene Elkins, Chicago, Ill., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed March 24, 1971, Ser. No. 127,456

Int. Cl. H01r *23/02*

U.S. Cl. 339—156 R **5 Claims**



In a double-ended, or feed-through, connector wherein a pair of connector members are arranged back-to-back, for reception of cable plugs, a pair of preformed covers, such as of plastic, of identical construction having elements symmetrically arranged, and fitted on opposite sides of the connector members, frictionally fitted together, and together enclosing the space between the connector members and the connecting elements in that space.

3,705,379

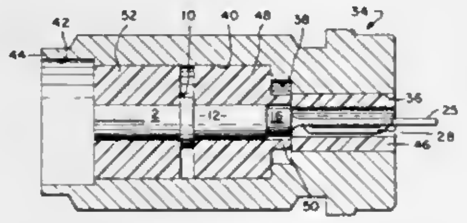
CONNECTOR FOR INTERCONNECTION OF SYMMETRICAL AND ASYMMETRICAL TRANSMISSION LINES

Jerry Hench Bogar, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 14, 1971, Ser. No. 143,364

Int. Cl. H01r *17/04*; **H01p** *5/10*

U.S. Cl. 339—177 R **3 Claims**



An electrical terminal includes an extended tab for registration with the conductor of an asymmetrical transmission line. The terminal further includes an offset conductor portion of reduced cross section for connection to the symmetrical transmission line which shapes the normally uniform distribution of electromagnetic energy transmitted over the symmetrical transmission line to a non-uniform distribution which approximates that of the unsymmetrical transmission lines into which the electromagnetic energy is to be transmitted.

3,705,380

METHOD OF INTERCONNECTING PARTS

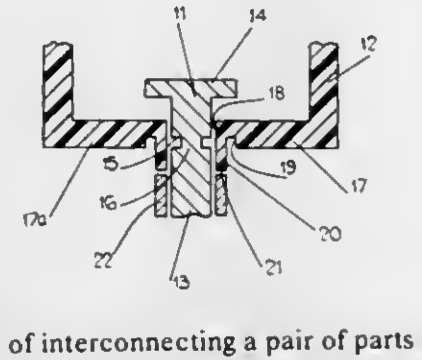
Maurice Roberts, Warwickshire, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Feb. 18, 1971, Ser. No. 116,509

Claims priority, application Great Britain, March 5, 1970, 10,545/70

Int. Cl. H01r *9/08*

U.S. Cl. 339—218 R **8 Claims**



In a method of interconnecting a pair of parts at least one of which is thermoplastic, the thermoplastic part has an aperture therein and one surface of the thermoplastic parts has a recess adjacent said aperture, a shoulder being defined between the recess and the aperture. The other parts have a peripheral groove and is positioned in the aperture so that the groove is adjacent the recess in the thermoplastic part and is located between the base of the recess and the one surface of the thermoplastic part. Ultrasonic energy is supplied to the shoulder to cause material from the shoulder to flow into the groove in the other part to interconnect the pair of parts.

3,705,381

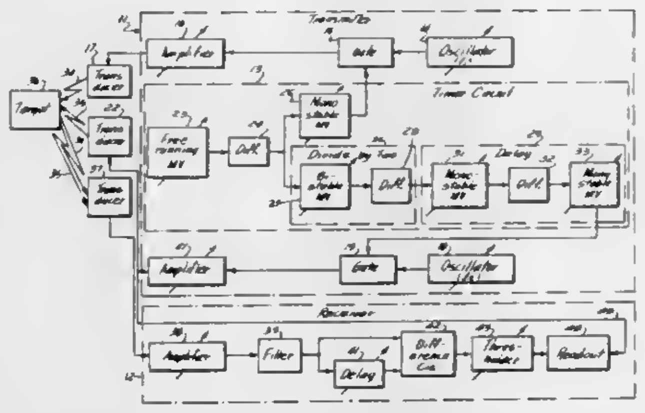
RESONANT TARGET SONAR SYSTEM

Edward L. Pipkin, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy

Filed March 12, 1968, Ser. No. 713,277

Int. Cl. G01s *9/66*

U.S. Cl. 340—3 R **11 Claims**



A sonar system having a first broadcaster for generating and broadcasting a predetermined frequency search signal toward a target to be located and classified and a second broadcaster for generating and broadcasting a second signal having a frequency substantially the same as the resonant frequency of the type of target being hunted for effecting the vibration thereof at its resonant frequency. A programmer connected to said first and second broadcasters in such manner as to effect the broadcast of said second signal, so as to vibrate said target a predetermined period of time before, during, and after the broadcast of alternate ones of said search signal. A receiver having a filter for filtering out said second signal after both said search and second signals have been reflected as unmodulated and vibration modulated signals from said target, a delay for delaying said filtered signal an amount such that the unmodulated and modulated portions thereof coincide in time, a subtractor for producing a signal representing the difference between said unmodulated and modulated signals, and a readout for displaying said difference signal in terms of the characteristics of the aforesaid target.

3,705,382

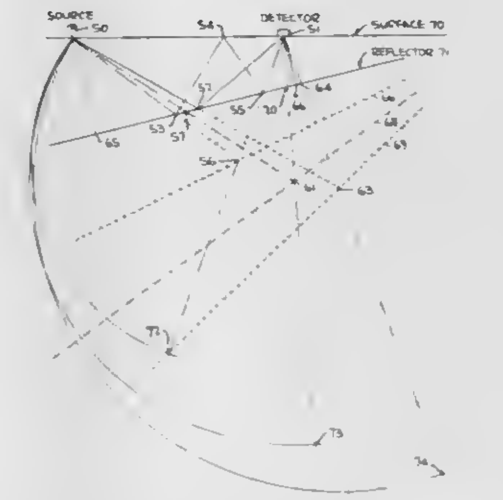
METHODS FOR IMPROVED DECONVOLUTION OF SEISMIC OR SIMILAR DATA

Roy G. Quay, San Antonio, Tex., assignor to Petty Geophysical Engineering Company, San Antonio, Tex.

Filed Feb. 26, 1970, Ser. No. 14,606

Int. Cl. G01v *1/28*

U.S. Cl. 340—15.5 CC **6 Claims**



Methods for preparing seismic data to be deconvolved comprise the introduction of a time variable correction based on velocity in the reverberating media and dip at the reverberating boundaries. This invention corrects for angularity in the reverberation path introduced by the detector being remote from the source and for the dips of the boundaries by making the undesired reverberations uniformly repetitive. Either normal movement (NMO) or composite corrections for NMO and dip are used depending on the extent of dip of the reflection boundaries, or the degree to which the refraction boundaries are not parallel, to make the reverberations repetitive in time. The modified data is then deconvolved to remove the repetitive noise and retains the desired signals which are nonrepetitive. After deconvolution, a second time variable correction, representing the difference between the NMO correction required for the desired primary reflections and the first time variable correction, is applied. The data is then stacked using horizontal stacking techniques or further processed to provide any other desired form of presentation.

3,705,383

BIOLOGICAL SAMPLE PATTERN ANALYSIS METHOD AND APPARATUS

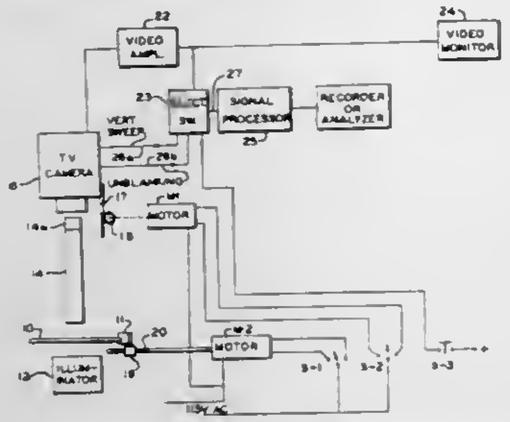
William W. Frayer, 445 East 69th Street, New York, N.Y.

Continuation of Ser. No. 775,233, Nov. 6, 1968, abandoned. This application Aug. 6, 1971, Ser. No. 169,863

Int. Cl. G06k *9/00*

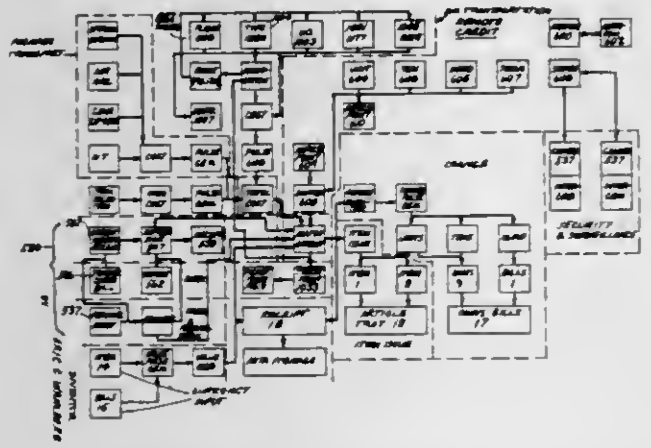
U.S. Cl. 340—146.3 R **47 Claims**

Method and apparatus for pattern recognition, and especially leukocyte identification, by optical scanning of a pattern to derive a waveform which is processed to provide one or more histograms defining the scanned pattern in terms of the frequency of occurrence of elemental areas having various optical transparencies or reflectances, without regard to the spatial arrangement of the various elemental areas. Apparatus for deriving and recording histogram functions in both digital and analog form is disclosed, together with various arrangements for recording, displaying, and analyzing histogram data values to classify patterns. Also disclosed is a pattern recognition system which utilizes histogram function data values together with spatially-dependent data sensed from the pattern to identify the pattern.



3,705,384
BUSINESS TRANSACTION APPARATUS

Eric C. Wahlberg, 32 Eighth St, Stamford, Conn.
Continuation-in-part of Ser. No. 884,620, Dec. 12, 1969, abandoned. This application Aug. 10, 1971, Ser. No. 170,520
Int. Cl. G07f *7/02;* **H04q** *1/00*
U.S. Cl. 340—149 **14 Claims**

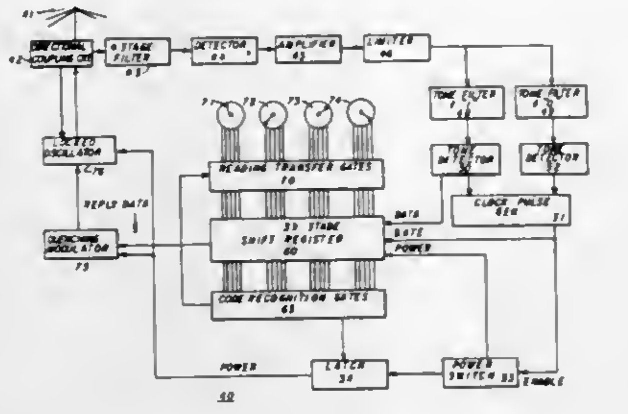


A multiple transaction business machine is provided which includes means for selecting a plurality of transactions, totaling the cost of such transactions and determining the value of payment tendered in satisfaction of the cost of the transactions by payment evaluating means receiving legal tender, credit media and negotiable instruments from the purchaser in tender of satisfaction of the cost of the transactions selected, as well as means for validating the credit media and negotiable instruments presented and means for validating the identity of the purchaser. The machine issues tickets and the like in response to preselection of various modes of transportation, package mailing and handling, etc. A remote data link for the purpose of credit availability verification and purchaser identity is also provided together with remote control, intercom and live identification media.

3,705,385
REMOTE METER READING SYSTEM

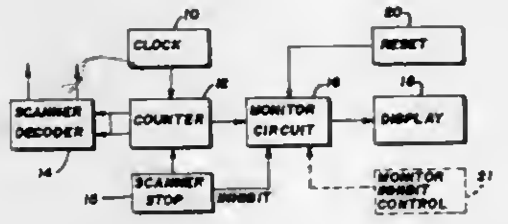
James E. Batz, Northbrook, Ill., assignor to Northern Illinois Gas Company, Aurora, Ill.
Filed Dec. 10, 1969, Ser. No. 883,890
Int. Cl. G01s *9/56;* **H04b** *7/14;* **H04q** *9/12*
U.S. Cl. 340—152 R **49 Claims**

A system for selectively obtaining information from a plurality of remotely located data registers including a mobile or stationary transmitter for transmitting coded signals representing the identification number of a register to be read and a transponder at each register location for receiving the identification signals and responsive to readout signals transmitted from the transmitter to transmit back to the transmitter data signals representing the reading of the interrogated register.



3,705,386
MONITOR FOR TIMING CIRCUITS

Klaus Gueldenpfennig, Rochester; Edward G. Reehil, Henrietta, and Lansing E. Tryon, Rochester, all of N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.
Filed April 1, 1970, Ser. No. 24,677
Int. Cl. H04q *1/32*
U.S. Cl. 340—167 A **13 Claims**



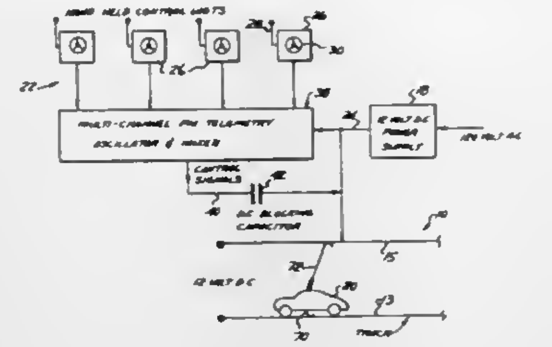
The input of a pair of gates are connected to a timing circuit, that produces periodic pulses having preset time duration and preset separation, in a manner so that the signals applied to the gates are inverted with respect to the other. One gate is inhibited from responding to the signals for a period of time greater than preset time duration and the other is inhibited for a period of time greater than the preset separation. The gates are connected to a latching circuit so that if the signal applied a gate exceeds its inhibiting period, the latching circuit produces a continuous alarm.

3,705,387
REMOTE CONTROL SYSTEM FOR ELECTRO-MECHANICAL VEHICLE

Kenneth Stern; Karen Stern, both of Detroit, Mich., and Robert Spoon, Hanson, Mich., assignors to Kenneth Stern; Robert Spoon and Thomas J. Grossman, Birmingham, Mich., part interest to each
Filed Jan. 11, 1971, Ser. No. 105,333
Int. Cl. A63h *30/04;* **H04b** *7/00;* **H04a** *11/02*
U.S. Cl. 340—171 A **3 Claims**

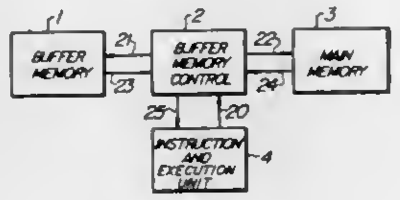
A remote electronically controlled vehicle which is movable between two conductive tracks; the vehicle is equipped with electrical control devices for steering and driving of the vehicle, which are connected by contacts to the conducting track surfaces; the conducting track is equipped to handle a plurality of these vehicles through a single electronic control unit having a multiple channel FM telemetry circuit including an

oscillator and mixer circuit; multiple individual manual controls corresponding to the number of vehicles on the conductive tracks can be attached to the control unit for individual independent control of the vehicles on the conductive tracks.



3,705,388
MEMORY CONTROL SYSTEM WHICH ENABLES ACCESS REQUESTS DURING BLOCK TRANSFER

Tetsunori Nishimoto, Hatano, Japan, assignor to Kogyo Gijutsuin, Tokyo, Japan
Filed Aug. 6, 1970, Ser. No. 61,698
Claims priority, application Japan, Aug. 12, 1969, 44/63296
Int. Cl. G06f *13/00*
U.S. Cl. 340—172.5 **3 Claims**

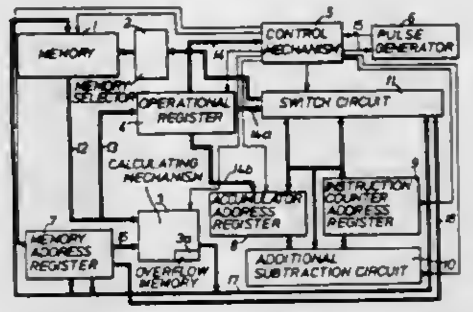


A buffer memory control system for a buffer memory having a shorter access time and a smaller number of memory locations than a main memory. If the requested information is not present in the buffer memory, the block including the requested information is transferred from the main memory to the buffer memory. When a read or write request for the information of another block which is different from the said block is made during the transfer of the latter block, the transfer of the block is interrupted temporarily to immediately effect the reading from or writing in the another block of the buffer memory, after the completion of which the transfer of the block is resumed if the requested information of the another block is present in the buffer memory.

3,705,389
DIGITAL COMPUTER HAVING A PLURALITY OF ACCUMULATOR REGISTERS

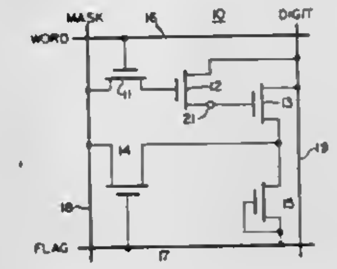
Alwin Krock, Zellhausen; Hans-Peter Page, and Joachim Hirschmann, both of Seligenstadt, all of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Continuation-in-part of Ser. No. 152,949, June 14, 1971, abandoned. This application July 14, 1971, Ser. No. 162,502
Claims priority, application Germany, June 12, 1970, P 20 28 931.0
Int. Cl. G06f *9/00*
U.S. Cl. 340—172.5 **8 Claims**

In a programmable digital computer containing a plurality of accumulator registers, an accumulator address register for placing one accumulator register or another into operation, a plurality of instruction counters and an instruction counter address register for selectively operating one instruction counter or another, an addition/subtraction circuit is provided for automatically adding or subtracting unity to the number in the accumlulator address register and/or the instruction counter address register in dependence on the contents of the address part of the program instruction words.



3,705,390
CONTENT ADDRESSED MEMORY CELL WITH SELECTIVE BIT WRITING

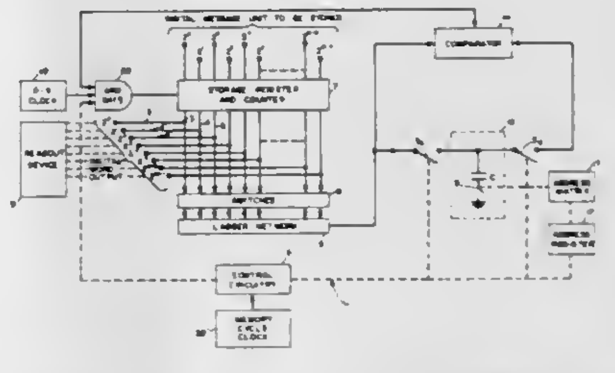
Joseph L. Mundy, Schenectady, N.Y., assignor to General Electric Company
Filed May 26, 1971, Ser. No. 146,967
Int. Cl. G11c *11/40, 15/00*
U.S. Cl. 340—173 AM **10 Claims**



A content addressed memory is disclosed in which the information may be changed or stored on a bit-by-bit basis rather than on a word-by-word basis. This is accomplished by utilizing a cascading circuit arrangement in which the storage node of the charge storage memory is isolated from the "word" line by at least one, intermediate, isolated node. In addition, the exclusive-OR function used to obtain a content addressed memory is achieved utilizing the storage transistor and only two additional transistors in each memory cell.

3,705,391
MEMORY SYSTEM EMPLOYING CAPACITANCE STORAGE MEANS

Richard H. Baker, Bedford, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.
Continuation-in-part of Ser. No. 797,953, Feb. 10, 1969. This application Oct. 22, 1971, Ser. No. 191,913
Int. Cl. G11c *11/24, 7/00, 11/42*
U.S. Cl. 340—173 CA **15 Claims**

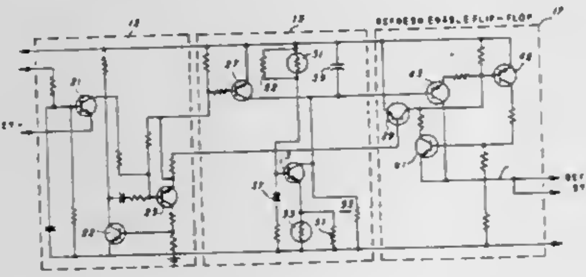


Memory apparatus is disclosed wherein digital information in the form of message units is stored in capacitance arrays.

Each message unit is converted to an M-level voltage determined by the bit content of the unit and the M-level voltage is transferred to an individual capacitance for storage; once information has been stored, the power to the system can be removed. Appropriately programmed switching enables the storage of many message units sequentially upon individual capacitances. Small physical size requirements of the memory for preferred uses as well as reliability of the switch system are met by field effect transistors which, however, allow charge leakage from the capacitances. It is necessary, therefore, that the memory periodically be updated or restored. Updating is effected by feeding the M-level voltage signals on the capacitances individually and sequentially to one input of a comparator and feeding to the other input thereof an analog signal representing the lowest number of bits greater than or equal to the message unit represented by the displayed signal on the particular capacitance. The analog signal thus determined is then connected to the particular capacitance and/or the digital message unit from which the analog signal is derived can be passed to a readout device. The memory has other uses, one of which, that of image pickup in a solid state camera, is discussed in detail.

3,705,392
MOS DYNAMIC MEMORY

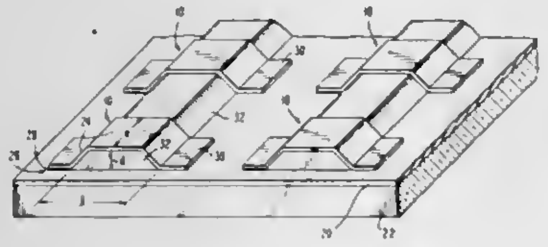
Daren Ray Appelt, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Sept. 7, 1971, Ser. No. 177,975
Int. Cl. G11c *11/24, 11/40*
U.S. Cl. 340—173 R **6 Claims**



An MOS memory array has a number of memory cells fabricated on a single chip. A refresh control sensor senses the temperature of the environment of the MOS memory array. The MOS memory array is refreshed depending upon the environmental temperature of the memory array. This allows a minimum power consumption in the standby mode of the MOS dynamic memory.

3,705,393
SUPERCONDUCTING MEMORY ARRAY USING WEAK LINKS

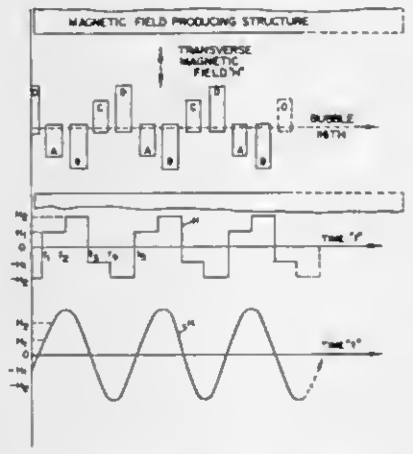
Wilhelm Anacker, Yorktown Heights, and Hans H. Zappe, Granite Springs, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 30, 1970, Ser. No. 51,057
Int. Cl. G11c *11/44, 5/02*
U.S. Cl. 340—173.1 **26 Claims**



A superconducting memory array where the memory cells are superconducting rings, each of which has at least one element therein capable of supporting Josephson tunneling current. Coincident currents are used to trap flux in the rings, and to release the trapped flux for readout of the memory cells. Fast operation and tolerable limits on drive currents are possible if one flux quantum operation is used. To achieve single flux quantum operation, the capacitance, inductance, and damping of each memory cell must be within certain limits.

3,705,394
OSCILLATING TRANSVERSE FIELD BUBBLE DOMAIN PROPAGATION

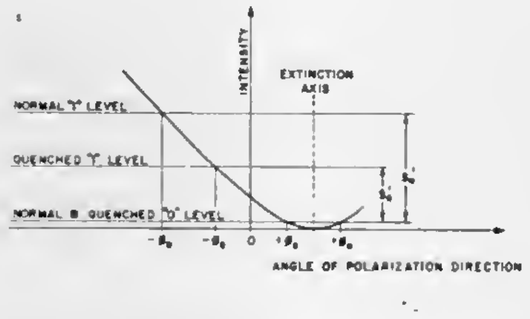
Edward Della Torre, Toronto 165, Ontario, Canada, assignor to Canadian Patents and Development Ltd., Ottawa, Ontario, Canada
Filed Oct. 4, 1971, Ser. No. 186,199
Int. Cl. G11c *19/00, 11/14*
U.S. Cl. 340—174 TF **3 Claims**


MAGNETIC FIELD PRODUCING STRUCTURE
TRANSVERSE MAGNETIC FIELD "H"
BUBBLE PATH
TIME "t"
TIME "t"

A bubble domain propagation circuit made up of an overlay pattern of bars of different shapes such that their differing demagnetizing fields make them vary in the magnetic field strength required to reverse their magnetic polarities. The preferred arrangement comprises a series of bars formed of films of material having magnetic proportions e.g. permalloy overlying the film containing the bubbles. The arrangement is made up of long and short bars with the bubbles moving from the vicinity of one bar to the next on application of a suitably shaped varying transverse field. In the simplest arrangement the bars are alternately long and short and the transverse field is a sine wave.

3,705,395
MAGNETO-OPTIC READOUT SYSTEM

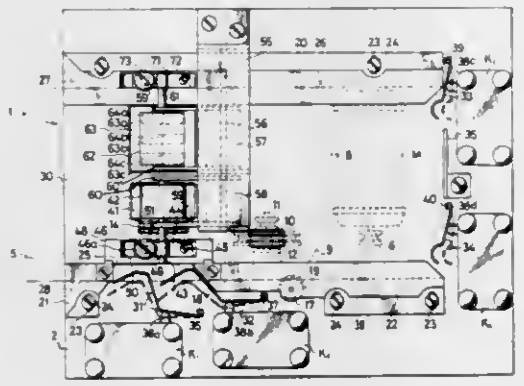
Roger L. Aagard, Minneapolis, and Francis M. Schmit, St. Louis Park, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.
Filed May 3, 1971, Ser. No. 139,422
Int. Cl. G11c *11/42*
U.S. Cl. 340—174 YC **5 Claims**



In an optical mass memory utilizing Curie point writing, information is stored on a manganese bismuth film having low and high temperature crystallographic phases. The Kerr or Faraday magneto-optic rotation angle exhibited by a region of manganese bismuth having a low temperature crystallographic phase is different from the magneto-optic rotation angle exhibited by a region having the high temperature crystallographic phase. The magnetization direction of a region is sensed independent of the crystallographic phase. A magneto-optic readout system is utilized in which the extinction axis of the analyzer is set at an angle between the low temperature and the high temperature phase magneto-optic rotation angles for a "0" bit. Therefore the output from a low temperature "0" bit is identical to that of a high temperature phase "0" bit.

3,705,396
DRIVE MECHANISM FOR USE WITH INFORMATION CARDS

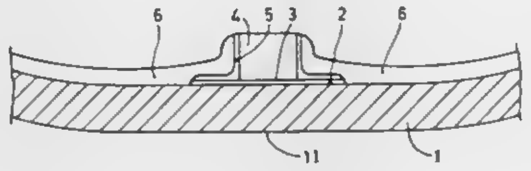
Takehiro Nagaki, Tokyo, and Teruo Yamamoto, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed May 27, 1971, Ser. No. 147,546
Claims priority, application Japan, June 5, 1970, 45/56073
Int. Cl. G11b *19/02*
U.S. Cl. 340—174.1 C **7 Claims**



An information card drive mechanism comprising a pinch roller and a capstan driven by a motor for selectively driving the information card in one of two predetermined directions and at least three switches and an electronic logic circuit for controlling the driving direction of the motor.

3,705,397
SELF-ADJUSTING SUPPORTING MEMBER HAVING A MAGNETIC HEAD

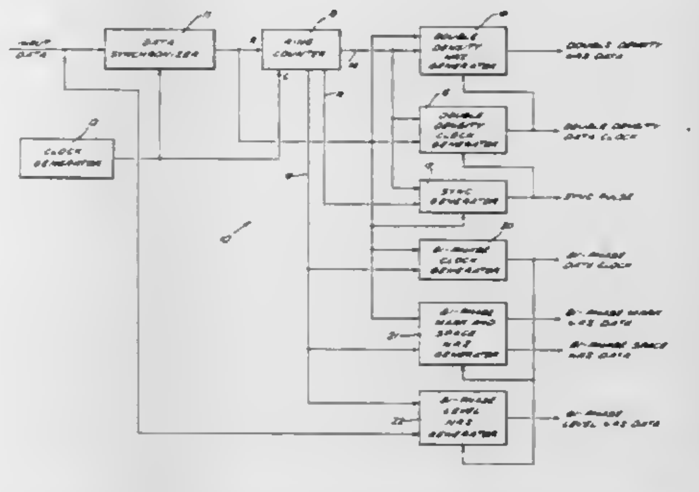
Jan T. Gerkema, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 30, 1970, Ser. No. 85,393
Claims priority, application Netherlands, Nov. 7, 1969, 6916800; Oct. 16, 1970, 7015194
Int. Cl. G11b *5/60*
U.S. Cl. 340—174.1 E **3 Claims**



In hydrodynamically operating suspension devices which have for their object to keep a magnetic head at a constant distance from a rotating memory disk, the magnetic head was so far incorporated in the lower side of a flexible rubber or plastic box. The head is now incorporated in a diaphragm of a ductile metal. A diaphragm with incorporated head is manufactured by pressing the head on a polished mould, by the electroless and/or electrolytic deposition of metal on the sides of the head and the adjoining part of the mould, and finally by stripping the assembly from the mould.

3,705,398
DIGITAL FORMAT CONVERTER

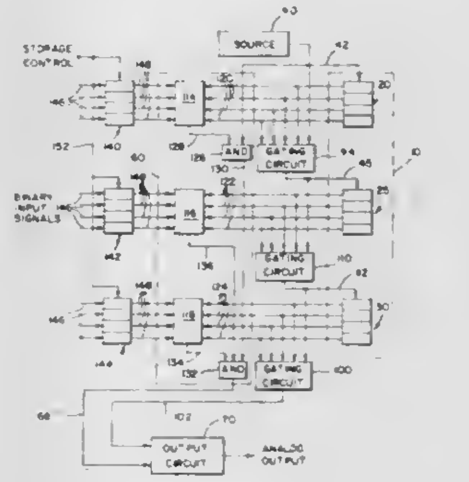
Ronald F. Kostenbauer, and James P. Welch, both of Glendora, Calif., assignors to Odetics, Inc., Anaheim, Calif.
Filed Aug. 11, 1970, Ser. No. 62,954
Int. Cl. H03k *13/24*
U.S. Cl. 340—347 DD **31 Claims**



Apparatus for converting serial digital data which is phase encoded in accordance with any bi-phase or double density format to its NRZ format equivalent accompanied by a coherent clock signal. The input data and a train of clock pulses are applied to a data synchronizer which generates a first pulse for each leading and trailing edge transition of the input data in synchronism with the clock pulses. A ring counter driven by the clock pulses generates a series of second pulses in accordance with a predetermined time sequence, the first pulses being applied to the ring counter to restart the time sequence, whereby the output of the ring counter is indicative of the absence of a transition of the input data for a predetermined time period. The first and second pulses are applied to a flip-flop which changes state upon the occurrence of a first or a second pulse, the output of the flip-flop comprising a coherent clock signal. The first and second pulses and the clock signal are applied to logic circuitry which generates the NRZ format equivalent of the input data for all bi-phase and double density formats.

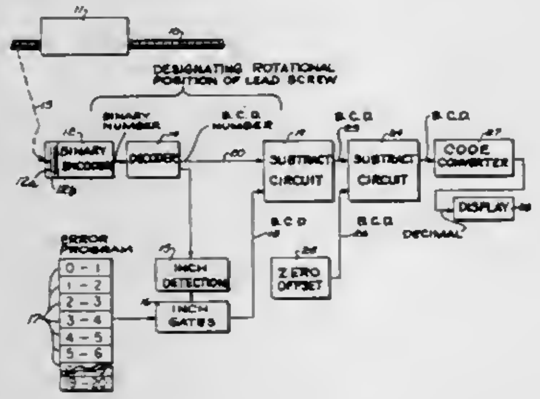
3,705,399
DIGITAL TO ANALOG CONVERTER

William M. Hawkins, Hockessin, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed Dec. 9, 1970, Ser. No. 96,440
Int. Cl. H03k *13/02, 21/06*
U.S. Cl. 340—347 DA **16 Claims**



A digital to analog converter is provided for converting a set of binary input signals into an analog signal having an amplitude determined by the binary input signals. The converter includes a binary counter comprising a plurality of groups of binary counting stages connected in series and operable in predetermined counting sequences. Circuit means are provided for synchronizing the operation of the groups of binary counting stages with a source of timing pulses. The converter also includes comparator means for comparing the set of binary input signals with the signals (binary counting states) produced by the binary counter and producing an output pulse when the signals are identical. An output circuit responsive to the comparator means is provided for producing an analog output signal having an amplitude determined by the time required for the binary counter to count from a predetermined set of binary counting states to the binary counting states that are identical to the binary input signals.

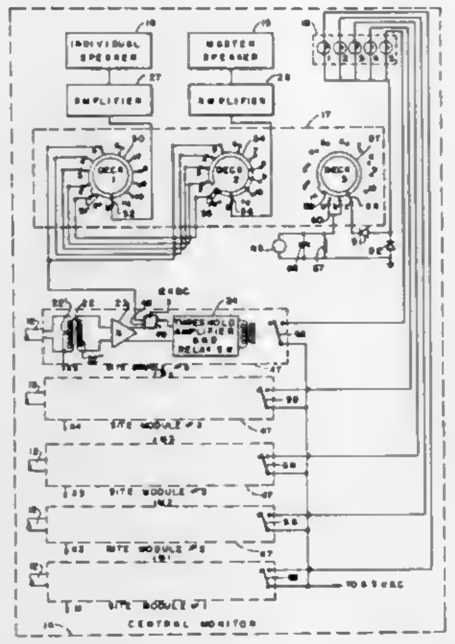
3,705,400
ERROR-COMPENSATED POSITION DETERMINING
Edward V. Cordes, Jr., Bentleyville, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Continuation of Ser. No. 665,337, Sept. 5, 1967, abandoned. This application Dec. 24, 1970, Ser. No. 101,410
Int. Cl. G08c *9/00*
U.S. Cl. 340—347 R **14 Claims**



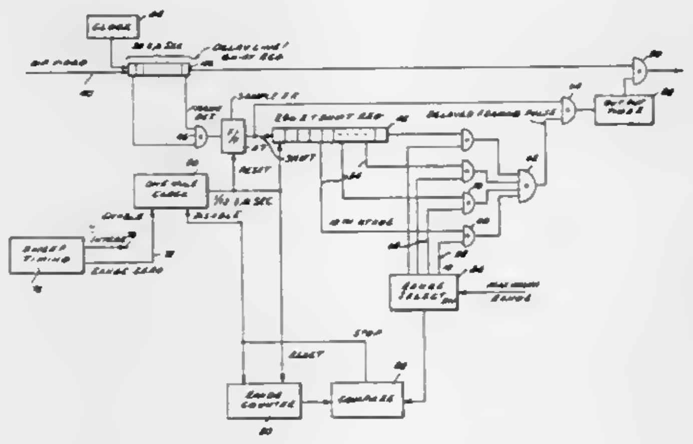
The present system determines the linear position of a machine tool slide driven by a lead screw. The rotational position of the lead screw is sensed by an analog-to-digital converter which produces a number designating the nominal linear position of the slide corresponding to the sensed rotational position of the lead screw. The system has an error program containing, for each one-inch increment along the lead screw, a digital error signal which represents the mean deviation between the slide's actual position and its nominal position for that increment of the slide travel. The proper error signal is selected from this program in response to the inch-designating digits in the output number from the analog-to-digital converter. The selected digital error signal is combined with the latter number, either by addition or subtraction, to produce a corrected number which more accurately designates the actual linear position of the slide, thereby compensating for lead screw error. This corrected number is combined with a zero offset number to provide an offset-corrected number which designates the slide position with respect to a chosen offset zero location along the lead screw. This offset-corrected number is displayed visually as a decimal number.

3,705,401
ELECTRICAL ALARM SYSTEM
Francis A. Scott, 863 Orange Avenue, Daytona Beach, Fla.
Continuation-in-part of Ser. No. 851,895, Aug. 21, 1969, abandoned. This application Feb. 11, 1972, Ser. No. 225,401
Int. Cl. G08b *19/00*
U.S. Cl. 340—412 **18 Claims**

A plurality of protected stations connected by transmission lines to a central monitoring station. Each protected station has a condition sensing device capable of transmitting an abnormal condition signal to the monitoring station where all the protected stations are simultaneously monitored by a master signal detector. The monitoring station also has an individual signal detector and a selector switch so that an abnormal condition signal from any particular protected station may be monitored by the individual detector in exclusion of all the other protected stations which are monitored by the master detector.

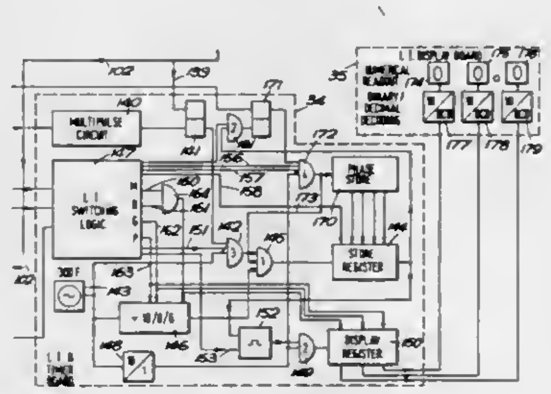


3,705,402
SECONDARY RADAR DEFRUITING SYSTEM
Jack R. Ballantyne, Santa Ana, and Melvin E. Houck, Garden Grove, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed May 27, 1970, Ser. No. 40,984
Int. Cl. G01s *9/56*
U.S. Cl. 343—6.5 LC **8 Claims**



A defruiter system useful in secondary radar applications for enabling local ground station equipment to distinguish target reply messages responsive to its interrogate signal from reply messages responsive to interrogate signals of remote ground stations. In secondary radar systems, a target transponder may at any one time be within the range of several interrogating ground stations, and therefore may be interrogated by and transmit replies to all of them. At any one ground station, the replies responsive to its own interrogation will appear at the same range during successive sweeps. However, replies initiated by interrogations from remote stations will be at unsynchronized sweep rates and will appear at the one station at different ranges during successive sweeps. This type of interference is referred to as "fruit." The subject defruiter system eliminates this fruit interference by comparing the time occurrence of framing (bracket) pulses during successive sweeps. When framing pulses during two successive sweeps match in time, then the data bits therebetween are read and the entire reply message is interpreted as being responsive to a local interrogation. Sweep-to-sweep framing pulse comparisons are performed by delaying each received framing pulse by one full sweep interval and then logically gating it with the signal received during the subsequent sweep interval.

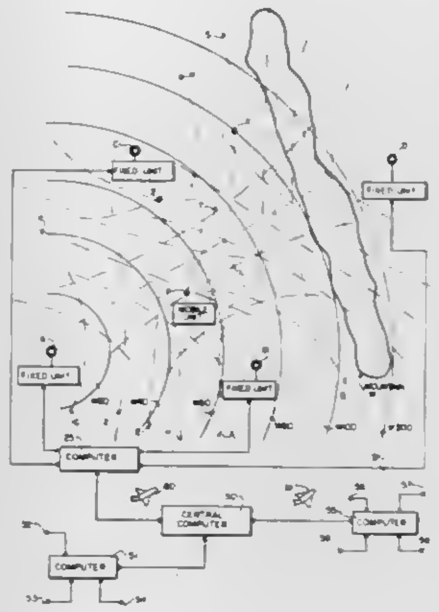
3,705,403
RECEIVERS FOR PHASE COMPARISON RADIO NAVIGATION SYSTEMS
David Geoffrey Hughes, London, England, assignor to Decca Limited, London, England
Filed Nov. 9, 1970, Ser. No. 87,899
Claims priority, application Great Britain, Nov. 10, 1969, 54,972/69
Int, Cl. G01s *1/30*
U.S. Cl. 343—105 R **8 Claims**



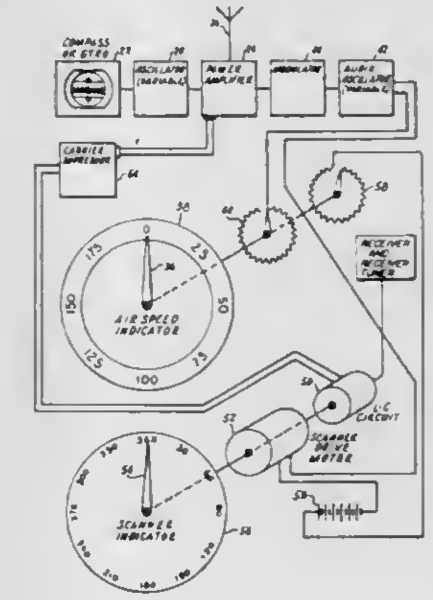
In a receiver for a phase comparison radio navigation system, signals of the fifth, sixth, eighth and ninth harmonics of a fundamental are received from different spaced transmitting stations and compared in phase in pairs at their least common multiple frequencies and in which a phase comparison is made between signals from the same pairs of stations at the fundamental frequency to obtain coarser but less ambiguous positional information, the fundamental frequency comparisons are effected digitally measuring the time intervals corresponding to the phase relationships. These time intervals are measured using divided down frequencies from a single clock source, the clock frequency division factors being different for the different pairs of stations so that the counts are proportional to the least common multiple frequencies.

3,705,404
AIRCRAFT CLOCK MONITORING AND TIME PROPAGATING
John P. Chisholm, P. O. Box 2122, Olympic Valley, Calif.
Filed Nov. 17, 1969, Ser. No. 877,188
Int. Cl. G01s *5/04*
U.S. Cl. 343—112 R **16 Claims**

A synchronized clock time sharing method and system for navigation and collision avoidance, including multiple fixed position units and multiple mobile units participating by exchange of signals therebetween with reference to their positions in two time propagation grids one comprising families of hyperbolic time difference curves and the other comprising polar coordinate curves. The units use these curves and their transmissions and their various positions in the grids to monitor each other's clocks and/or establish position in the grid of a selected unit.



3,705,405
AIRCRAFT PROXIMITY DEVICE
Ray A. Neff, Marshall, Ill., and Dan D. Gowings, Terre Haute, Ind., assignors to Visu-Phonics, Incorporated, Terre Haute, Ind.
Filed March 2, 1970, Ser. No. 15,560
Int. Cl. G08g *3/02*
U.S. Cl. 343—112 CA **4 Claims**



Gyro circuitry, variable oscillator circuitry, and carrier suppressor circuitry for transmitting a carrier frequency determinative of the direction of travel of an object and for suppressing transmission when its receiver is tuned to the same frequency. An air speed indicator ganged with a rheostat, a variable audio oscillator, and a modulator for transmitting an audio tone determinative of the speed of the object. A receiver, a scanner, and tuning circuitry for converting the audio signal received from a traveling object into a visual indication of the direction in which that object is traveling.

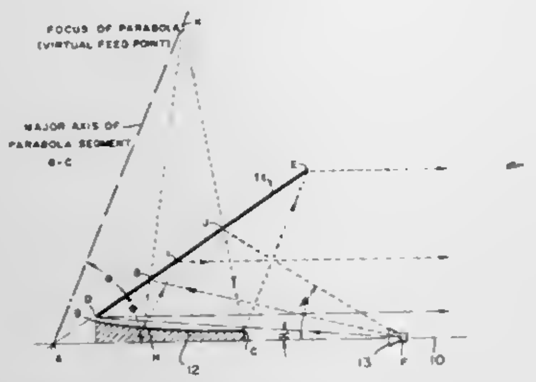
3,705,406
MULTIPLE REFLECTION CONICAL MICROWAVE ANTENNA

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by, and Robert E. Oliver, Monrovia, Calif.

Filed Nov. 22, 1971, Ser. No. 200,682

Int. Cl. H01q *19/14*

U.S. Cl. 343—782 **10 Claims**


FOCUS OF PARABOLA (VIRTUAL FEED POINT)
MAJOR AXIS OF PARABOLA SEGMENT B-C
11
12
13
10
A
B
C
D
E
F
H
J

Microwave antennas employing a conical reflector are disclosed with one or two subreflectors to so reflect radiation from a point source feed element that a plane wave front emerges through the antenna aperture with a minimim of blockage of the aperture area by the subreflector(s) and virtually no reflection of radiation back into the feed element.

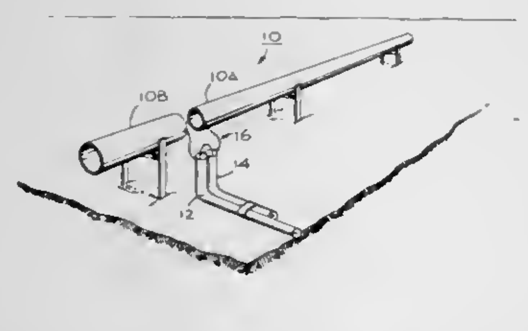
3,705,407
RADIO SURFACE WAVE ANTENNA

Arthur F. Wickersham, Menlo Park, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed Sept. 21, 1970, Ser. No. 73,712

Int. Cl. H01q *1/48*

U.S. Cl. 343—830 **7 Claims**



An antenna for radio surface waves may be constructed from a conductor such as a tube or a flat plate which is an even multiple of wavelengths long. There is a discontinuity or gap in the conductor about one-quarter wavelength from one end, which is on the order of one-fourth inch. The antenna is normally supported from 3 to 12 inches above the earth's surface and is excited longitudinally by a transverse electromagnetic mode (TEM) by connecting a source of excitation to the surface of the tube on both sides of the discontinuity, or to the surface of the flat plate on both sides of the discontinuity.

3,705,408
FLEXIBLE SLIDING ADAPTER FOR FACSIMILE RECEIVER STYLUS POSITIONING

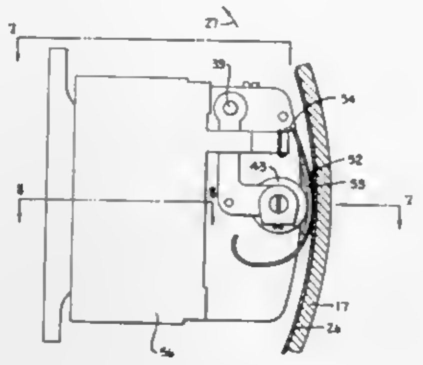
Ben W. Krone, 2405 John Drive, Urbana, Ill., and Kenton D. Royer, 907 Meadowview, Tuscola, Ill.

Filed April 15, 1971, Ser. No. 134,345

Int. Cl. G01d *15/00*

U.S. Cl. 346—139 C **15 Claims**

A flexible skid is mounted between pressure-sensitive copy paper, and a follower roller of a transducer holding the paper marking stylus. The skid, held in place by a plate retained on the transducer housing by the magnetic field and pressure-sensitive adhesive, slides on the paper as the transducer traverses the paper and, while providing the compliance needed for proper stylus functioning, remains comparatively free of dirt accumulation.



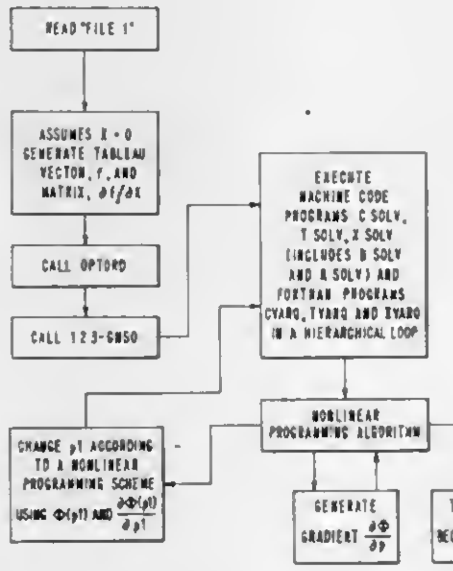
3,705,409
TABLEAU NETWORK DESIGN SYSTEM

Robert K. Brayton, Briarcliff Manor; Fred G. Gustavson, and Gary D. Aachtel, both of Ossining, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 9, 1970, Ser. No. 96,496

Int. Cl. G06f *15/32*

U.S. Cl. 444—1 **18 Claims**


READ "FILE 1"
ASSUMES X = 0 GENERATE TABLEAU VECTOR, f, AND MATRIX, ∂f/∂x
CALL OPTORD
CALL 123-GNSO
EXECUTE MACHINE CODE PROGRAMS C SOLV, T SOLV, X SOLV (INCLUDES B SOLV AND A SOLV) AND FORTRAN PROGRAMS CYARG, TYARG AND XYARG IN A HIERARCHICAL LOOP
NONLINEAR PROGRAMMING ALGORITHM
CHANGE p1 ACCORDING TO A NONLINEAR PROGRAMMING SCHEME USING Φ(p1) AND ∂Φ(p1)/∂p1
GENERATE GRADIENT ∂Φ/∂p
TERMINATE BECAUSE ∂Φ/∂p = 0

An automated process for network optimization which fully incorporates sparse matrix techniques. The system has further application to any generalized system which may be described mathematically by a set of algebraic and differential equations. Operating on a user input which defines X electrical network, the system generates lists of formated data representing a set of algebraic and differential equations. The variables in the equations are solved for by a process of Crout elimination, and each resulting operation in the Crout algorithm is identified in accordance with one of a plurality of variablility types. Then, a separate Solve program code for each variability type is compiled by the system. The individual Solve programs are then executed in a hierarchical loop sequence during the solution of the network design problem by means of a Newtonian iteration which is expressed as $\delta A(X)/\delta X \ \Delta X = \neg A(x)$. Where $A(x)$ represents a tableau vector consisting of a set of algebraic and differential equations for the electrical network.

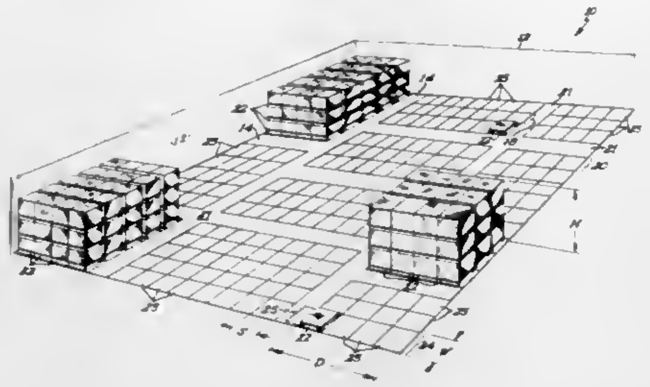
3,705,410
AUTOMATED METHOD FOR OPTIMIZING UTILIZATION OF WAREHOUSE STORAGE SPACE

Elmer D. Kooy, Minnetonka, and Donald L. Peterson, Burnsville, both of Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Jan. 21, 1971, Ser. No. 108,497

Int. Cl. G06f *15/24*

U.S. Cl. 444—1 **7 Claims**



The program of the present invention deals with the following given information: the quantity of units produced in each production run, the number of units expected to be shipped out on a series of successive days, the size of each storage area (the base position occupied by one unit of product, e.g., a pallet), the number of product units (pallets) that can be stored on top of one another (stacking height), the minimum inventory desired (safety stock) and the minimum aisle width. This information is represented by a bit stream which is fed to a data processing system programmed in accordance with the invention. The program first determines the daily inventory on a series of successive days utilizing the above information. The program finds the number of storage bays required to be used on each of the aforesaid successive days assuming a bay depth of from 1 to 10 base positions. The program then selects the bay depth which uses the smallest total floor space. A summary is then made of the total number of bays required and the area at the minimum bay depth. This information is then used by an operator to lay out the warehouse and tells how much total space is required for a particular warehousing operation as well as the effect on storage space caused by changing production schedules or changes in any of the above factors.

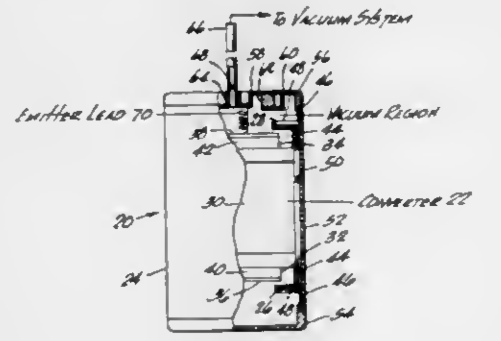
3,705,411
SHOCK AND THERMAL ISOLATION PACKAGE FOR THERMIONIC BATTERY

John G. DeSteese, Kennewick, Wash., assignor to McDonnell Douglas Corporation

Filed Dec. 2, 1970, Ser. No. 94,455

Int. Cl. H05k *5/06*

U.S. Cl. 174—17.05 **12 Claims**



High temperature thermionic energy converter is supported inside a larger evacuated housing by electrically conductive, thin, flat spring means. Both radial and axial support of the converter are provided by a thin, flat spiral spring at each end thereof. Each spring includes a radially inner periphery which engages a corresponding converter end, and radially outer peripheral (finger) sections that engage respective parts of an annular circumferential area of the internal wall of the housing. Narrow curved fingers of each spring provide radial spring action and long thermal leakage paths to minimize the thermal conductance of the support system. Radical location of the converter is provided by spring action in the plane of the spiral, and axial support of the converter results from a diaphragm effect perpendicular to the spiral plane. Spring portions (snubbers) positioned normally near the housing internal wall limit the extent of radial spring motion by engaging such wall.

3,705,412
DUPLEX INTERPHONE

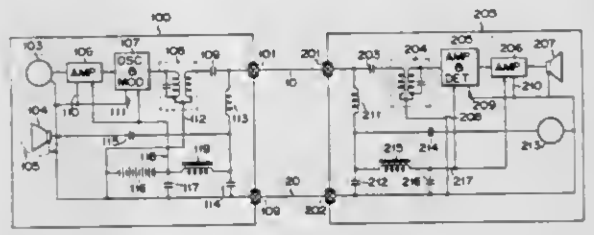
Isao Nakamura, Saitamaken, and Hiroshi Matsuzaki, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd, Kawasaki-shi, Japan

Filed Nov. 16, 1970, Ser. No. 89,992

Claims priority, application Japan, Nov. 19, 1969, 44/109198; June 29, 1970, 45/56387

Int. Cl. H04m *9/08*

U.S. Cl. 179—37 **11 Claims**



A duplex interphone wherein a master station and substation each having a microphone and a receiver are interconnected through two exclusive communication lines. The audio signal produced by the microphone in the master station is transmitted through said two communication lines in the form of a modulated carrier signal or audio signal. The audio signal produced by the microphone in the sub-station, on the other hand, is transmitted through said two communication lines in the form of a modulated carrier signal or audio signal having a different frequency band than that of the signal transmitted from the master to sub-station. The transmitted audio signal or the audio signal derived by demodulating the transmitted modulated carrier signal is used to drive the receiver in the master station or sub-station.

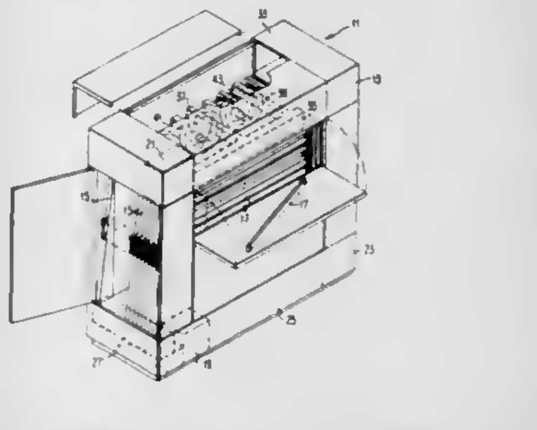
3,705,413
VIDEO STRIP FILE AND SYSTEM

Donald Harry Crunquist, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,707

Int. Cl. G11b *15/38, 25/04*

U.S. Cl. 179—100.2 PM **4 Claims**

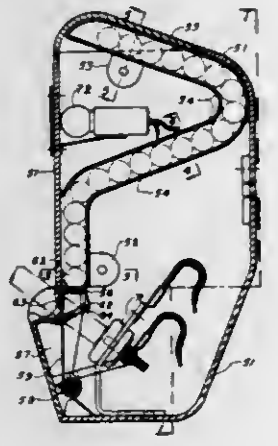


A data processing system for storing a large number of tape strips and selectively processing them. The mechanism includes a storage file which has a plurality of elongated slits formed in it. Each of the slits has first and second ends which open outwardly from the file. A data bearing tape strip is cooperatively received by each of the slits for purposes of storage. The first and second ends of each of the slits are coupled together externally of the file by means of a conduit means. A transducer element is disposed in communication with a passageway provided by this conduit means. An air drive mechanism is applicable to each of the slits for exerting a force upon a tape strip located therein to operate the strip from one end to the other of the slit, through the conduit means and past the transducer.

3,705,414
AUTOMOBILE CIGARETTE CASE WITH AN AUTOMATIC ELECTRICAL LIGHTER

Alexander Martin Senkewich, 545 West 164 Street, New York, N.Y.

Filed June 15, 1971, Ser. No. 153,267
Int. Cl. F23g *7/00*
U.S. Cl. 219—262 **14 Claims**

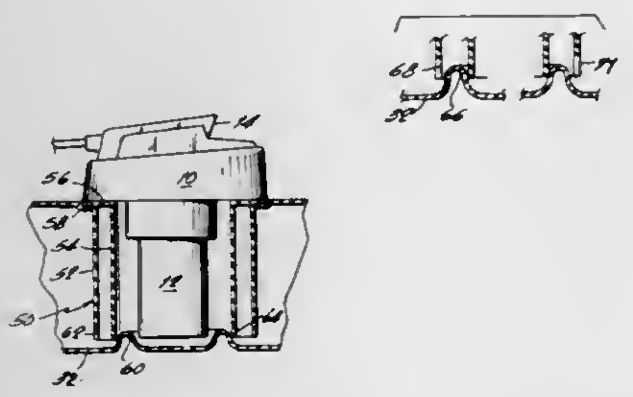


An automobile cigarette case including a storage compartment for cigarettes, an electrical heater for lighting a cigarette and mechanical control means for applying electrical power to the heater and for moving the cigarette to a position where it may be removed by an operator.

3,705,415
VAPORIZER BOWL CONSTRUCTION

Lawrence Katzman, 101 Central Park West, New York, N.Y., and Edward Briggin, 720 East 84th Street, Brooklyn, N.Y.

Filed Feb. 8, 1971, Ser. No. 113,543. The portion of the term of this patent subsequent to Oct. 4, 1988, has been disclaimed.
Int. Cl. H05b *3/60;* **A61m** *15/00*
U.S. Cl. 219—271 **4 Claims**

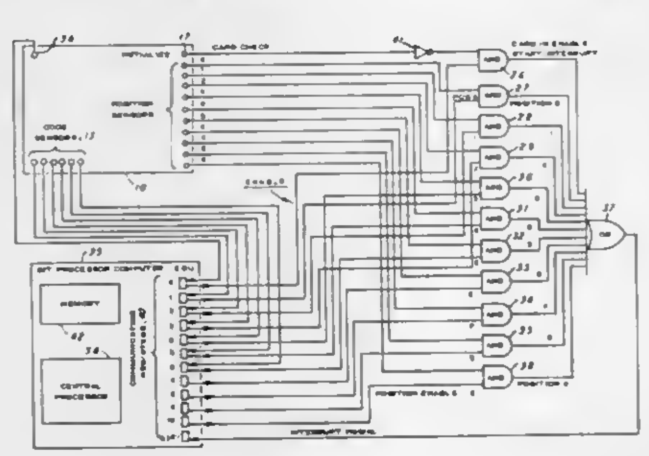


A vaporizer bowl construction for use in combination with a vaporizer head including a cap having a heating chamber depending therefrom and having a steam outlet in communication with the heating chamber. The heating chamber has an opening therein for receiving liquid from the vaporizer bowl. The vaporizer bowl comprises a container having an opening for receiving in suspended relation within the bowl a separable double walled insulating chamber assembly. The heating chamber is removably suspended within the insulating chamber assembly in spaced relation to the inner wall thereof. In one embodiment an upwardly extending rib on the bowl bottom extends between the walls of the insulating chamber to form a bottom closure therefor. In a further embodiment the rib engages the inner wall of the insulating chamber.

3,705,416
METHOD OF OPERATING A COMPUTER TO READ INFORMATION FROM CARDS

Claude D. Head, III, Dallas, Tex., assignor to Texas Instruments Inc.

Filed Dec. 29, 1971, Ser. No. 213,618
Int. Cl. G06k *7/10;* **E04g** *17/00*
U.S. Cl. 235—61.11 E **16 Claims**

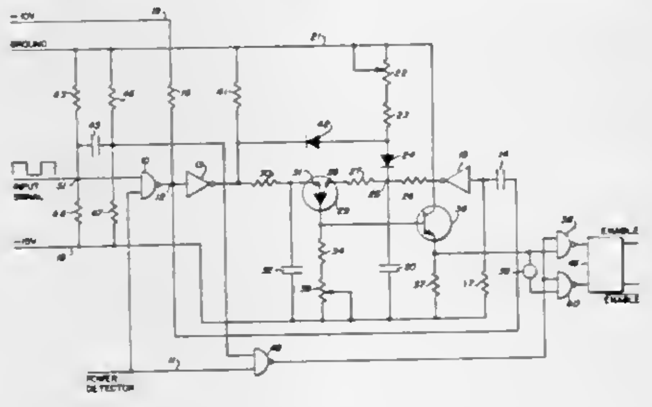


A computer such as a bit-pusher computer is programmed to read information from cards such as punched cards. A plurality of card sensors are utilized to generate interrupt signals and thereby indicate to the computer each time the card is moved to a new position at which information is to be read and a second plurality of sensors reads the information from the cards at each position. In one embodiment, the computer is programmed to read Hollerith code where a plurality of digits or characters are read simultaneously one-code-line at a time as the card is moved across the position indicating sensors. The program also includes the generation of enabling signals for the next position sensor at which information is to be read from the card so that a card passing over a position sensor more than once will not affect the sequence of information being read from the cards.

3,705,417
PULSE RATIO DETECTOR

Daniel R. Asmussen, Kirkland, Wash., assignor to Tel-Tone Corporation, Kirkland, Wash.

Filed Dec. 16, 1971, Ser. No. 208,606
Int. Cl. H03k *5/20*
U.S. Cl. 307—234 **7 Claims**

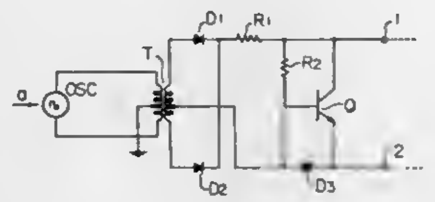


A circuit is provided which can determine the time duration ratio, within a predetermined range, of the cycle portions of an input signal. First and second capacitors are connected to a programmable unijunction transistor, respectively, between the anode gate and an electrical point and between the anode and the same electrical point. Separate charging networks are in circuit with the two capacitors. A transition of the incoming signal is differentiated and used to momentarily enable a circuit element to discharge the first capacitor which then commences to recharge at a rate determined by the network constants. While the incoming signal remains in the state to which it has switched, the second capacitor is held in the discharged state by another logic element. However, when the input signal switches to its alternate state during a second cycle portion, the charging circuit to the first capacitor is opened, and the clamp is removed from the second capacitor which begins to charge at a rate determined by the time constants of its charging network. If the first cycle portion is substantially shorter in duration than the second cycle portion, the programmable unijunction transistor will fire at an intermediate time during the second cycle portion. If, on the other hand, the first cycle portion is substantially longer, the programmable unijunction transistor will not reach firing potential at all. If the cycle portions are about the same in duration, the unijunction transistor will fire near the end of the second cycle portion, and a signal developed therefrom is logically combined with a clock signal derived from the next succeeding transition of the input signal to store the analysis of the entire cycle by setting a flip-flop which is otherwise reset by either of the asymmetrical conditions. Frequency range and ratios other than 1:1 can be analyzed by correspondingly selecting the circuit time constants.

3,705,418
DIGITAL PULSE SIGNAL TRANSMISSION CIRCUIT

Norito Yoshitake, Kawasaki-shi, Kanagawa-ken; Ryoji Imazeki, Yokohama-shi, Kanagawa-ken, and Hiroshi Ishida, Kawasaki-shi, Kanagawa-ken, all of Japan, assignors to Fujitsu Limited, Kanagawa-ken, Japan

Filed June 18, 1971, Ser. No. 154,496
Claims priority, application Japan, June 22, 1970, 45/54251
Int. Cl. H03k *5/08*
U.S. Cl. 307—237 **3 Claims**

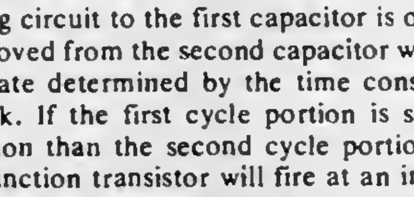


A digital pulse signal transmission line circuit is disclosed whose impedance is matched to the output impedance of the transmitter circuit for both an outflow current and an inflow current. An active element such as a transistor is connected in parallel with the input to the transmission line and a unidirectional switching means is connected in series with said transmission line so as to switch the transistor. When the outflow current flows, the unidirectional switching means generates a forward voltage drop due to said outflow current and this voltage drop cuts off the transistor. When the inflow current flows, the unidirectional switching means is cut off and said inflow current flows through the transistor which becomes conductive and causes the output impedance to decrease. As a result of this, the impedance of the digital pulse signal transmission line circuit is always matched to the output impedance of the transmitter circuit.

3,705,419
SILICON GATE FET-NIOBIUM OXIDE DIODE-MEMORY CELL

Johannes Hartmut Bleher, Nuertingen, Germany; Chi Shih Chang, Wappingers Falls, N.Y., and Robert Charles Dockerty, Highland, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,621
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 R **7 Claims**

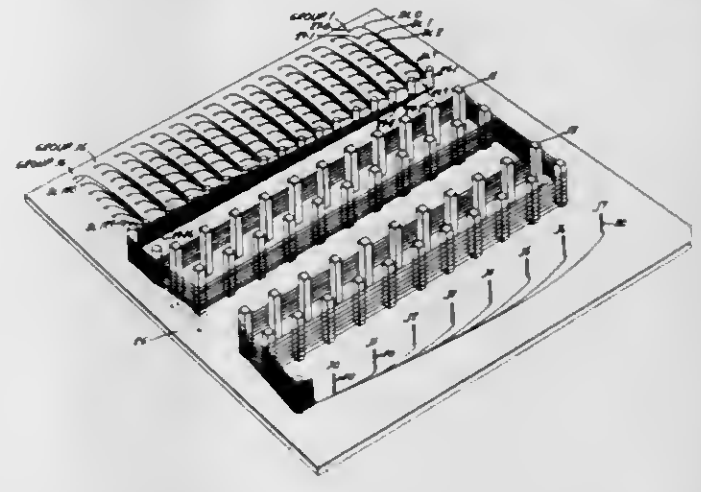


A high density memory cell comprising a silicon gate field effect transistor and a bismuth-niobium oxide-niobium bistable switching diode integrally formed over the drain electrode of the FET. The memory cell is formed by providing an oxidized P⁻ silicon wafer, stripping the oxide from the source, drain and gate region of the FET and regrowing the gate oxide. Polycrystalline silicon is deposited on the regrown gate oxide and the polysilicon is subtractively etched to delineate the gate electrode. Source and drain openings are etched using the remaining polysilicon as part of the etchant mask. An N+ diffusion is made to form the source and drain region and to dope the polycrystalline silicon FET gate electrode. The device is reoxidized and contact holes are opened to the source and drain region. Platinum-silicon is used to form the source and drain ohmic contacts. Niobium is deposited and subtractively etched except over the drain contact. Niobium oxide is formed by a wet anodizing step. Bismuth is deposited and subtractively etched except on the niobium oxide. Aluminum is deposited and subtractively etched to provide conducting pathways for contacting the source and the bismuth electrodes of the memory cell.

3,705,420
CIRCULATING CURRENT MINIMIZATION SCHEME FOR A READ-ONLY MEMORY

Jozef Furst, Mission Viejo, Calif., and J. Kjell Hovik, Irvine, Calif., assignors to Datapac, Incorporated, Santa Ana, Calif.

Filed Aug. 10, 1970, Ser. No. 62,520
Int. Cl. G11c *17/00, 5/04, 11/06*
U.S. Cl. 340—174 SP **3 Claims**



A linear transformer read-only memory of the type having an array of magnetic cores linked in different combinations by a large number of drive lines. Each core is also linked by an individual sense winding. Whenever a particular drive line is pulsed, the resultant current produces an output across the sense windings of those cores which that drive line links.

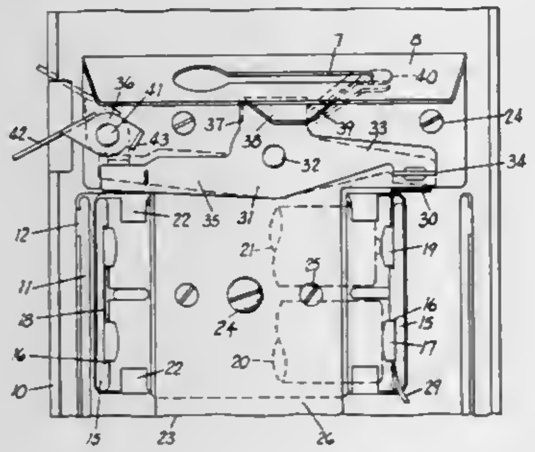
The drive lines are divided into groups with all drive lines of a given group being connected through a common junction point to a source of current. Circulating leakage currents in the drive lines are reduced by making the average physical separation between electrically interconnected drive lines greater than the average physical separation between electrically unconnected drive lines.

3,705,421
CHAIN LOCK WITH SIGNAL FOR DOOR

Frederic B. Vanderveer, Grand Rapids, Mich., assignor to Leigh Products, Inc., Coopersville, Mich.

Filed March 1, 1971, Ser. No. 122,654
Int. Cl. G08b *13/08*

U.S. Cl. 340—274 **7 Claims**



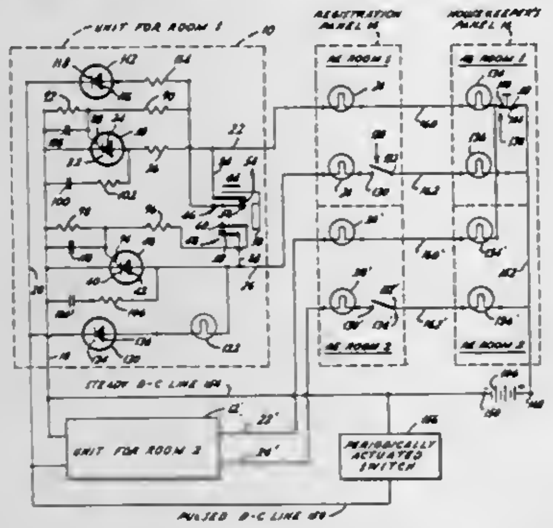
A metal base plate has a keyhole anchor for a door chain and is carried by a mounting plate. A signal lever on the base plate has a flexible ear positioned to be engaged by the anchor knob on the end of the chain. An on-off lever on the base plate selectively locks the signal lever against movement, so that unauthorized movement of the chain and its anchor end either moves the signal lever to complete an alarm circuit, or bends the flexible ear on the signal lever without releasing the chain anchor. The mounting plate carries retainers and contacts for batteries that are connected in circuit with an audio signal on the base plate and a fixed switch contact on the base which coacts with the signal lever.

3,705,422
PANEL ROOM STATUS INDICATOR SYSTEM AND ROOM UNIT THEREFOR

Lenfred L. Savey, Cinniminson, N.J., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Filed April 1, 1971, Ser. No. 130,222
Int. Cl. H04n *7/00*

U.S. Cl. 340—286 R **20 Claims**



A system for providing visual indication at the registration desk of a hotel or motel and in the housekeeper's office thereof, of the status of occupancy, cleanliness and inspection of each guest room of the hotel or motel, and a room unit for such system. The preferred form of room unit comprises a jack including two open-circuited switches the first of which is arranged to be closed by insertion of a short plug in the jack and both of which are arranged to be closed by insertion of a longer plug in the jack. The anode-cathode path of a first silicon controlled rectifier (SCR) is connected in series relationship with a first resistor between one contact of the first switch and a first supply conductor, to which the cathode of the SCR is connected. That conductor provides a negative return path to a d-c constant voltage source. The anode-cathode path of a second SCR is connected between one contact of the second switch and the first supply conductor. A first diode is connected in series relationship with a second resistor of value smaller than that of the first resistor, between the other contact of the first switch and a second supply conductor to which the cathode of the diode is connected. The second supply conductor provides a negative return path to a source of pulsating d-c voltage. A second diode is connected in series relationship with an indicator lamp between the second conductor and the anode of the second SCR, the cathode of the second diode being connected to the second conductor. Respective voltage dividers for applying a triggering voltage to the respective control electrodes of the first and second SCRs are connected from the second contacts of the first and second switches respectively to the first conductor. Third and fourth conductors for making connections to respective indicator lamps in an indicator station of the system are connected to the respective first terminals of the first and second switches.

The indicator system preferably comprises two indicator stations — a panel at the registration desk and another panel at the housekeeper's station. Each of those panels includes two indicator lamps for each room. In one embodiment a first lamp in each panel is connected in series with a first lamp in the other panel, the third conductor of the room unit, and one terminal of a normally closed reset switch the other terminal of which is connected to the positive terminal of the d-c constant voltage source. A second lamp in each panel is connected in series with a second lamp in the other panel, with another switch located in the registration panel, and with the d-c constant voltage source. The negative terminal of the source is connected to the first conductor of the room unit. In addition, to provide pulsating voltage a periodically actuated switch is connected between that negative terminal and the second conductor of the room unit. In another embodiment the first lamps of the two panels are connected in parallel and the parallel combination is connected in series with the reset switch, the third conductor and the d-c voltage source. The second lamps also are connected in parallel and that parallel combination is connected in series with the fourth conductor, the other switch and the d-c voltage source.

In either embodiment closure of the other switch causes the second lamps and the room unit light to flash. Insertion of a short plug into the room unit jack causes the first lamps also to flash. Removal of that plug causes the first lamps to emit constant-intensity light. Insertion of the longer plug into the jack causes the room unit lamp to be extinguished and the second lamps to emit constant-intensity light; this condition continues after removal of the longer plug. Opening of the reset switch causes the first lamps to be extinguished, and opening of the other switch causes the second lamps to be extinguished.

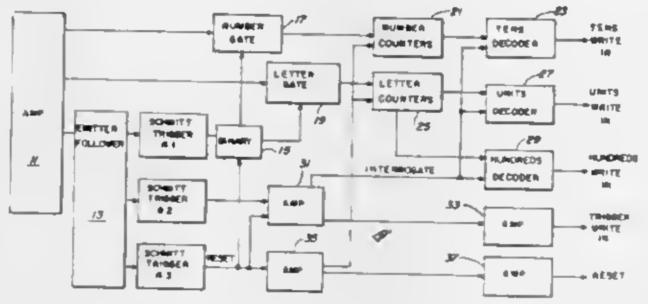
3,705,423
ARRANGEMENT FOR TRANSLATING A TRAIN OF PULSES INTO LOGIC WORDS

Thomas P. Jachimek, Evergreen Park, Ill., and Jack A. Mulford, Springfield, Mo., assignors to Seeburg Corporation, Chicago, Ill.

Filed Feb. 19, 1971, Ser. No. 116,864
Int. Cl. H03r *13/00*

U.S. Cl. 340—347 DD **11 Claims**

A train of pulses divided into different sets of pulses has each set of pulses directed to a different counting and storing arrangement. The counting and storing arrangements are then actuated in proper time sequence to yield time spaced logic words incorporating appropriate bits of data.

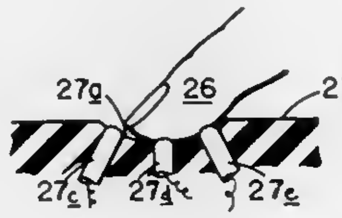


3,705,424
ELECTRICAL SWITCHING APPARATUS UTILIZING CONDUCTIVITY OF THE HUMAN SKIN

Richard P. Harvey, Jr., 4074 Hitch Blvd., Moorpark, Calif.

Filed March 29, 1971, Ser. No. 129,083
Int. Cl. H04q *3/00*

U.S. Cl. 340—365 R **3 Claims**



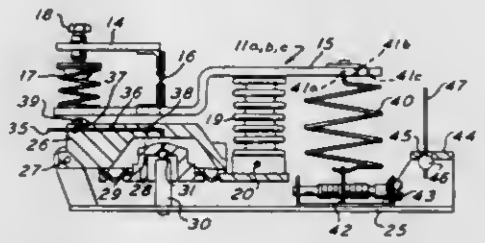
Apparatus whereby selective closing of a plurality of electrical circuits may be accomplished by slight movement of a human body member, thereby establishing a conductive path through or along the surface of such member. In one embodiment, a plurality of circuit contacts are disposed in circumferential fashion around an annular opening into which an individual's finger is receivable. A slight sidewise movement of the finger in a radial direction effects the closing of a particular one of a plurality of circuits depending on the direction in which the radial movement occurs. Since the individual's hand remains essentially stationary, extremely rapid sequential switching is possible, as only a sidewise movement of one finger is required instead of a complete displacement of this member as in known arrangements. The invention is particularly adapted for use with keyboards, control panels or display devices of any nature where manual manipulation forms an essential part.

3,705,425
STRIP CHART RECORDER

Morton A. Packel, Philadelphia, Pa., assignor to Moore Products, Co., Spring House, Pa.

Filed Oct. 23, 1970, Ser. No. 83,385
Int. Cl. G01d *5/06*

U.S. Cl. 346—72 **1 Claim**

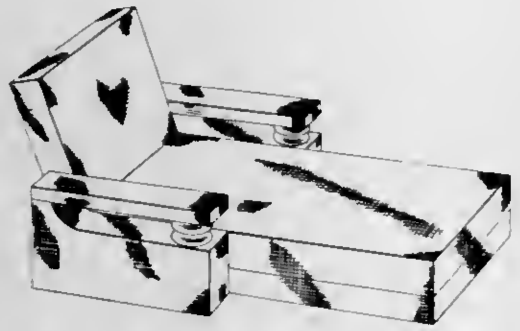


A strip chart recorder of the pneumatic type is disclosed which has a removably mounted chart magazine assembly and drive therefor with a chart rewinding mechanism which maintains the chart in tension. Amplification of the analog pressure signals is provided by a servo operating a bell crank. The pens and associated indicating pointers are gravity urged toward their zero positions.

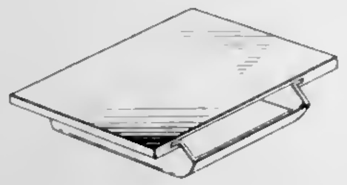
DESIGNS

DECEMBER 5, 1972

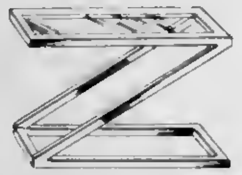
225,289
LOUNGE CHAIR
Howard V. Perno, 10325 Gridley Road, Santa Fe Springs, Calif. 90670
Filed Nov. 27, 1970, Ser. No. 26,185
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—37



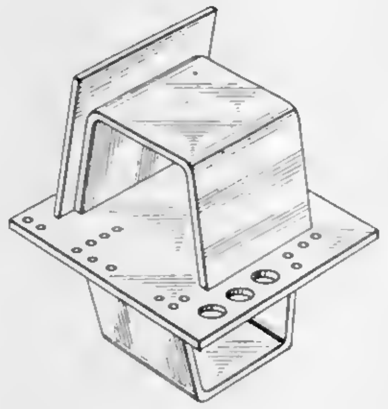
225,290
PORTABLE STUDENT WRITING TRAY
Frank R. Torrey, 9805 Dallas Ave., Silver Spring, Md. 20901
Filed Feb. 19, 1971, Ser. No. 117,199
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—138



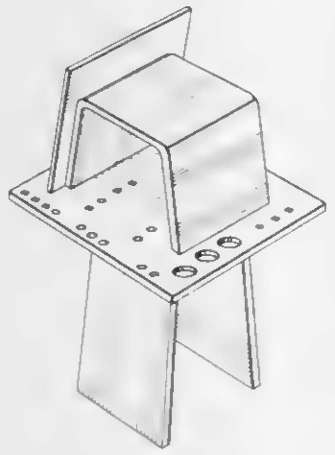
225,291
TABLE OR SIMILAR ARTICLE
Josef Kastner, 124 W. 72nd St., New York, N.Y. 10023
Filed Aug. 31, 1970, Ser. No. 24,772
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



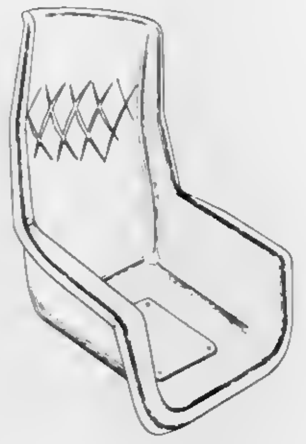
225,292
COMBINED EASEL AND WORK SUPPORT STAND THEREFOR
Frank R. Torrey, 9805 Dallas Ave., Silver Spring, Md. 20901
Filed Feb. 19, 1971, Ser. No. 117,179
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—181



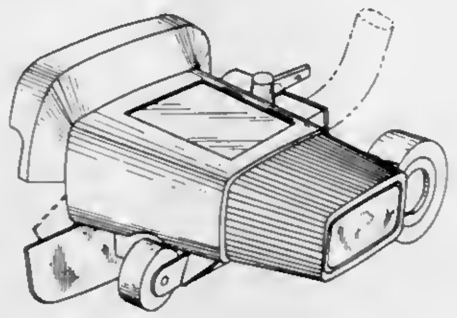
225,293
WORK EASEL
Frank R. Torrey, 9805 Dallas Ave., Silver Spring, Md. 20901
Filed Feb. 19, 1971, Ser. No. 117,198
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—181

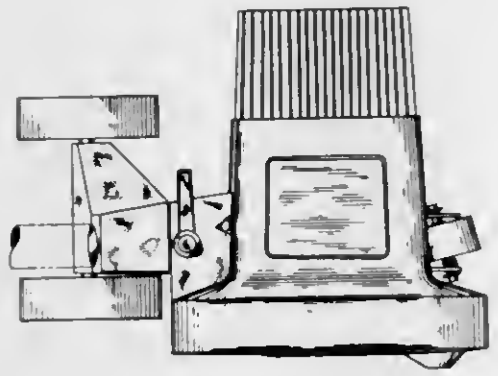


225,294
SHELL CHAIR OR SIMILAR ARTICLE
Ronald Henry Day, London, England, assignor to S. Hille & Company Limited, Watford, Herts, England
Filed Dec. 18, 1970, Ser. No. 26,559
Claims priority, application Great Britain Nov. 2, 1970
Term of patent 7 years
Int. Cl. D6—*02*
U.S. Cl. D6—197

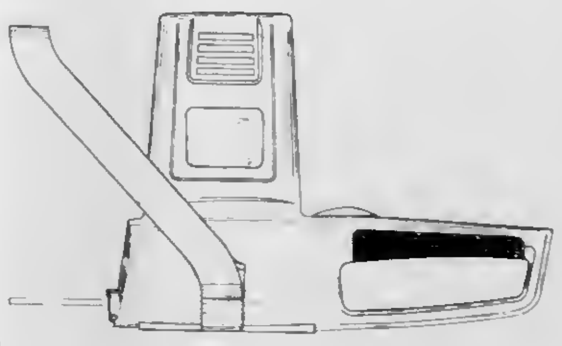


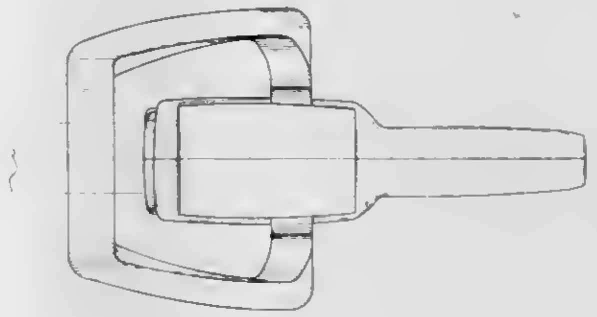
225,295
EDGER-TRIMMER
Melvin H. Boldt, Glenview, Ill., assignor to G. W. Murphy Industries, Inc., Houston, Tex.
Filed Nov. 16, 1970, Ser. No. 25,992
Term of patent 14 years
Int. Cl. D8—*03, 05*
U.S. Cl. D8—8



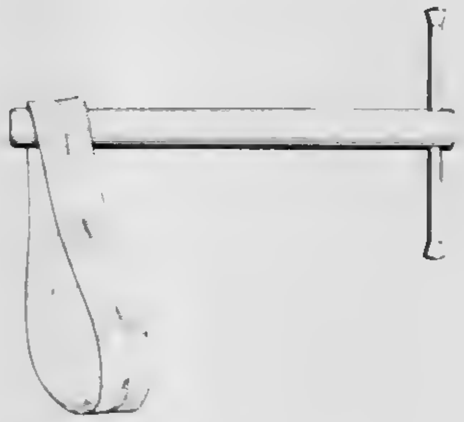


225,296
HEDGE TRIMMER
Melvin H. Boldt, Glenview, Ill., assignor to G. W. Murphy Industries, Inc., Houston, Tex.
Filed Nov. 19, 1970, Ser. No. 26,080
Term of patent 14 years
Int. Cl. D8—*03, 05*
U.S. Cl. D8—8





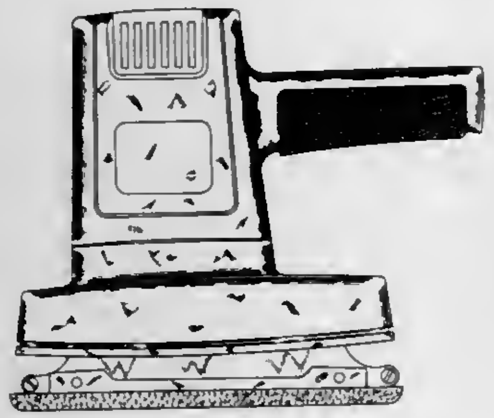
225,297
FLEXIBLE STRAP WRENCH
Arthur A. Hitchcock, Cridersville, Ohio, assignor to A.C.B. Corporation, Lima, Ohio
Filed Nov. 16, 1970, Ser. No. 25,988
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—21



225,298
ORBITAL SANDER

Melvin H. Boldt, Glenview, Ill., assignor to G. W. Murphy Industries, Inc., Houston, Tex.
Filed Oct. 16, 1970, Ser. No. 25,521
Term of patent 14 years
Int. Cl. D8—*05*

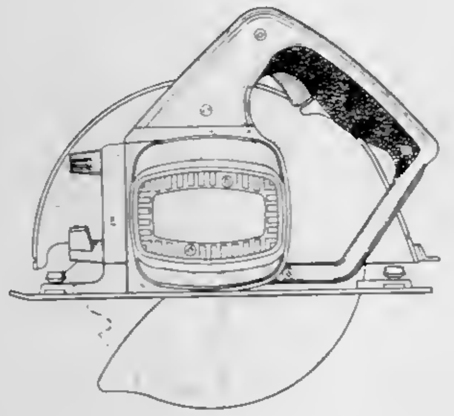
U.S. Cl. D8—62



225,299
CIRCULAR SAW

Melvin H. Boldt, Glenview, Ill., assignor to G. W. Murphy Industries, Inc., Houston, Tex.
Filed Nov. 16, 1970, Ser. No. 25,993
Term of patent 14 years
Int. Cl. D8—*03*

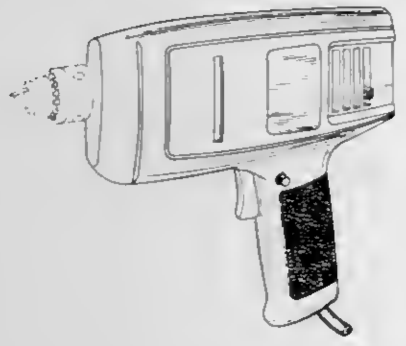
U.S. Cl. D8—66



225,300
HAND DRILL

Melvin H. Boldt, Glenview, Ill., assignor to G. W. Murphy Industries, Inc., Houston, Tex.
Filed Nov. 16, 1970, Ser. No. 25,991
Term of patent 14 years
Int. Cl. D8—*01*

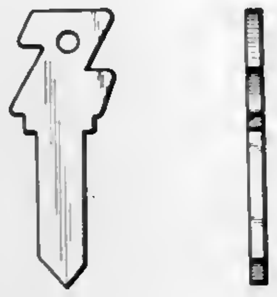
U.S. Cl. D8—68



225,301
SET OF ALPHABET KEY BLANKS

Silvio P. Ullano, 57 Walnut St., Lawrence, Mass. 01841
Filed Oct. 2, 1969, Ser. No. 19,373
Term of patent 14 years
Int. Cl. D8—*07*

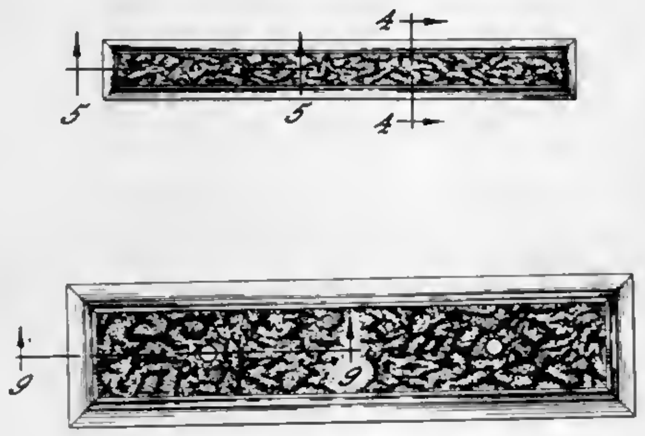
U.S. Cl. D8—136



225,302
CABINET HARDWARE

Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed July 1, 1971, Ser. No. 159,079
Term of patent 14 years
Int. Cl. D8—*07*

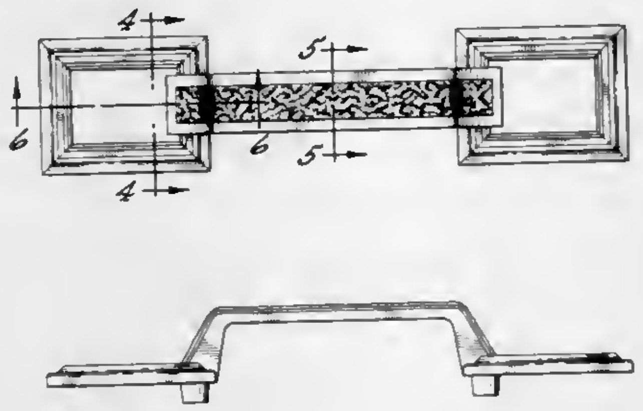
U.S. Cl. D8—166



225,303
PULL

Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed July 1, 1971, Ser. No. 159,100
Term of patent 14 years
Int. Cl. D8—*06*

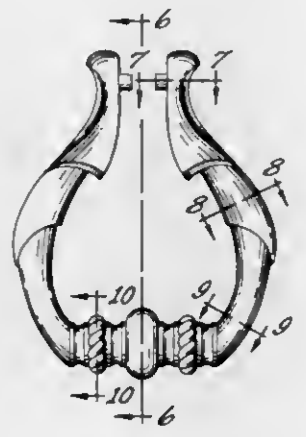
U.S. Cl. D8—174



225,304
DOOR KNOCKER

Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed June 1, 1971, Ser. No. 149,099
Term of patent 14 years
Int. Cl. D8—*09*

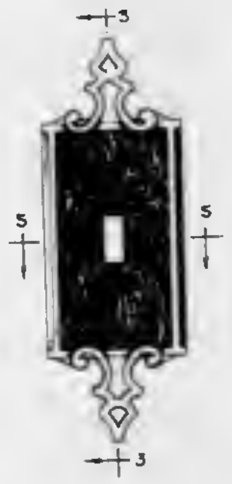
U.S. Cl. D8—177



225,305
WALL PLATE

Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed May 26, 1969, Ser. No. 17,351
Term of patent 14 years
Int. Cl. D13—*99;* D8—*99*

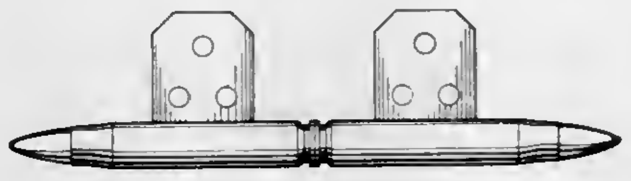
U.S. Cl. D8—179



225,306
HINGE FOR CABINETS OR THE LIKE

James L. Pruitt, Bellevue, Nebr. (P.O. Box 262, Strawn, Tex. 76475)
Filed June 18, 1970, Ser. No. 23,563
Term of patent 14 years
Int. Cl. D8—*06*

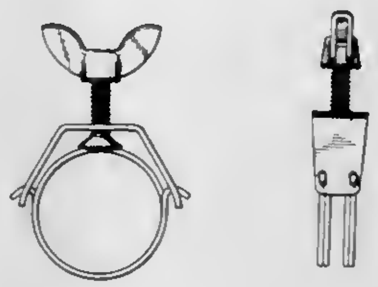
U.S. Cl. D8—189



225,307
CLAMP FOR CONNECTING TUBULAR MEMBERS

Norio Matsuura, 31 Owada-naka 1-chome, Nishiyodogawa-ku, Osaka, Japan
Filed Nov. 20, 1970, Ser. No. 26,087
Term of patent 14 years
Int. Cl. D8—*99*

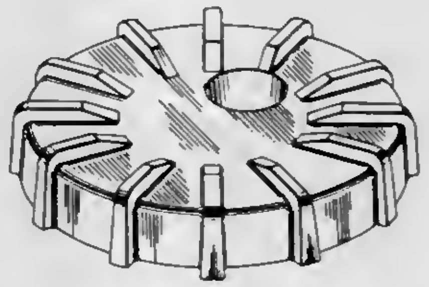
U.S. Cl. D8—229



225,308
CONTAINER COVER FOR A COMBUSTION ENGINE VAPOR INJECTOR

Boyd E. Barefoot, 2532 SW. 63, Oklahoma City, Okla. 73159
Filed Dec. 21, 1970, Ser. No. 26,600
Term of patent 14 years
Int. Cl. D8—*03*

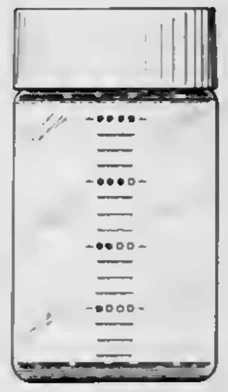
U.S. Cl. D8—254



225,309
JAR OR SIMILAR ARTICLE

Sara L. Balbach, New York, and Richard W. Greger, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Jnly 20, 1970, Ser. No. 24,040
Term of patent 14 years
Int. Cl. D9—*01*

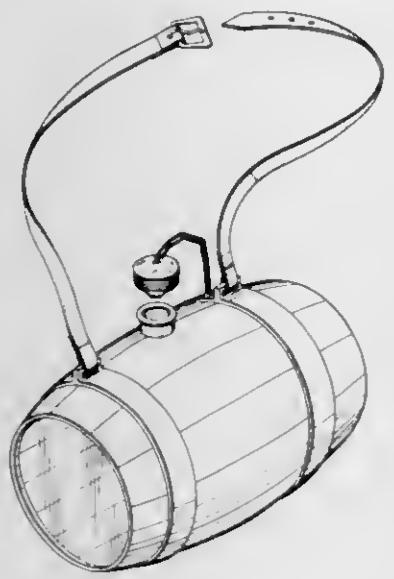
U.S. Cl. D9—164



225,310
COMBINED KEG AND CARRYING STRAP THEREFOR

Patricia E. McClain, 509 N. Jefferson,
Mascoutah, Ill. 62258
Filed Dec. 24, 1970, Ser. No. 26,638
Term of patent 14 years
Int. Cl. D9—*02*

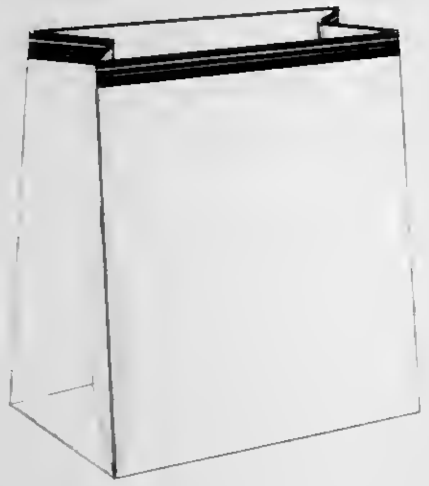
U.S. Cl. D9—170



225,311
SHOPPING BAG

Robert E. Harrison, Newburgh, N.Y., assignor to Hoerner
Waldorf Corporation, St. Paul, Minn.
Filed Aug. 7, 1970, Ser. No. 24,378
Term of patent 14 years
Int. Cl. D9—*05*

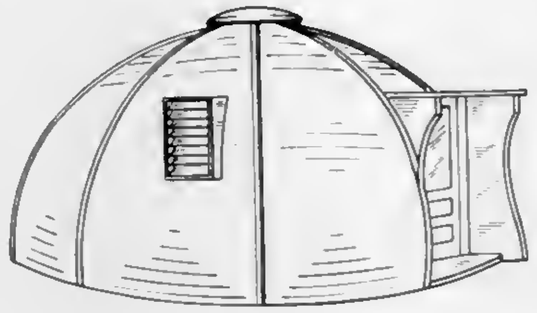
U.S. Cl. D9—249



225,312
PREFABRICATED MOLDED BUILDING

Cliff Chamlee, 4011 E. 37th St., Odessa, Tex. 79760
Filed Jan. 25, 1971, Ser. No. 109,755
Term of Patent 14 years
Int. Cl. D25—*03*

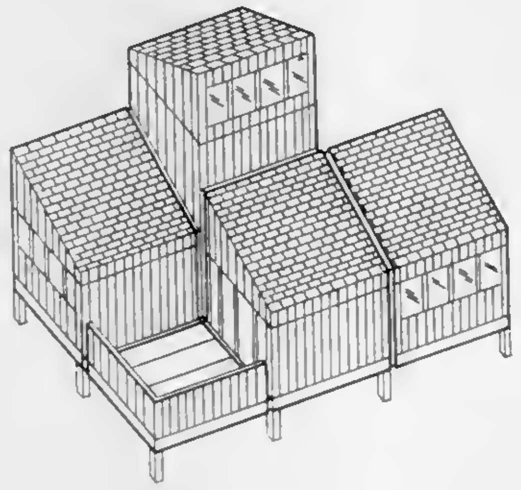
U.S. Cl. D13—1



225,313
PRE-ASSEMBLED MODULAR HOUSING STRUCTURE

Edward D. Kelbish, New York, N.Y.
(280 Vanderbilt Ave., Brooklyn, N.Y. 11205)
Filed Mar. 16, 1971, Ser. No. 125,021
Term of patent 14 years
Int. Cl. D25—*03*

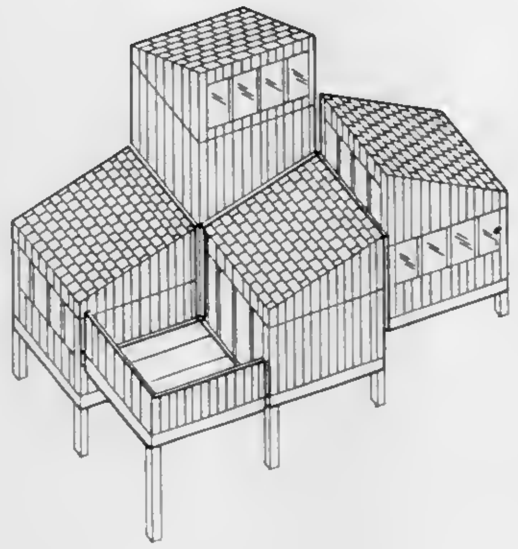
U.S. Cl. D13—1



225,314
PRE-ASSEMBLED MODULAR HOUSING STRUCTURE

Edward D. Kelbish, New York, N.Y.
(280 Vanderbilt Ave., Brooklyn, N.Y. 11205)
Filed Mar. 16, 1971, Ser. No. 125,022
Term of patent 14 years
Int. Cl. D25—*03*

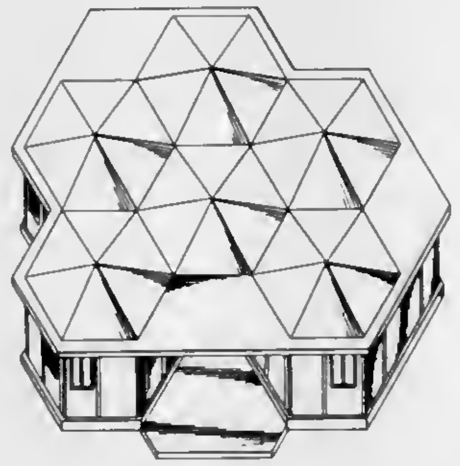
U.S. Cl. D13—1



225,315
RESIDENTIAL BUILDING

Warren G. Browne, 2011 Spruce St.,
Philadelphia, Pa. 19103
Filed Apr. 5, 1971, Ser. No. 131,584
Term of patent 14 years
Int. Cl. D25—*03*

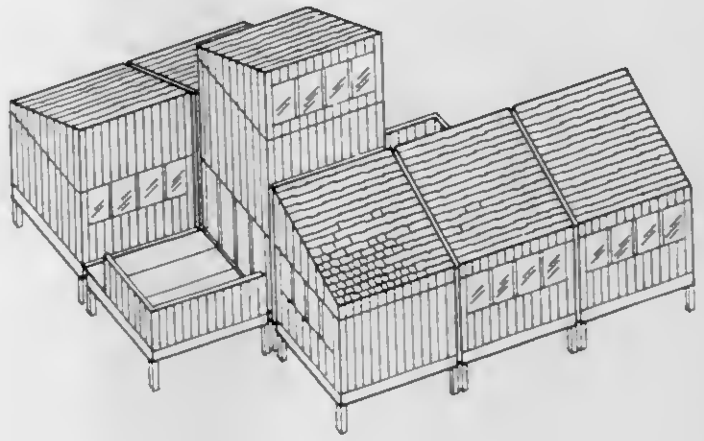
U.S. Cl. D13—1



225,316
PRE-ASSEMBLED MODULAR HOUSING STRUCTURE

Edward D. Kelbish, New York, N.Y.
(280 Vanderbilt Ave., Brooklyn, N.Y. 11205)
Filed May 13, 1971, Ser. No. 143,722
Term of patent 14 years
Int. Cl. D25—*03*

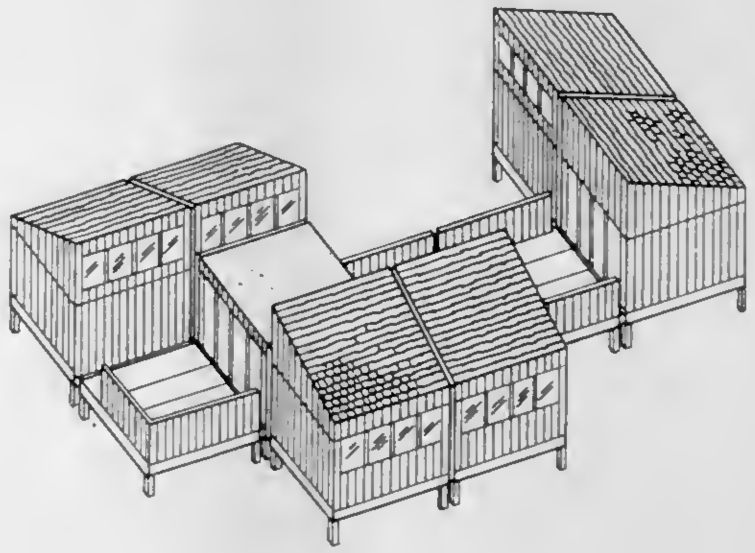
U.S. Cl. D13—1



225,317
PRE-ASSEMBLED MODULAR HOUSING STRUCTURE

Edward D. Kelbish, New York, N.Y.
(280 Vanderbilt Ave., Brooklyn, N.Y. 11205)
Filed May 14, 1971, Ser. No. 143,723
Term of patent 14 years
Int. Cl. D25—*03*

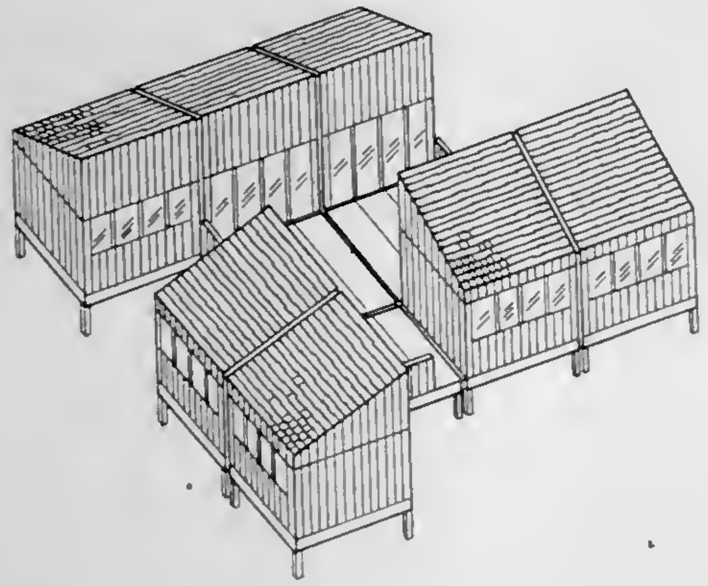
U.S. Cl. D13—1



225,318
PRE-ASSEMBLED MODULAR HOUSING STRUCTURE

Edward D. Kelbish, New York, N.Y.
(280 Vanderbilt Ave., Brooklyn, N.Y. 11205)
Filed May 14, 1971, Ser. No. 143,724
Term of patent 14 years
Int. Cl. D25—*03*

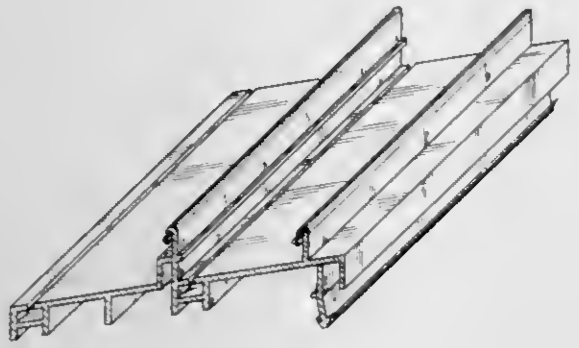
U.S. Cl. D13—1



225,319
EXTRUDED PLASTIC SILL TRACK FOR A WINDOW UNIT

Dominique Dallaire and Raymond M. Dallaire, St. David, Quebec, Canada, assignors to P.H. Plastics Inc., Lauzon, Quebec, Canada
Filed Jan. 13, 1971, Ser. No. 106,299
Term of patent 14 years
Int. Cl. D25—*01*

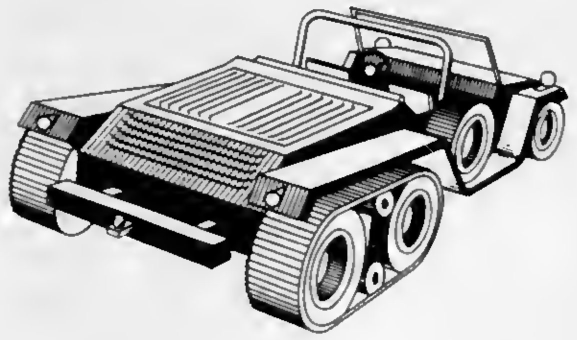
U.S. Cl. D13—6



225,320
TRACK VEHICLE

John H. Nelson, 17836 Malden St., Northridge, Calif. 91324, and Raymond C. Baird, Jr., 444 25th St., Santa Monica, Calif. 90402
Filed Apr. 6, 1970, Ser. No. 22,249
Term of patent 7 years
Int. Cl. D12—*09*

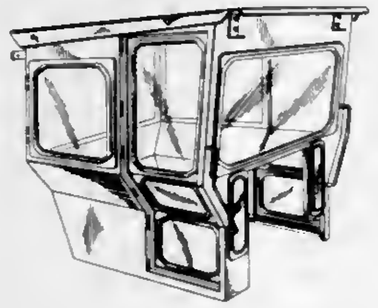
U.S. Cl. D14—3



225,321
TRACTOR CAB

Phillip J. Johnson and Clifford A. Keskey, Cokato, Minn. 55321
Filed May 24, 1971, Ser. No. 146,607
Term of patent 3½ years
Int. Cl. D12—*16*

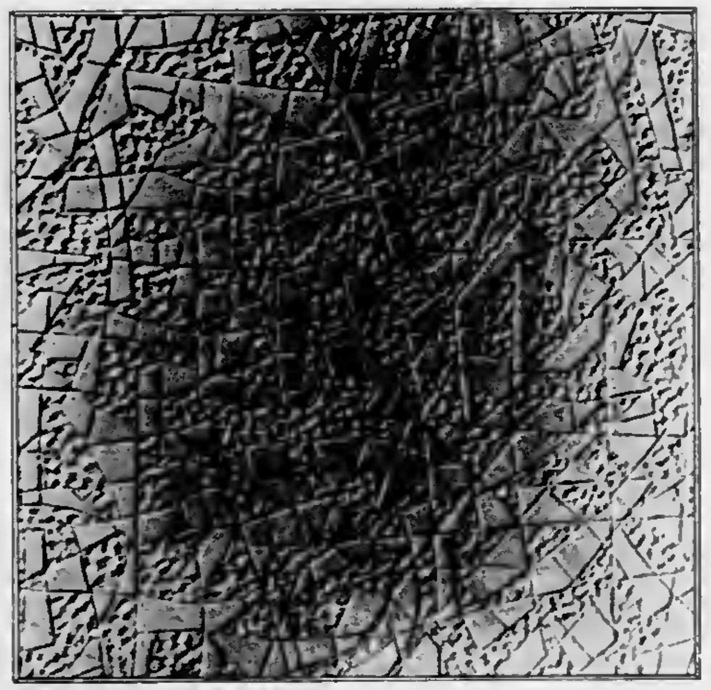
U.S. Cl. D14—27



225,322
CEILING PANEL

Thomas R. Smith, 93 Hendricks Blvd., Eggertsville, N.Y. 14226
Filed Apr. 5, 1971, Ser. No. 25,703
Term of patent 14 years
Int. Cl. D25—*01*

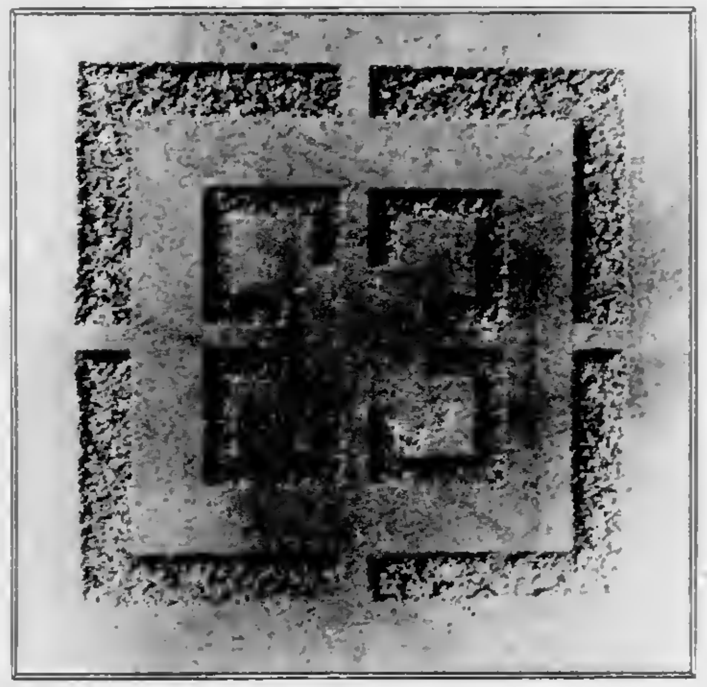
U.S. Cl. D18—2



225,323
CEILING PANEL

Thomas R. Smith, 93 Hendricks Blvd., Eggertsville, N.Y. 14226
Filed Apr. 5, 1971, Ser. No. 25,754
Term of patent 14 years
Int. Cl. D25—*01*

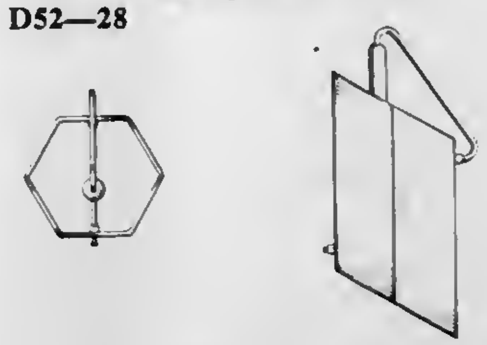
U.S. Cl. D18—2



225,324
DIVING FISH LURE

Joe Bill Royal, 12207 SE. 167th, Renton, Wash. 98055
Filed Aug. 13, 1970, Ser. No. 24,466
Term of patent 14 years
Int. Cl. D22—*05*

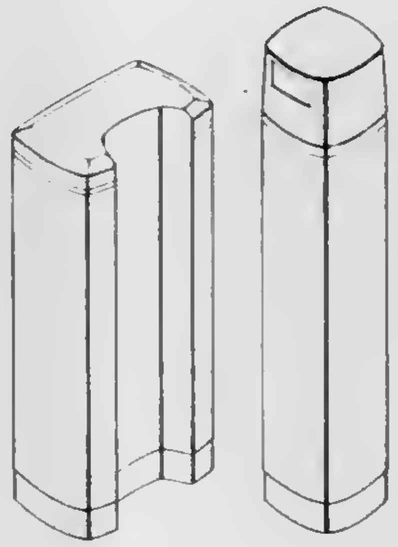
U.S. Cl. D52—28



225,325
COMBINED BRINE TANK AND WATER SOFTENER UNIT

William J. Marsh, Garden Grove, Calif., assignor to Robert Marsh Enterprises, Inc., Santa Ana, Calif.
Filed May 5, 1971, Ser. No. 140,638
Term of patent 14 years
Int. Cl. D23—*01*

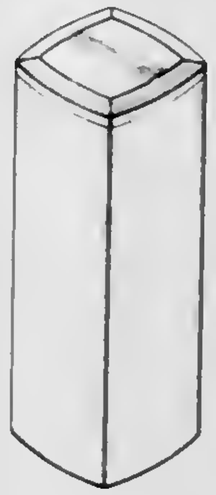
U.S. Cl. D23—3



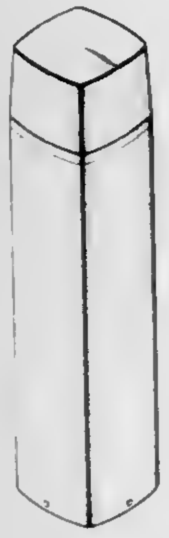
225,326
BRINE TANK CABINET

William J. Marsh, Garden Grove, Calif., assignor to Robert Marsh Enterprises, Inc., Santa Ana, Calif.
Filed May 5, 1971, Ser. No. 140,639
Term of patent 14 years
Int. Cl. D23—*01*

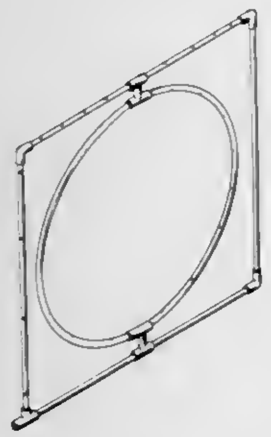
U.S. Cl. D23—3



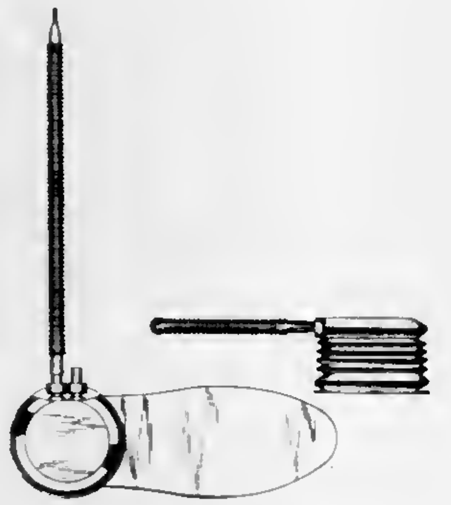
225,327
WATER SOFTENER CABINET
William J. Marsh, Garden Grove, Calif., assignor to Robert Marsh Enterprises, Inc., Santa Ana, Calif.
Filed May 5, 1971, Ser. No. 140,640
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—3



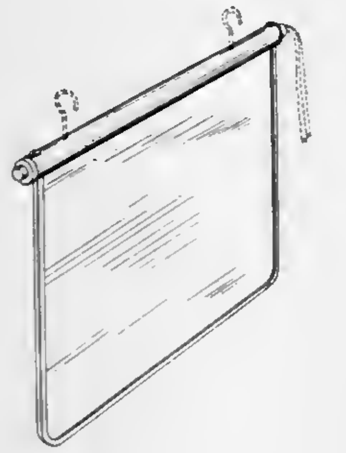
225,328
PLAYGROUND SPRINKLER
Anita Margrill, 151 W. 13th St., New York, N.Y. 10011
Filed Mar. 19, 1971, Ser. No. 126,386
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—6



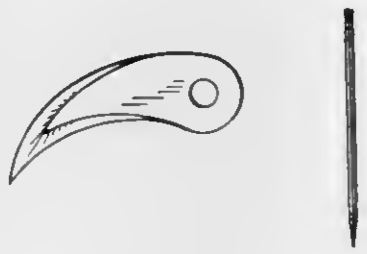
225,329
INFLATING PUMP OR SIMILAR ARTICLE
Stanley Barnett, Mount Vernon, N.Y.
(490 Nepperhan Ave., Yonkers, N.Y. 10701)
Filed Feb. 9, 1971, Ser. No. 114,096
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—14



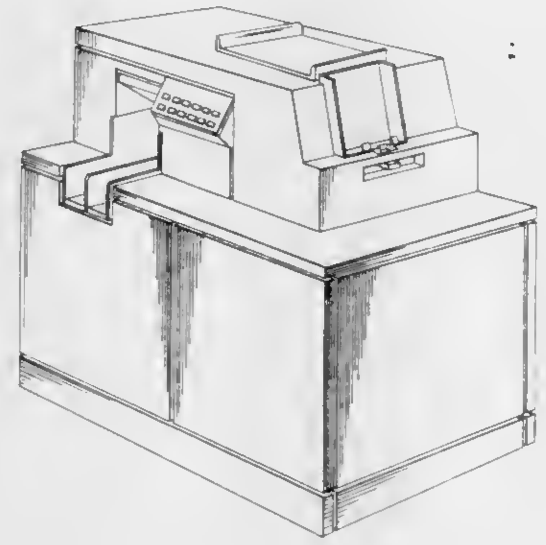
225,330
RACK FOR HEATING TEXTILE FABRICS DRAPED THEREOVER
William J. Kenney, Franklin Park, Ill., assignor to Leonard Friedman, Highland Park, Ill.
Filed Jan. 11, 1971, Ser. No. 105,783
Term of patent 7 years
Int. Cl. D23—*03*
U.S. Cl. D23—77



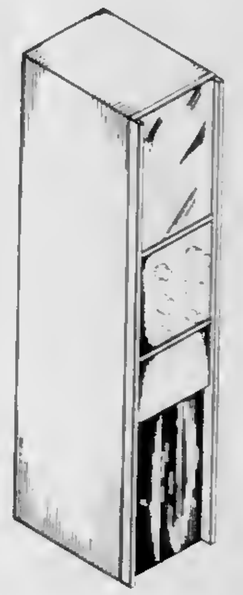
225,331
BLADE FOR A DENTAL INSTRUMENT
James Vannes Boone, Meadows Bldg., Dallas, Tex. 75206
Original design application Oct. 13, 1969, Ser. No. 19,514. Divided and this application Apr. 1, 1971, Ser. No. 130,559
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—1



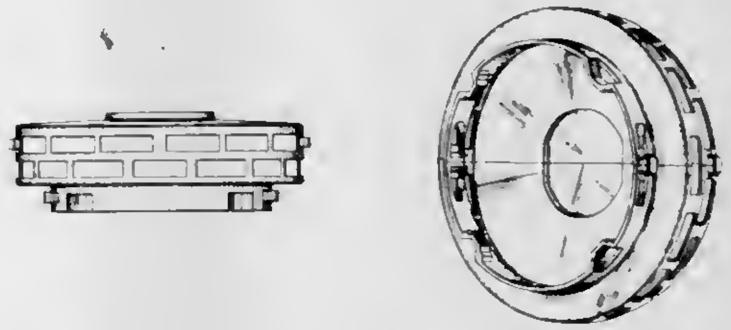
225,332
DOCUMENT READER-PUNCH
Wayne L. Aderman, Zumbro Falls, and Collan B. Kneale, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 3, 1971, Ser. No. 112,497
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



225,333
CONSOLE CABINET FOR HOUSING ELECTRICAL AND PNEUMATIC CONTROLS FOR COATING APPARATUS
John K. Adams, Worthington, Ohio, assignor to Ransburg Electro-Coating Corp., Indianapolis, Ind.
Filed Apr. 14, 1971, Ser. No. 134,116
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—5



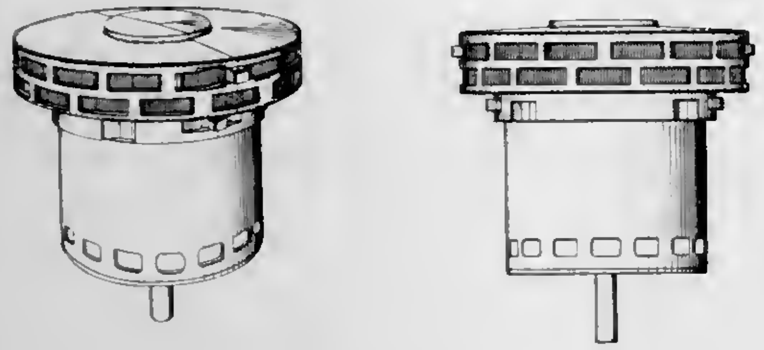
225,334
DYNAMOELECTRIC MACHINE COVER
Richard W. Dochterman, Fort Wayne, Ind., assignor to General Electric Company
Filed May 24, 1971, Ser. No. 146,588
Term of patent 14 years
Int. Cl. D13—*01*
U.S. Cl. D26—5



225,335
DYNAMOELECTRIC MACHINE

Richard W. Dochterman, Fort Wayne, Ind., assignor to
General Electric Company
Filed May 24, 1971, Ser. No. 146,597
Term of patent 14 years
Int. Cl. D13—*01*

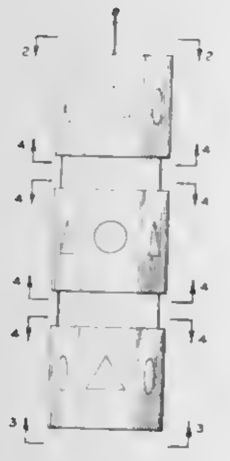
U.S. Cl. D26—5



225,336
HANGING ORNAMENT

Joseph J. Hojnoski, Jr., Fulton, N.Y.
(855 Sheffield St. SW., Grand Rapids, Mich. 49501)
Filed July 1, 1971, Ser. No. 159,084
Term of patent 14 years
Int. Cl. D11—*05*

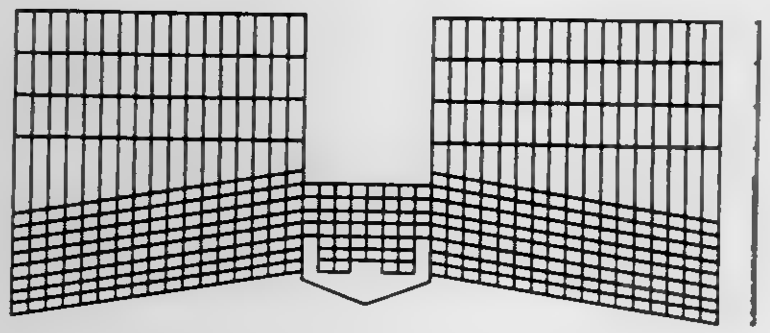
U.S. Cl. D29—1



225,337
POULTRY CAGE DIVIDER PANEL

Gerald L. Kitson, 9709 Belding Road,
Rockford, Mich. 49341
Filed Feb. 25, 1971, Ser. No. 119,078
Term of patent 14 years
Int. Cl. D30—*02*

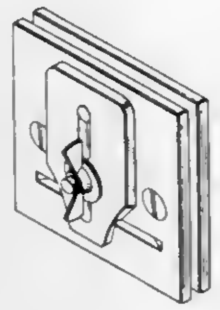
U.S. Cl. D30—1



225,338
HOLDER FOR FOOD BOWL FOR PETS

Tony Robert, 5701 Southwest Freeway,
Houston, Tex. 77027
Filed Dec. 11, 1970, Ser. No. 26,406
Term of patent 14 years
Int. Cl. D30—*03*

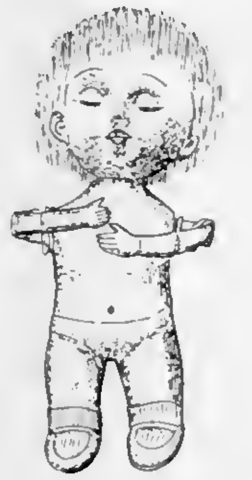
U.S. Cl. D30—13



225,339
DOLL

George Duclos, New York, N.Y., assignor to UVC, Inc.,
New York, N.Y.
Filed Mar. 5, 1971, Ser. No. 121,608
Term of patent 3½ years
Int. Cl. D21—*01*

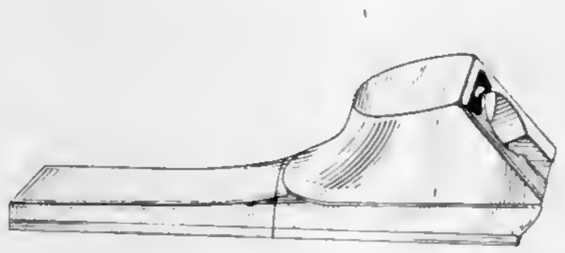
U.S. Cl. D34—4



225,340
HOOD FOR COVERED SURFACE BOWLING BALL RETURN

George E. Schaefer, Muskegon, Mich., and Richard G. Reineman, Balboa, Calif., assignors to The Brunswick Corporation, Skokie, Ill.
Filed Nov. 20, 1970, Ser. No. 26,095
Term of patent 14 years
Int. Cl. D21—*02*

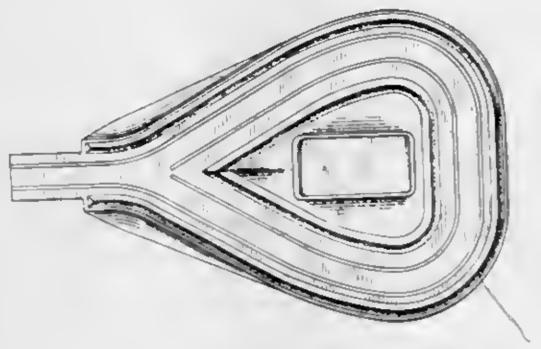
U.S. Cl. D34—5



225,341
CLUSTER BOWLING BALL RETURN ADAPTED TO RECEIVE A BOWLER IDENTIFICATION PANEL

George E. Schaefer, Muskegon, Mich., assignor to The
Brunswick Corporation, Skokie, Ill.
Filed Oct. 26, 1970, Ser. No. 25,645
Term of patent 14 years
Int. Cl. D21—*02*

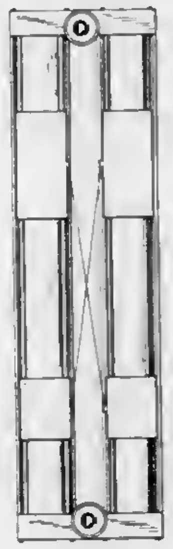
U.S. Cl. D34—5



225,342
EXERCISER

Francis S. Flick, Oak Brook, Douglas A. Roberts, Elmhurst, and Edward R. Burke, Hoffman Estates, Ill., assignors to Health & Education Services Corporation
Filed Mar. 12, 1971, Ser. No. 123,917
Term of patent 14 years
Int. Cl. D21—*02*

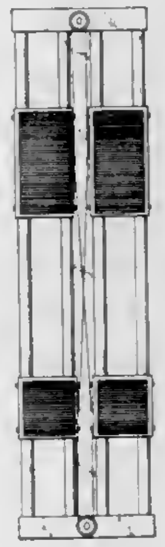
U.S. Cl. D34—5



225,343
EXERCISER

Francis S. Flick, Oak Brook, Douglas A. Roberts, Elmhurst, and Edward R. Burke, Hoffman Estates, Ill., assignors to Health & Education Services Corporation
Filed Mar. 12, 1971, Ser. No. 123,918
Term of patent 14 years
Int. Cl. D21—*02*

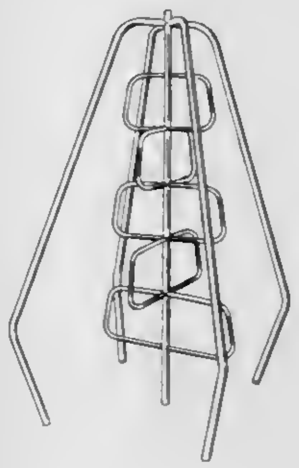
U.S. Cl. D34—5



225,344
PLAYGROUND CLIMBING BARS

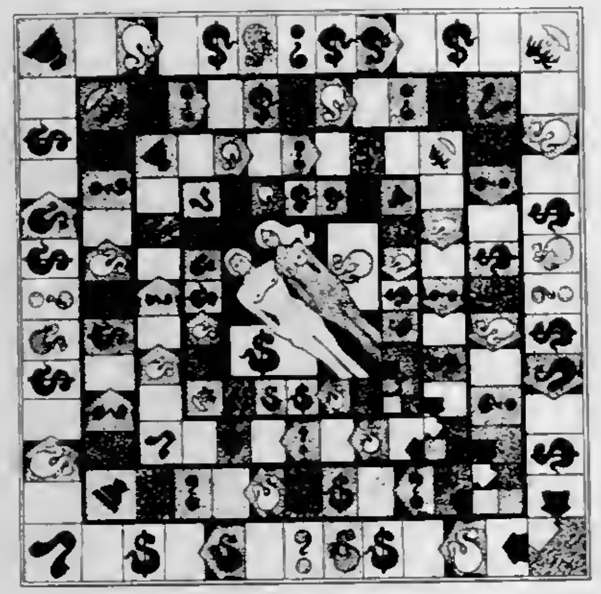
Steven A. Henning and Philip G. Miller, Anderson, Ind., assignors to American Playground Devices Co., Anderson, Ind.
Filed Apr. 30, 1971, Ser. No. 139,303
Term of patent 14 years
Int. Cl. D21—*03*

U.S. Cl. D34—5



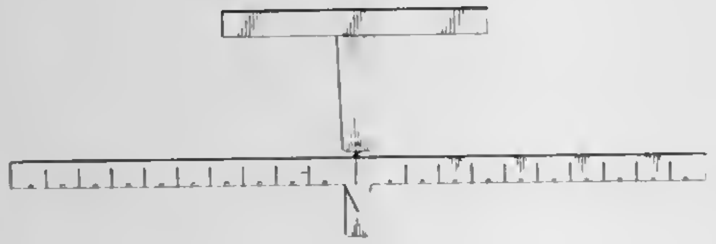
225,345
GAME BOARD

Jack Jacob Jaffe, London, England, assignor to Catalyst Products (Leisure) Limited, London, England
Filed Mar. 3, 1971, Ser. No. 120,802
Claims priority, application Great Britain Jan. 12, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



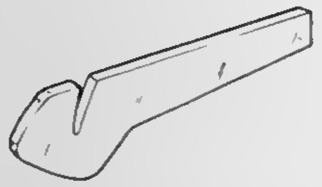
225,346
TOY BALANCE

John Michael Osmond Bodman, Ongar, England, assignor to The Educational Supply Association Limited, Stevenage, Hertfordshire, England
Filed Dec. 7, 1970, Ser. No. 26,334
Claims priority, application Great Britain Sept. 11, 1970
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



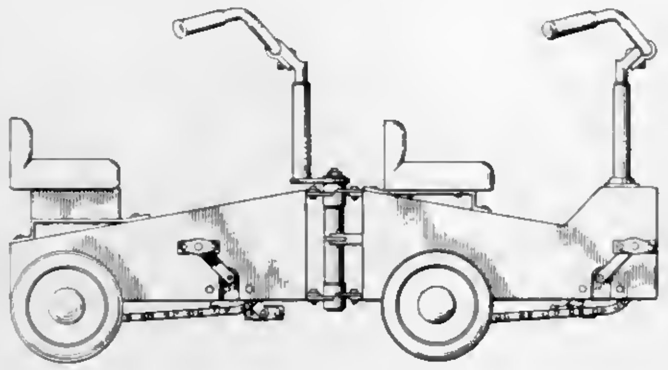
225,347
HANGER FOR SUPPORTING A BALANCED ARTICLE

Duane W. Bacon, Jr., 6743 Candlewood Trail, Birmingham, Mich. 48010
Filed Feb. 26, 1971, Ser. No. 119,448
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



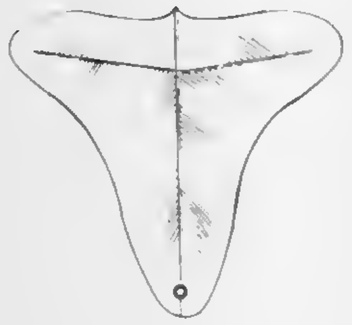
225,348
ARTICULATED TANDEM WHEELED VEHICLE

Arthur R. Garrett, Rte. 1, New Wilmington, Pa. 16142
Filed Mar. 1, 1971, Ser. No. 120,005
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D34—15



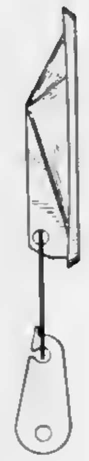
225,349
KITE

Albert W. Gould, 14 Shady Brook Road, Great Neck, N.Y. 11021
Filed May 6, 1971, Ser. No. 141,082
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



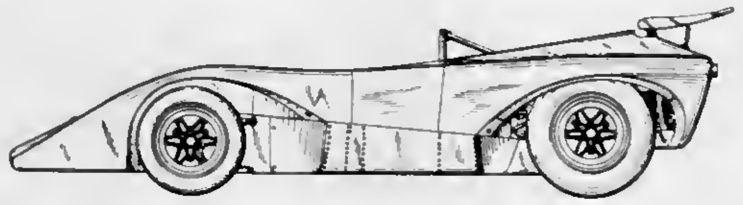
225,350
KITE

Ralph M. La Zar, 4442 Emerson, Skokie, Ill. 60076, and Walter B. Herbst, 86 Salem Lane, Evanston, Ill. 60203
Filed May 7, 1971, Ser. No. 141,455
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



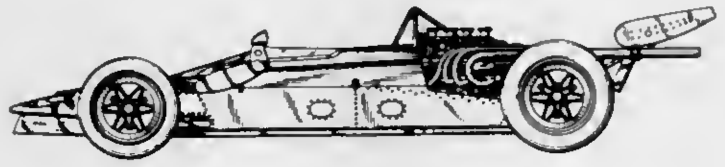
225,351
MODEL RACING CAR

Eric Harrison Broadley, Pangborne, near Reading, England, assignor to Lola Cars Limited, Huntingdon, England
Filed July 2, 1971, Ser. No. 159,157
Claims priority, application Great Britain Jan. 5, 1971
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



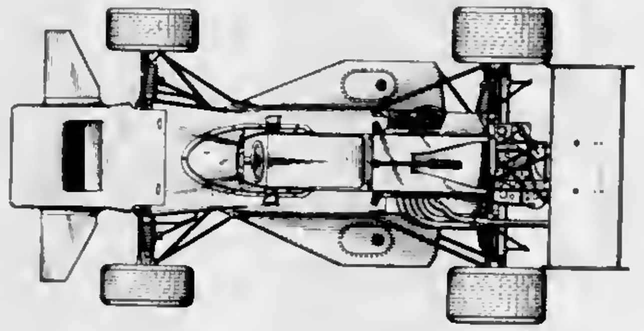
225,352
MODEL RACING CAR

Eric Harrison Broadley, Pangborne, near Reading, England, assignor to Lola Cars Limited, Huntingdon, England
Filed July 2, 1971, Ser. No. 159,158
Claims priority, application Great Britain Jan. 5, 1971
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—15



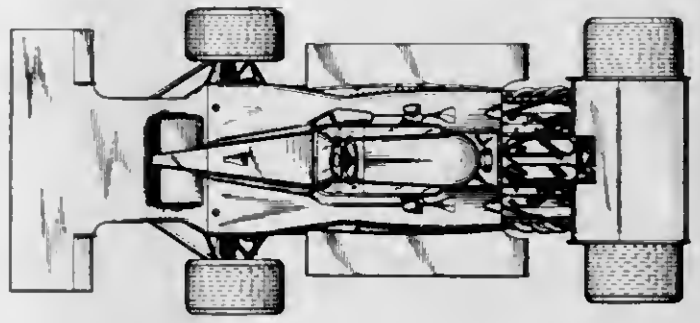
225,353
MODEL RACING CAR

Eric Harrison Broadley, Pangborne, near Reading, England, assignor to Lola Cars Limited, Huntingdon, England
Filed July 2, 1971, Ser. No. 159,159
Claims priority, application Great Britain Jan. 5, 1971
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—15



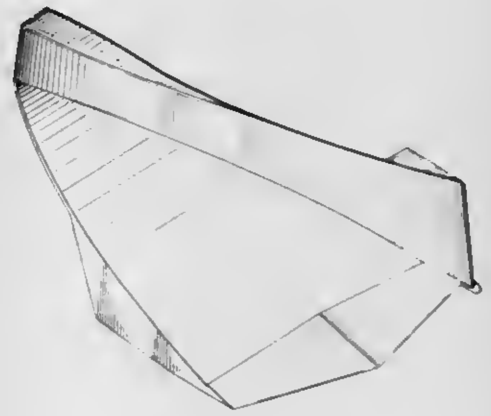
225,354
MODEL RACING CAR

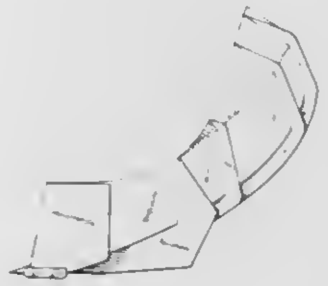
Derek Gardner, West Horsley, England, assignor to Tyrrell Racing Organisation Limited, Long Reach, Ockham, England
Filed June 28, 1971, Ser. No. 157,782
Claims priority, application Great Britain Dec. 29, 1970
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



225,355
SNOWPLOW

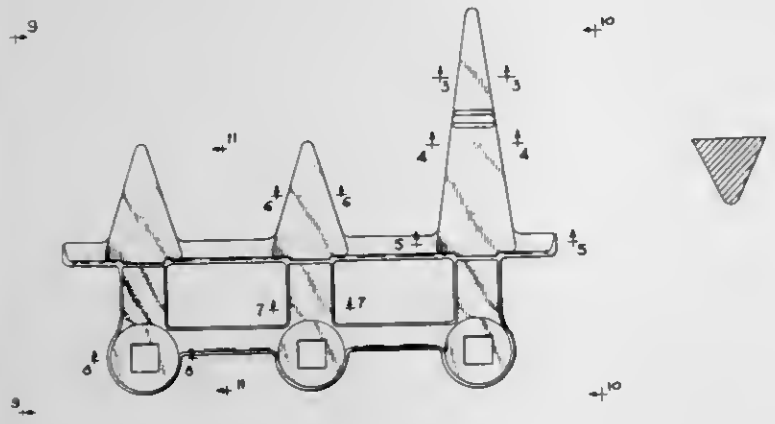
Cedric K. Little, 200 High Road, Newbury, Mass. 01950
Filed Oct. 6, 1970, Ser. No. 25,349
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D35—2





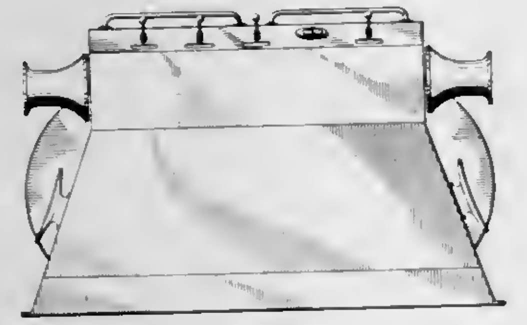
225,356
SICKLE GUARD FOR HARVESTERS
Archie E. Neal and James G. Storms, Garfield, Wash., assignors to The J. E. Love Company, Garfield, Wash.
Filed Feb. 16, 1971, Ser. No. 115,929
Term of patent 14 years
Int. Cl. D15—*03*

U.S. Cl. D40—1



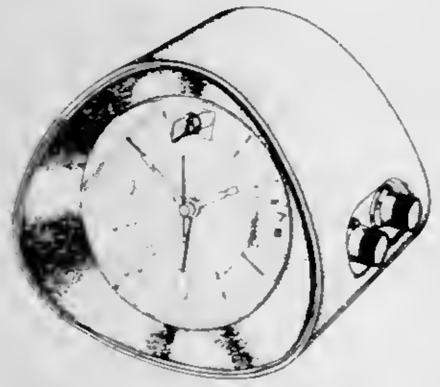
225,357
MULTIPLE WINCH
Benjamin D. Alleman, Hialeah, Fla., assignor to Neptune Winch Corp., Hialeah, Fla.
Filed Nov. 16, 1970, Ser. No. 26,029
Term of patent 14 years
Int. Cl. D15—*99*

U.S. Cl. D41—1



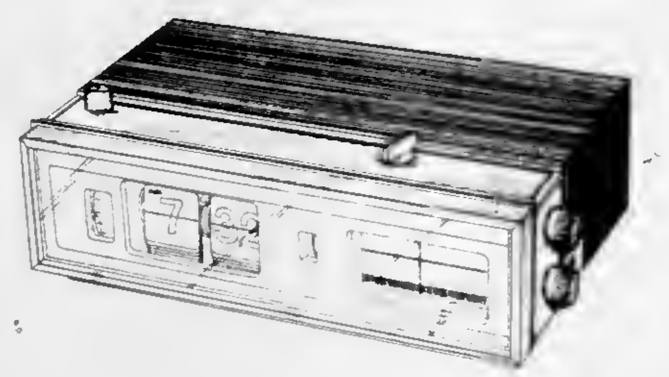
225,358
CLOCK RADIO
Katsuhiko Makino, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed May 5, 1971, Ser. No. 140,646
Claims priority, application Japan Nov. 6, 1970
Term of patent 14 years
Int. Cl. D10—*01*

U.S. Cl. D42—7



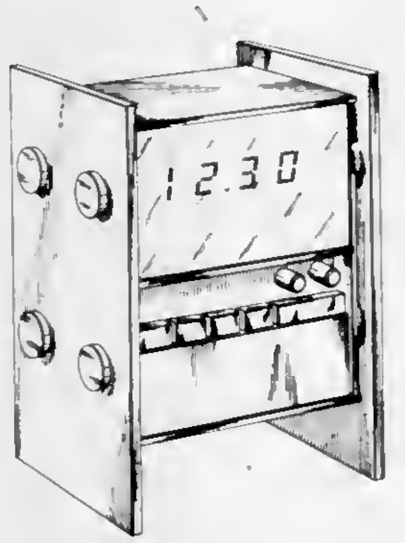
225,359
DIGITAL CLOCK RADIO
Katsuhiko Makino, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan
Filed May 19, 1971, Ser. No. 145,105
Claims priority, application Japan Nov. 20, 1970
Term of patent 14 years
Int. Cl. D10—*01*

U.S. Cl. D42—7



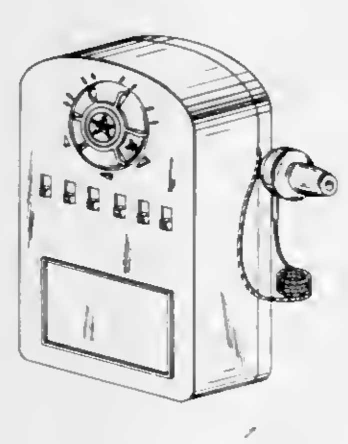
225,360
CLOCK OR SIMILAR ARTICLE
Colin M. Healy, Huntington, and Arthur M. Felske, Westport, Conn., assignors to General Electric Company
Filed June 15, 1971, Ser. No. 153,483
Term of patent 7 years
Int. Cl. D10—*01*

U.S. Cl. D42—7



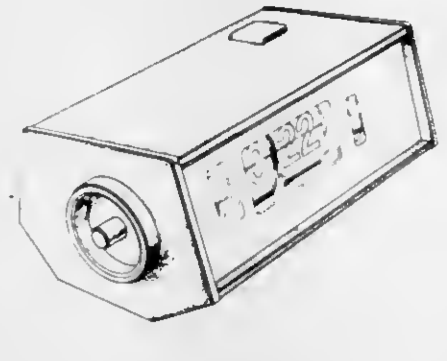
225,361
ELECTRONIC METRONOME
John M. Williams, Tulsa, Okla., assignor to La Barge, Inc., St. Louis, Mo.
Filed June 30, 1971, Ser. No. 158,666
Term of patent 14 years
Int. Cl. D10—*05*

U.S. Cl. D42—7



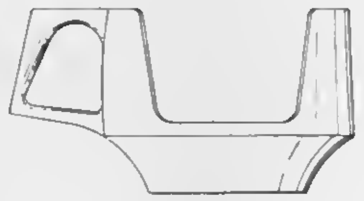
225,362
DIGITAL ALARM CLOCK
Riki Wantanabe, Tokyo, Japan, assignor to Kabushiki Kaisha Koparu, Tokyo-to, Japan
Filed July 12, 1971, Ser. No. 161,398
Claims priority, application Japan Jan. 13, 1971
Term of patent 14 years
Int. Cl. D10—*01*

U.S. Cl. D42—7



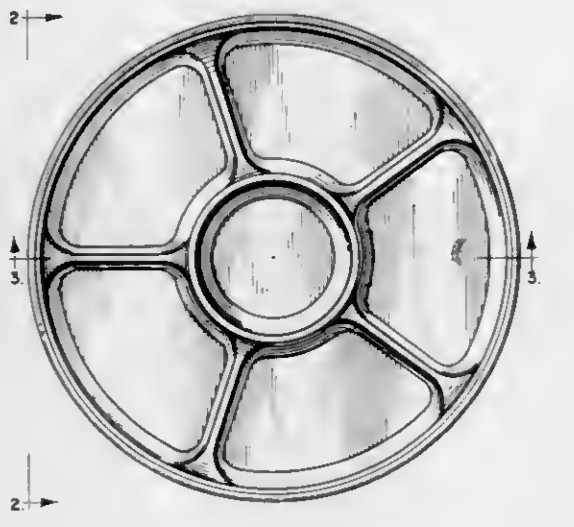
225,363
TUMBLER HOLDER
Arthur Anthony Welsh, 2 Granville Ave., Hartlepools, England
Filed Jan. 12, 1971, Ser. No. 105,995
Term of patent 3½ years
Int. Cl. D7—*01*

U.S. Cl. D44—10



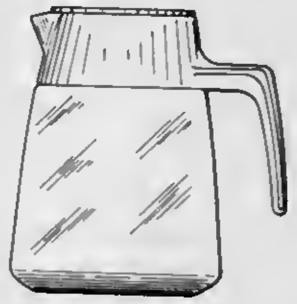
225,364
TRAY
Patricia A. Antoni, Wheeling, Ill., assignor to Ekco Products, Inc., Wheeling, Ill.
Filed Feb. 3, 1971, Ser. No. 112,504
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—10



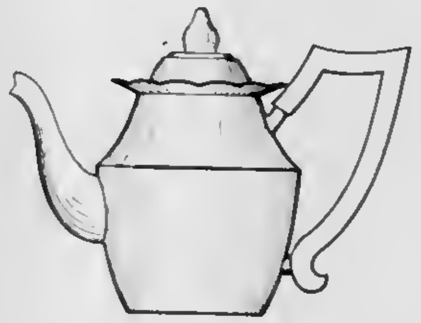
225,365
BEVERAGE SERVER OR THE LIKE
Glenn B. Beckman, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Mar. 19, 1971, Ser. No. 126,391
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—21



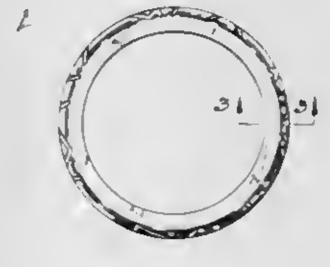
225,366
COFFEE POT
Anna Altieri, 195 Summit Drive, Cranston, R.I. 02920
Filed May 11, 1971, Ser. No. 142,432
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—26.1



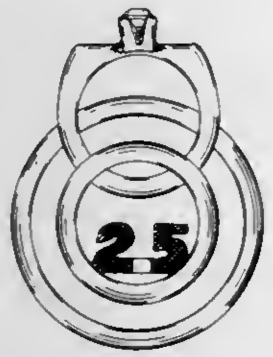
225,367
RING
Warren R. Higgins, 4764 N. Oakland Ave., Milwaukee, Wis. 53211
Filed Mar. 8, 1971, Ser. No. 122,256
Term of patent 14 years
Int. Cl. D11—*01*

U.S. Cl. D45—10



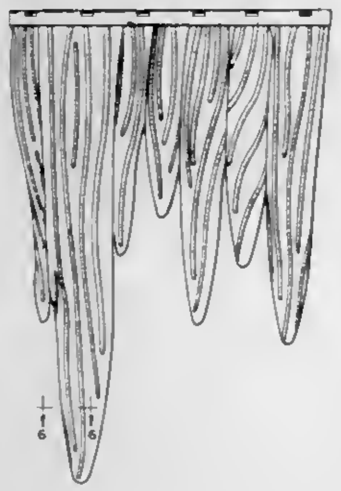
225,368
PENDANT

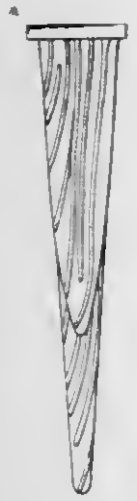
Clyde L. Adams, 4301 21st Ave., Moline, Ill. 61265
Filed May 18, 1971, Ser. No. 144,699
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—10



225,369
ILLUMINATED ORNAMENT

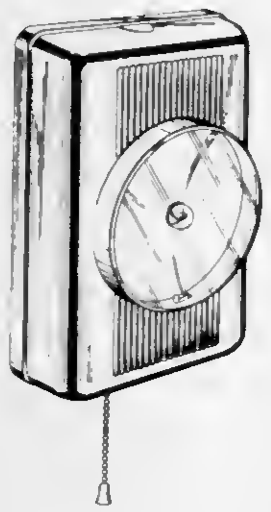
Earl A. Miller, Orem, Utah 84057
Filed Jan. 25, 1971, Ser. No. 109,722
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—20





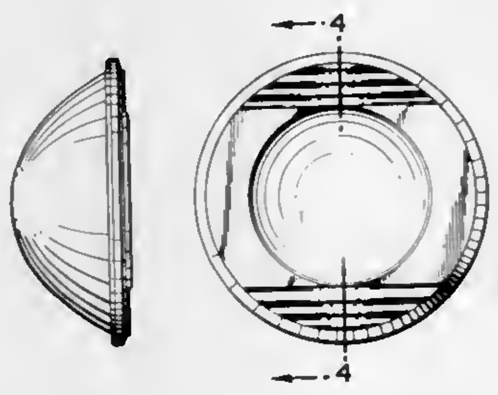
225,370
WIRELESS LIGHTING FIXTURE

Curtiss M. Peasley, 25 Boulder Drive, Burlington, Mass. 01803
Filed May 21, 1971, Ser. No. 145,990
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—24



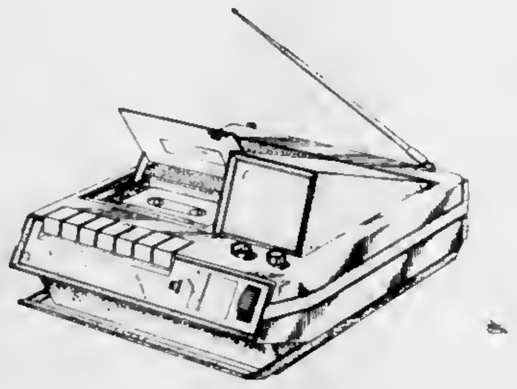
225,371
FLUTED PLANO-ASPHERIC LENS

Howard A. Schaefer, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Original design application Feb. 25, 1970, Ser. No. 21,604. Divided and this application Sept. 1, 1971, Ser. No. 177,200
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D48—32



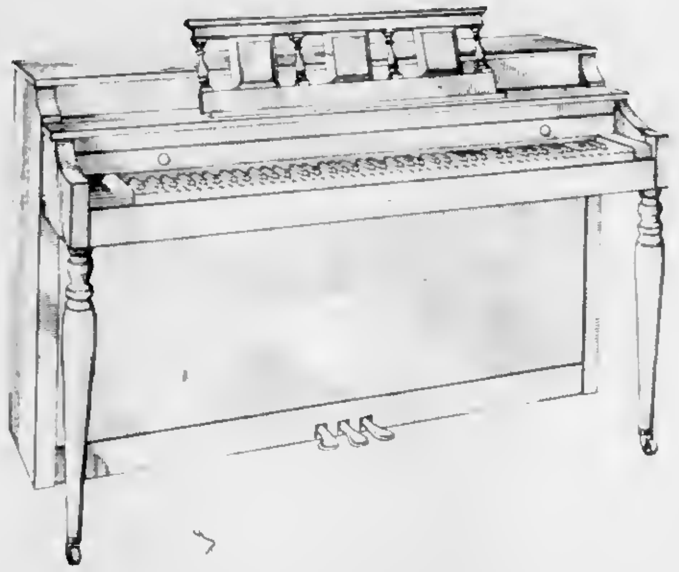
225,372
COMBINED RADIO RECEIVER, TAPE RECORDER AND TELEVISION RECEIVER

Tadashi Sumino, Takatsuki, Tadahiko Tokuda, Osaka, Kazuhiro Ueda, Takatsuki, Yasunobu Nakamura, Suita, Osamu Sugihara, Takatsuki, and Makoto Terauchi, Ibaragi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Apr. 5, 1971, Ser. No. 131,592
Claims priority, application Japan Oct. 6, 1970
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4



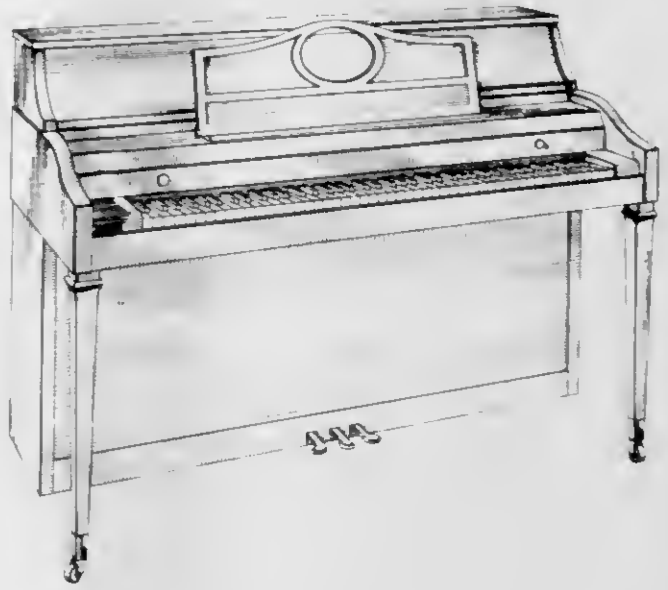
225,373
PIANO

Winsor D. White, Jr., Blowing Rock, N.C., assignor to D. H. Baldwin Company, Cincinnati, Ohio
Filed Apr. 21, 1971, Ser. No. 136,302
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—9



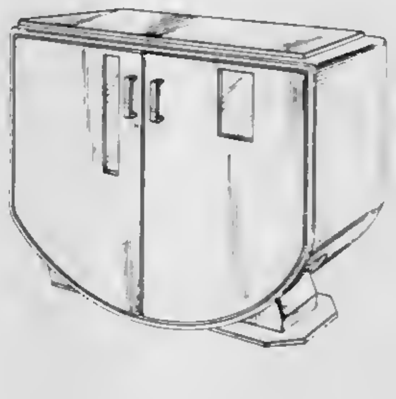
225,374
PIANO

Dennis Barket, Cincinnati, Ohio, and Winsor D. White, Jr., Blowing Rock, N.C., assignors to D. H. Baldwin Company, Cincinnati, Ohio
Filed Apr. 21, 1971, Ser. No. 136,307
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—9



225,375
COMBINED FILM HOUSING AND PROJECTOR BASE

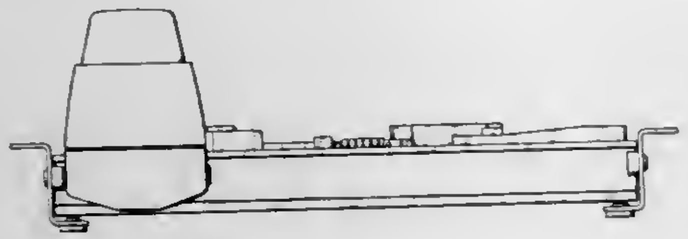
Angelo Boudouris, Sylvania, Ohio, and Geoffrey T. Gray, Lambertville, Mich., assignors to Eprad Incorporated, Toledo, Ohio
Filed Dec. 7, 1970, Ser. No. 26,330
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1



225,376
PRINTING MACHINE

Yasuaki Yamamoto, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Jan. 13, 1971, Ser. No. 106,316
Claims priority, application Japan Dec. 14, 1970
Term of patent 14 years
Int. Cl. D18—*02*

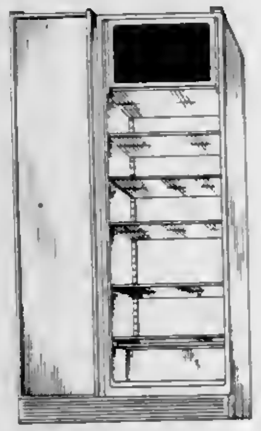
U.S. Cl. D64—11



225,377
DOMESTIC REFRIGERATOR CASE

David L. Gammons, Grove City, and Carl A. Peterson, Columbus, Ohio, assignors to Westinghouse Electric Corporation
Filed Mar. 25, 1970, Ser. No. 22,059
Term of patent 14 years
Int. Cl. D15—*07*

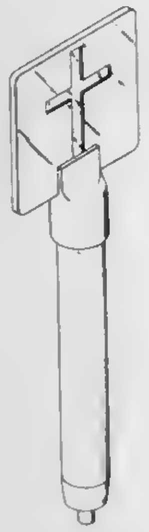
U.S. Cl. D67—3



225,378
ILLUMINATED WAND

Isadore B. Rachman, Philadelphia, Pa., assignor to Metal Dynamics Corporation, Philadelphia, Pa.
Filed July 9, 1970, Ser. No. 24,218
Term of patent 14 years
Int. Cl. D29—*99*

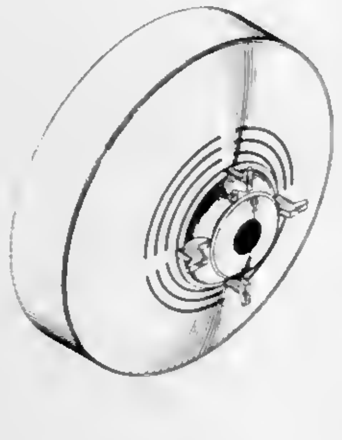
U.S. Cl. D72—1



225,379
FIRE ALARM

Edward L. Gallagher, Capistrano Beach, Robert W. Limacher, Corona Del Mar, and Robert S. Inlow, San Pedro, Calif., assignors to A-T-O Inc., Willoughby, Ohio
Filed Apr. 6, 1971, Ser. No. 131,847
Term of patent 14 years
Int. Cl. D29—*01*

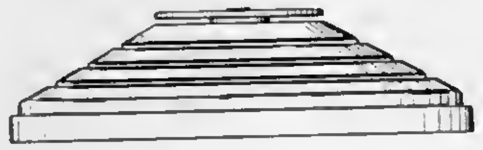
U.S. Cl. D72—1



225,380
FIRE DETECTION ALARM COVER

David M. Sauger, Livingston, N.J., and Thurston H. Toeppen, Poughkeepsie, N.Y., assignors to General Signal Corporation, Rochester, N.Y.
Filed May 5, 1971, Ser. No. 140,652
Term of patent 14 years
Int. Cl. D29—*01*

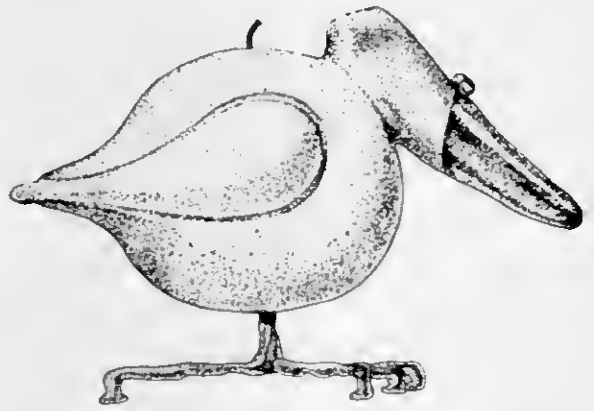
U.S. Cl. D72—1



225,381
CANDLE OR THE LIKE

Donovan G. Rankin, Mountain View, Calif. (P.O. Box 889, Sunnyvale, Calif. 94088), and Allen J. Smith, 473 Walnut Drive, Milpitas, Calif. 95035
Filed Mar. 25, 1971, Ser. No. 128,212
Term of patent 7 years
Int. Cl. D26—*04*

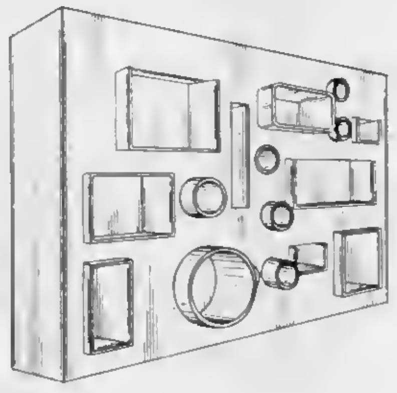
U.S. Cl. D73—1



225,382
DISPLAY RACK

Thomas R. Viviano and John C. Troy, Tampa, and Ronn Ginn, Treasure Island, Fla., assignors to Tampa Stereo Center, Inc., Tampa, Fla.
Filed Aug. 27, 1970, Ser. No. 24,721
Term of patent 14 years
Int. Cl. D6—*06*

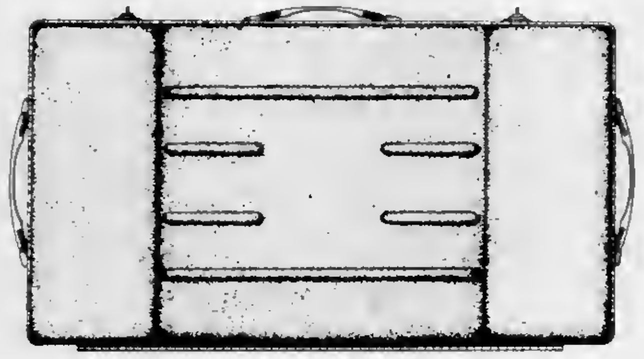
U.S. Cl. D80—9



225,383
CASE FOR A HOLIDAY DETECTOR OR SIMILAR ARTICLE

Charles W. Eisele, Warminister, Pa., assignor to H. C. Price Co., Bartlesville, Okla.
Filed Feb. 25, 1971, Ser. No. 119,067
Term of patent 14 years
Int. Cl. D3—*02*

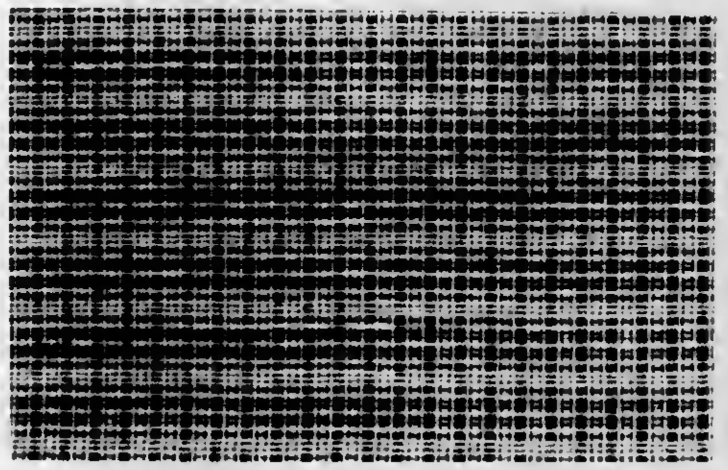
U.S. Cl. D87—1



225,384
FABRIC FOR USE IN CURTAINS

Peter Schroeder, Arni-Islisberg, Switzerland, assignor to Gardisette International AG, Zurich, Switzerland
Filed Mar. 30, 1971, Ser. No. 129,651
Claims priority, application Germany Oct. 6, 1970
Term of patent 3½ years
Int. Cl. D5—*05*

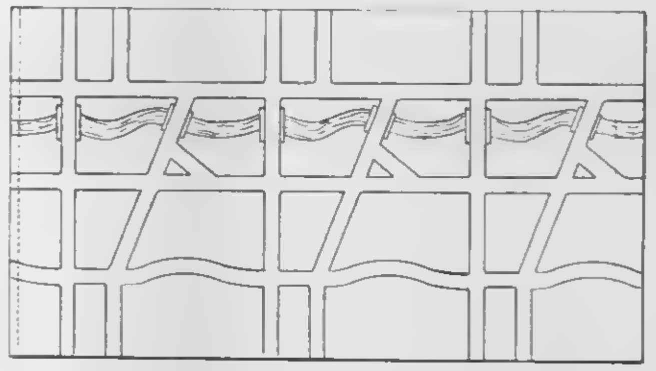
U.S. Cl. D92—1



225,385
SHEET

Dennis W. Dougherty, 4376 Locksley Road, Tucker, Ga. 30084
Filed Feb. 26, 1971, Ser. No. 119,449
Term of patent 14 years
Int. Cl. D6—*13*

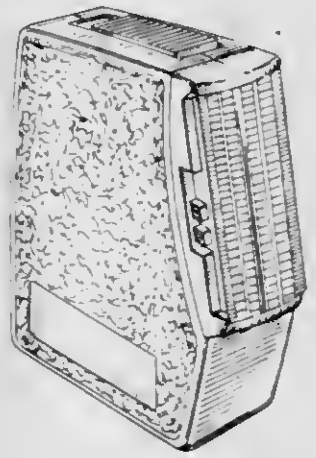
U.S. Cl. D92—26



225,386
ELECTRIC DRY SHAVER

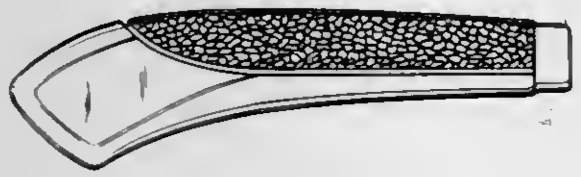
Hermann R. Schaefer, Bridgeport, Conn., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Nov. 16, 1970, Ser. No. 25,996
Term of patent 14 years
Int. Cl. D28—*03*

U.S. Cl. D95—3



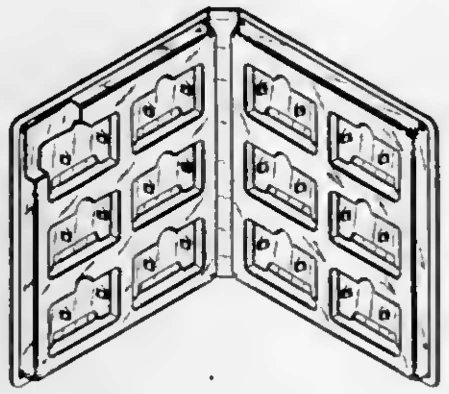
225,387
CUTLERY HANDLE
Albert W. Krock, Fremont, Ohio, assignor to
The Scott & Fetzer Company
Filed Sept. 20, 1971, Ser. No. 182,297
Term of patent 14 years
Int. Cl. D7—*03*

U.S. Cl. D95—3



225,388
TAPE CASSETTE STORAGE ALBUM
Gerald L. Price, 16610 Calneva Drive,
Encino, Calif. 91316
Filed Apr. 17, 1970, Ser. No. 22,480
Term of patent 14 years
Int. Cl. D3—*99*

U.S. Cl. D87—1



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF DECEMBER, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A/S Raufoss Ammunisjonsfabrikker: *See—*
  - Eftestol, Bard; and Osteng, Tor, 3,705,256.
- Aachtel, Gary D.: *See—*
  - Brayton, Robert K.; Gustavson, Fred G.; and Aachtel, Gary D., 3,705,409.
- Aagard, Roger L.; and Schmit, Francis M., to Honeywell Inc. Magneto-optic readout system. 3,705,395, Cl. 340-174.0yc.
- Abbott, John A.; and Watson, Clyde Donald, to FMC Corporation. Method for continuous preparation of tobacco. 3,704,716, Cl. 131-140.00p.
- Abell, Roy F., Jr., to Eaton Corporation. Hydraulic valve lifter. 3,704,696, Cl. 123-90.330.
- Abercrombie, Jonathan C., to General Electric Company. Latch device. 3,704,906, Cl. 292-247.000.
- Abolafia, Oscar R.; Butora, John A.; and Orinik, Michael T., to International Business Machines Corporation. Process for forming a microporous cellular polyimide. 3,705,118, Cl. 260-2.50n.
- Abraham, William W.: *See—*
  - Lanahan, John H.; and Abraham, William W., 3,704,781.
- Abruzzi, Pierluigi: *See—*
  - Vargiu, Silvio; Pitzalis, Mario; and Abruzzi, Pierluigi, 3,705,116.
  - Vargiu, Silvio; Pitzalis, Mario; and Abruzzi, Pierluigi, 3,705,117.
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  - Nelson, Robert D., 3,704,515.
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  - Tuller, Elry D., 3,705,347.
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- Fryklund, Gilbert; and Denis, Richard E., to Computervision Corporation. Photoplotter mechanism for precise aperture dis positioning. 3,704,655, Cl. 95-12.000.
- Fuchs, Walter; and Esche, Horst, to Deutsche Telephonwerk und Kabelindustrie-Aktiengesellschaft. Sealed armature contact relay making process. 3,704,514, Cl. 29-622.000.
- Fuchslf, Klaus: *See—*
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  - Honjo, Satoru; Takimoto, Masaaki; Matsumoto, Seiji; and Kosuge, Kuniko, 3,705,032.
- Fujimori, Yoshiaki, to Kabushiki Kaisha Suwa Seikosha. Waterproof watch with improved seal construction. 3,704,584, Cl. 58-90.00r.
- Fujita, Masuo: *See—*
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- Furst, Jozef; and Hovik, J. Kjell, to Datapac, Incorporated. Circulating current minimization scheme for a ready-only memory. 3,705,420, Cl. 340-174.0sp.
- Fuse, Yuzo: *See—*
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- Gatsis, John G., to Universal Oil Products Company. Solvent extraction of coal by a heavy oil. 3,705,092, Cl. 208-8.000.
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- Giesy, Jerry D.; Smith, Gordon E.; and Schneider, Jack M., to Medidyne Corporation. Dilator device. 3,704,712, Cl. 128-345.000.
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- Gourdine Systems, Inc.: *See—*
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- Grants, Paul R., to I.F.S. Incorporation. Preformed enclosed insulating filler and insulating strip. 3,704,562, Cl. 52-396.000.
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- Grauso, Robert N.; and Morena, John J., to Martin, C. F., & Co. Accessory holder for musical instruments of the percussion type. 3,704,645, Cl. 84-421.000.
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- Grube, William L., to MacLean-Fogg Lock Nut Co. Method of fabricating and attaching pierce nuts to a panel. 3,704,507, Cl. 29-417.000.
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Hall, John Matthew, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defense in Her Britannic Majesty's Government of the. Jet nozzle. 3,704,829, Cl. 239-265.350.

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Hansen, Eric Lowell; McNoldy, Larry Benjamin; and Pohl, Karl-Heinz, to Bell Telephone Laboratories, Incorporated. Receptacle for snap-in mounting of connectors. 3,705,377, Cl. 339-121.000.

Hansen, Erwin, to International Boiler Works Co., The. Combined steam and high temperature water generating system. 3,704,693, Cl. 122-406.00r.

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Haurykiewicz, John M., to Eaton Corporation. Pulse generator. 3,705,314, Cl. 307-266.000.

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Hawkins, William M., to Hercules Incorporated. Digital to analog converter. 3,705,399, Cl. 340-347.0da.

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Haynes, Harvey H.; Kahn, Lawrence F.; and Hoofnagle, Rodger A. Underwater connecting device. 3,704,679, Cl. 114-51.000.

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Head, Billy D.; Fraini, Edward A.; and Martin, George R., to Dow Chemical Company, The. Process and catalyst for reducing sulfur in hydrocarbons. 3,705,097, Cl. 208-217.000.

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Heinz, Hubert; and Honsberg, Gunter, to Maschinenfabrik Augsburg-Nurnberg AG. Chucking arrangement for hollow cores, particularly for newsprint rolls and the like. 3,704,837, Cl. 242-68.200.

Hellermann, Eberhard: *See*—
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Henderson, Harold B., to Texas Instruments, Incorporated. Air deliverable seismic system. 3,704,764, Cl. 181-.5vm.

Hendrickson, Philip J.; and Resch, Richard J., to Krueger Metal Products, Inc. Telescopically collapsible table leg. 3,704,850, Cl. 248-188.500.

Henkel, Jahs-Joachim: *See*—
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Henmi, Teruji: *See*—
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Hensley, Albert L., Jr.: *See*—
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Hepner, Neal, to Burroughs Corporation. Mechanism for carrying a transducer over an elongated path. 3,704,630, Cl. 74-47.000.

Hercules Incorporated: *See*—
Hall, John N., 3,704,485.
Hawkins, William M., 3,705,399.
Kim, Charles W., 3,705,070.
Mahlman, Bert H.; and Spurlin, Harold M., 3,705,123.
Matlack, Albert S.; and Schwarz, Robert J., 3,705,209.

Herczfeld, Bonita Falkner; Herczfeld, Peter R.; and Klafter, Richard D., to Drexel University. Heart rate and respiratory monitor. 3,704,706, Cl. 128-2.00r.

Herczfeld, Peter R.: *See*—
Herczfeld, Bonita Falkner; Herczfeld, Peter R.; and Klafter, Richard D., 3,704,706.

Hershler, Abe, to Phys-Chemical Research Corporation. Electrode for electric humidity sensor. 3,705,375, Cl. 338-35.000.

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Hetherington, Theodore W., to Tenneco Inc. Pipe manifold flange. 3,704,995, Cl. 285-332.000.

Heusler, Karl; and Woodward, Robert Burns, to Ciba-Geigy Corporation. Tiazacyclic hydroxy compounds and process for their manufacture. 3,705,160, Cl. 260-239.100.

Heyek, Gerhard. Cutter head for dry shaving apparatus. 3,704,518, Cl. 30-346.510.

Heymer, Gero: *See*—
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Hicks, Gerald W., to Wilson, Lee, Engineering Company, Inc. Furnace wall construction. 3,705,253, Cl. 13-20.000.

Higgins, Edward Ted, to Line & Rope Clamps, Inc. Line clamp. 3,704,488, Cl. 24-126.00a.

Higgins, Horatio Leslie, to Westinghouse Brake and Signal Company Limited. Spring-force applying means. 3,704,653, Cl. 92-29.000.

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Hill, David E. Film processing machine. 3,704,660, Cl. 95-89.00d.

Hill, Donald C., to Eaton Corporation. Piston ring. 3,704,893, Cl. 277-171.000.

Hill, Vincent G.; and Harding, William R., to Carborundum Company, The. Molding of powdered or granular material. 3,705,248, Cl. 264-294.000.

Hinohara, Kengo; Nishino, Tadashi; and Harada, Hiroshi, to Kabushiki Kaisha Kumahira Seisakusho. Theft-prevention structure for depositories. 3,704,825, Cl. 232-44.000.

Hinz, Charles Frank, to American Cyanamid Company. Pseudothioureas and salts thereof as virucides. 3,705,250, Cl. 424-322.000.

Hirao, Mamoru: *See*—
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Hirozawa, Koichiro; and Takahashi, Shigeo, to Aisin Seiki Kabushiki Kaisha. Speed changer. 3,704,768, Cl. 192-3.570.

Hirsch, Roger B. Gauging system for press brakes. 3,704,611, Cl. 72-36.000.

Hirschmann, Joachim: *See*—
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Hirth, Alfred: *See*—
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Nakamuta, Masaji; Tsukui, Michio; Mukai, Junji; Narahara, Toshikazu; and Noguchi, Sumio, 3,705,208.

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Hoeppel, Raymond W. Oil base gel having low viscosity before gelation and method of producing same. 3,705,107, Cl. 252-316.000.

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Hoffmann-La Roche, Inc.: *See*—
Bohni, Erika; Ruegg, Rudolf; and Ryser, Gottlieb, 3,705,249.
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Holbrook, Legrand K.; and Ostler, David S., to Medical Development Corporation. Fluid level sensing/control systems. 3,704,724, Cl. 137-392.000.

Holm, Leroy W.: *See*—
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Hplton, Robert J., to Eaton Corporation. Fastening device. 3,704,739, Cl. 151-41.700.

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Honeywell Inc.: *See*—
Aagard, Roger L.; and Schmit, Francis M., 3,705,395.
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Honig, Hans Ludwig; Balle, Gerhard; Keberle, Wolfgang; and Dieterich, Dieter, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of modified anionic emulsion polymers with anionic polyurethane. 3,705,164, Cl. 260-29.6nr.

Honjo, Satoru; Takimoto, Masaaki; Matsumoto, Seiji; and Kosuge, Kuniko, to Fuji Photo Film Co., Ltd. Electro-photographic materials. 3,705,032, Cl. 96-1.800.

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Hoofnagle, Rodger A.: *See*—
Haynes, Harvey H.; Kahn, Lawrence F.; and Hoofnagle, Rodger A., 3,704,679.

Hooker, John M., to General Electric Company. Fly's eye lens process. 3,704,511, Cl. 29-592.000.

Hopkinson, Eric C.; and Youmans, Arthur H., to Dresser Industries, Inc. Pulsed neutron well logging apparatus having means to vary neutron generator pulse repetition rate. 3,705,304, Cl. 250-83.30r.

Hopper, Lois H., to Munsingwear, Inc. Concealed wire structure for an outer garment. 3,704,713, Cl. 128-476.000.

Horie, Tatsuo; Yamamoto, Syunichi; and Gotoh, Shinji, to Nippon Oil Company, Limited. Process for recovering conjugated diolefins selectively form A C fraction. 3,705,204, Cl. 260-681.500.

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Horne, Victor A., Jr.; and Bradley, Lawrence D., to Horne-Boatright Chemical Company, Inc. Convertible rail-highway vehicle. 3,704,671, Cl. 105-215.00c.

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Howard, Homer E., to Howard Associates, Inc. Capacitor discharge ignition system with revolution limiter. 3,704,699, Cl. 123-148.00e.

Howe, William J., to Georgia-Pacific Corporation. Open-top stacking carton and blank therefor. 3,704,823, Cl. 229-32.000.

Howell, Charles Frederick; and Greenblatt, Eugene Newton, to American Cyanamid Company. 7-Amino-2-chloro-11-(4-methyl-11-piperazinyl) dibenz (b,f) (1,4)-oxazepines acting on the central nervous system. 3,705,245, Cl. 424-250.000.

- Huber, William B., to Motorola, Inc. Mounting arrangement for a magnetic tape head including a spherical cam follower and an arcuately shaped. 3,705,270, Cl. 179-100.2ca.
- Huey, Stanton E., Jr. Float for a one man hunting blind. 3,704,472, Cl. 9-5.000.
- Huffman, Donald; and Majewski, Richard M., to Coleco Industries, Inc. Bowling and pool game apparatus. 3,704,889, Cl. 273-119.00r.
- Hughes Aircraft Company: *See—*
  - Ballantyne, Jack R.; and Houck, Melvin E., 3,705,402.
  - Lydon, Lloyd E.; Steigleder, Charles J.; and Carpenter, Warren E., 3,705,306.
- Hughes, David Geoffrey, to Decca Limited. Receivers for phase comparison radio navigation systems. 3,705,403, Cl. 343-105.00r.
- Hughes, Robert L.; and Rouse, John E., to Vaskov Industries, Inc. Water heater. 3,704,692, Cl. 122-161.000.
- Hull, Ezekiel H.: *See—*
  - McIntosh, Robert H.; and Hull, Ezekiel H., 3,705,235.
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- Huneke, Egon, to Grohe, Friedrich, Armaturenfabrik. Mixing valve for fluids. 3,704,728, Cl. 137-636.100.
- Hunt, Curtis R.: *See—*
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- Hunter, Allen Bruce, to Environmental Purification Systems, Inc. Separating means and method. 3,705,099, Cl. 210-65.000.
- Hurst Performance, Inc.: *See—*
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- Husky Manufacturing & Toolworks, Ltd.: *See—*
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- Huther, Gerhard; Roder, Rolf; and Schmidt, Ulrich, to Jenoptik Jena G.m.b.H. Leveling instrument. 3,704,954, Cl. 356-143.000.
- Hutner, Mark A., to Elco Corporation, mesne. Automatic stop circuit for motion picture projector. 3,704,999, Cl. 352-92.000.
- Huttenwerk Aberhausen A.G.: *See—*
  - Giepel, Hans; Forster, Eckehard; and Heinemann, Wilfried, 3,704,610.
- Hutton, Duane A.; and Hutton, Michael. Wire tightener. 3,704,858, Cl. 254-81.000.
- Hutton, Michael: *See—*
  - Hutton, Duane A.; and Hutton, Michael, 3,704,858.
- Huyck Corporation: *See—*
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- Huyffer, Paul S.: *See—*
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- Hymatic Engineering Company Limited: *See—*
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- Hymatic Engineering Company Limited, The: *See—*
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- Hymatic Engineering Company, The: *See—*
  - Campbell, David Neil; and Turton, Frank Arnold, 3,704,598.
- Iberall, Arthur S., to General Technical Services, Inc. Blood pressure measuring mechanism. 3,704,708, Cl. 128-2.05e.
- I.F.S. Incorporation: *See—*
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- Ikeda, Osamu: *See—*
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- Imazeki, Ryoji: *See—*
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- Imperial Chemical Industries Limited: *See—*
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- Inland Steel Company: *See—*
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- Inoue, Eiichi; and Yamase, Toshihiro, to Canon Kabushiki Kaisha. Photochromic composition containing bleached-out dye and a reducing agent therefor. 3,705,037, Cl. 96-89.000.
- Intech Corporation: *See—*
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- Interlake, Inc.: *See—*
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- Interlake Steel Corporation: *See—*
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- International Boiler Works Co., The: *See—*
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  - Anacker, Wilhelm; and Zappe, Hans H., 3,705,393.
  - Bleher, Johannes Hartmut; Chang, Chi Shih; and Dockerty, Robert Charles, 3,705,419.
  - Brayton, Robert K.; Gustavson, Fred G., and Aachtel, Gary D., 3,705,409.
  - Carter, William C.; Jessep, Donald C., Jr.; and Wadia, Aspi B., 3,705,357.
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  - Cronquist, Donald Harry, 3,705,413.
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  - Harr, Jerome Danforth, 3,705,264.
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- International Standard Electric Corporation: *See—*
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- International Standard Electric Corportion: *See—*
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- International Telephone and Telegraph Corporation: *See—*
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  - Lokkart, Hendricus Johannes, 3,704,980.
  - Majkrzak, Charles P.; and Polgar, Michael S., 3,704,499.
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  - Wolfgang, Lozure G., 3,705,321.
- Interroyal Corporation: *See—*
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- ISE Electronics Corporation: *See—*
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- Ishida, Hiroshi: *See—*
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- Ishikawa, Toshikatsu; and Teranishi, Haruo, to Nippon Carbon Company Limited. Method of producing carbon fibers. 3,705,236, Cl. 423-447.000.
- Itek Corporation: *See—*
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  - Buchan, William R., 3,704,933.
- Ito, Isao, to Nippondenso Kabushiki Kaisha. Socket mounting structure of ball-and-socket joint used for coupling link members for driving a windshield wiper for vehicles. 3,704,903, Cl. 287-90.00r.
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- Iverson, Keith E. Tension member overload release mechanism. 3,704,633, Cl. 24-230.0al.
- Iwatsu Electric Company Limited: *See—*
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- Jablon, Theodore M.; and Raynor, Russell C., to Dorr-Oliver Incorporated. Continuous sedimentation tank with center-pier supported sediment raking apparatus. 3,704,789, Cl. 210-531.000.
- Jachimek, Thomas P.; and Mulford, Jack A., to Seeburg Corporation of Delaware, The. Arrangement for translating a train of pulses into logic words. 3,705,423, Cl. 340-347.0dd.
- Jackson, Byron, Inc.: *See—*
  - Nicolson, Garth Fancher; and Wilms, Carl Alfred, 3,704,638.
- Jacob, Adir, to LFE Corporation. Gas discharge apparatus. 3,705,091, Cl. 205-312.000.
- Jacobs, Gerardus Henricus Johannus. Method of and an apparatus for determining the length of fibers suspended in a liquid. 3,705,348, Cl. 324-71.00r.
- Jacobson, David S.: *See—*
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- Jaeschke, Ralph L., to Eaton Corporation. Electromagnetic friction coupling. 3,704,766, Cl. 188-164.000.
- James, David, to Imperial Chemical Industries Limited. Polyamide containing organo metallic compound. 3,705,134, Cl. 260-78.00r.
- Janetos, Nicholas S.: *See—*
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- Janiak, Stefan; and Rohr, Otto, to Ciba-Geigy AG. Use of arylureas in combating weeds in cotton plantations. 3,705,028, Cl. 71-120.000.
- Jedvall, Gustaf I.; deceased (by Mogensen, Arne; administrator). Method for measuring the distance to a leakage fault in an electrical conductor. 3,705,346, Cl. 324-52.000.
- Jefferson Chemical Company, Inc.: *See—*
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- Jenny, Robert B., to McDonnell Douglas Corporation. Aircraft control system. 3,704,843, Cl. 244-85.000.
- Jenoptik Jena G.m.b.H.: *See—*
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- Jensen, Flemming Edvin, to Smidth, F. L., & Co. Method and apparatus for cooling cement clinker. 3,704,873, Cl. 263-32.00c.
- Jerchower, Lewis A.: *See—*
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  - Carter, William C.; Jessep, Donald C., Jr.; and Wadia, Aspi B., 3,705,357.
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- John, Erwin Roy, to Neuro-Data, Inc. Signal averager. 3,705,297, Cl. 235-150.530.
- John, Ronald, to Molins Machine Company Limited. Guards. 3,704,959, Cl. 408-241.00g.

- Johnson, Charles J. Fold-up flat topped supports. 3,704,674, Cl. 108-118.000.
- Johnson, David R.: *See—*
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- Johnson, Fatima N.: *See—*
  - Razdan, Raj K.; and Johnson, Fatima N., 3,705,161.
- Johnson, George R., to Arpax Company, The. Method of assembling a collapsible, reuseable container utilizing an inverted three sided pyramidal shaped trough support fixture. 3,705,062, Cl. 156-69.000.
- Johnson, Robert M.; Toby, Dennis E.; and Koch, Robert M., said Toby and said Koch assors. to Addressograph-Multigraph Corporation. Liquid developing apparatus. 3,704,661, Cl. 95-89.00r.
- Johnson, Robert M.; and Toby, Dennis E., to Addressograph-Multigraph Corporation. Liquid developing apparatus. 3,704,662, Cl. 95-94.00r.
- Jones, Clive Lynn, to National Research Development Corporation. Electrical gas heating apparatus using frequency multiplying circuit and induction blower. 3,705,290, Cl. 219-364.000.
- Jones, Edwin K., to Universal Oil Products Company. Apparatus for a catalytic reaction. 3,705,017, Cl. 23-288.00e.
- Jones, Robert, to Hoffman Manufacturing Company. Apparatus for filling material into and discharging material from compartments. 3,704,815, Cl. 222-368.000.
- Josien, Daniel, to Societe Anonyme Pronal. Inflatable cushions of utility as jacks. 3,704,859, Cl. 254-93.0hp.
- Joslyn Mfg. and Supply Company: *See—*
  - Luehring, Elmer L., 3,705,281.
- Judge, James R.: *See—*
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- Judge, John R.; and Kilpatrick, Robert G., to General Electric Company. Luminaire. 3,705,302, Cl. 240-78.0lh.
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- Kabana, Walter P.; and King, Charles B., to United States of America, National Aeronautics and Space Administration. Butt welder for fine gauge tungsten/rhenium thermocouple wire. 3,705,288, Cl. 219-101.000.
- Kabitzke, Karlheinz: *See—*
  - Vetter, Hans; Danhauser, Justus; Kabitzke, Karlheinz; Marx, Paul; Melzer, Arnfried; Pelz, Willibald; and Puschel, Walter, 3,705,035.
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- Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
  - Tooka, Takuzo; Nozaki, Choji; and Kono, Kiichi, 3,704,579.
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- Kaercher, Ralph William; and Peschke, John Ralph, to American Can Company. Plastic film for container end closure. 3,704,804, Cl. 220-53.000.
- Kaeser, Ernst K.: *See—*
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- Kahn, Lawrence F.: *See—*
  - Haynes, Harvey H.; Kahn, Lawrence F.; and Hoofnagle, Rodger A., 3,704,679.
- Kaiser, Andrew J.: *See—*
  - Stout, Thomas C.; and Kaiser, Andrew J., 3,705,022.
- Kaiser, Carl; and Ross, Stephen T., to Smith Kline & French Laboratories. Hydroxyphenyl-2-piperidinylcarinols. 3,705,169, Cl. 260-293.840.
- Kaiser, Frederick A., to Bendix Corporation, The. Fluidic deicer valve. 3,704,720, Cl. 137-81.500.
- Kalachev, Vasily Alexeevich: *See—*
  - Kuznetsov, Lev Vasilievich; Slavinsky, Zunya Mikhalevich; Kalachev, Vasily Alexeevich; Krupin, Alexandr Leonidovich; Aristarkhov, Nikolai Alexandrovich; Popkov, Eduard Jurievich; Trutnev, Vladimir Alexandrovich; and Bulychev, Nikolai Petrovich, 3,704,496.
- Kallianos, Andrew G.; Warfield, Albert H.; and Simpson, Melvyn I., to Liggett & Myers Incorporated. 2-Isopropyl-5-methyl-2-hexenal, 2-isopropyl-5-methylhexanal, 3-hydroxy-2-isopropyl-5-methylhexanal, and derivatives thereof as tobacco flavorants. 3,704,71, Cl. 131-17.00r.
- Kalstein, Abraham G., to Aerovox Corporation. Electric capacitor unit. 3,705,336, Cl. 317-260.000.
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  - Zucker, Fredric E.; Kaswer, Joseph, Jr.; and Wilczynski, Thomas S., 3,704,890.
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- Kearney & Trecker Corporation: *See—*
  - Sedgwick, Robert K.; Behrendt, Werner K.; and Baechle, Hans J., 3,704,510.
- Keberle, Wolfgang: *See—*
  - Honig, Hans Ludwig; Balle, Gerhard; Keberle, Wolfgang; and Dieterich, Dieter, 3,705,164.
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  - Gulibon, Robert S.; and Heaton, James W., 3,704,958.
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- Kennedy, George C., to Teledyne, Inc. Apparatus for manufacturing diamonds. 3,704,969, Cl. 425-77.000.
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- Kerr, Charles F., Jr., to Eltec, Inc. Single-pole double-break high-voltage switch assembly. 3,705,279, Cl. 200-48.00s.
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- Keyser, Naaman H., to Interlake, Inc. Adjustable strip conditioner. 3,704,614, Cl. 72-165.000.
- Kharitonov, Gennady Grigorievich; Nebytov, Anatoly Mitrofanovich; Doroshin, Sergei Mikhailovich; and Alimova, Mariana Sergeevna, to Vsesojuzny Nauchno-Issledovatelsky Institut po Stroitelstvu Magistralnykh Truboprovodov Okruzhnoi praezd. Plant for applyingsolidifying plastic masses. 3,704,865, Cl. 259-108.00a.
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  - Judge, John R.; and Kilpatrick, Robert G., 3,705,302.
- Kim, Charles W., to Hercules Incorporated. Nonwoven fabric and process for preparing. 3,705,070, Cl. 161-58.000.
- Kim, Don W.: *See—*
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  - Stumpf, Robert J., 3,705,063.
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  - Dewhurst, Paul E., 3,704,581.
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Korshak, Vasily Vladimirovich; Volpin, Mark Efimovich; Sergeev, Vladimir Alexandrovich; Shitikov, Valentin Kuzmich; and Kolomñikov, Igor Sergeevich, to Ordena Lenina Institut Elementoorganicheskikhsoedineny Academii. Polymers of polyphenylene type and methd of producing the same. 3,705,131, Cl. 260-47.0ua.

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Litewate Transport Equipment Corporation: *See—*
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Little, Arthur D., Inc.: *See—*
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Roberts, Maurice, 3,705,380.

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Mannesmann Aktiengesellschaft: *See—*
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Urbutis, Algimantas P.; Schenk, Bernard H.; Risany, Joseph J.; and Marbach, Walter V., 3,704,483.

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Marriott, James G., to Libbey-Owens-Ford Company. Method of repairing electrically conducting frit circuits. 3,705,047, Cl. 117-2.000.

Marsh, Robert E. Water softener deflector-distributor structure. 3,704,785, Cl. 210-285.000.

Marshall, David J.; and Givner, Morris L., to American Home Products Corporation. Antiandrogenic steroids. 3,705,179, Cl. 260-349.000.

Marten, John Anthony; and Gee, Bernard Arthur, to Suntester Limited. Vehicle testing apparatus and to safety devices therefore. 3,704,624, Cl. 73-117.000.

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Martin, Donald J., to Stauffer Chemical Company. Catalyzed process for producing pentavalent phosphorus derivatives. 3,705,214, Cl. 260-969.000.

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Martin, Henry; and Drabek, Jozef. Phosphonylcarbamyloxyphosphonates. 3,705,212, Cl. 260-926.000.

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Maruyama, Kunimori, to Oscar Kogyo Kabushiki Kaisha, mesne. Electropneumatic propelling system for vehicles. 3,704,760, Cl. 180-66.00b.

Marx, Paul: *See—*
Vetter, Hans; Danhauser, Justus; Kabitzke, Karlheinz; Marx, Paul; Melzer, Arnfried; Pelz, Willibald; and Puschel, Walter, 3,705,035.

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Maslowski, Stefan: *See—*
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Massachusetts Institute of Technology: *See—*
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Massie, Stephen N., to Universal Oil Products Company. Alkylation of aromatics with alkyl halides. 3,705,201, Cl. 260-671.00c.

Massie, Stephen N., to Universal Oil Products Copany. Alkylation of aromatics with olefins. 3,705,202, Cl. 260-671.00c.

Mast, Rolf, to Armour-Dial, Inc. Composition and method of defoaming bubble baths. 3,705,102, Cl. 252-89.000.

Masuda, Mitsuru, to ISE Electronics Corporation. Fluorescent display tubes. 3,705,324, Cl. 313-109.500.

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Mathieu, Alexis; and Barberot, Claude, to Solvay & Cie. Cross-linkable compositions based on vinyl chloride cross-linkable copolymers and elastomers. 3,705,210, Cl. 260-876.00r.

Matlack, Albert S.; and Schwarz, Robert J., to Hercules Incorporated. Flame retardant polymeric compositions. 3,705,209, Cl. 260-861.000.

Matsui, Katsuaki; Kurumada, Tomoyuki; Watanabe, Ichiro; Ohta, Noriyuki; Murayama, Keisuke; and Morimura, Syoji, to Sankyo Company Limited. Stabilization of synthetic polymers. 3,705,126, Cl. 260-45.80n.

Matsukawa, Hiroshi: *See—*
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Matsumoto, Seiji: *See—*
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Matsuno, Hiroshi: *See—*
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Matsushita Electronics Corporation: *See—*
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Matsushita, Toru; Suzuki, Kunimoto; and Hasegawa, Shoji, to Tokyo Shibaura Electric Co., Ltd. Method of applying coatings of tin oxide upon substrates. 3,705,054, Cl. 117-211.000.

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Maurischat, Gunter: *See—*
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May, Oswald, to Klockner-Humboldt-Deutz Aktiengesellschaft. Tractor. 3,704,909, Cl. 296-102.000.

Mayer, Edward A., to Texaco Inc. Dispensing nozzle. 3,704,732, Cl. 141-128.000.

McCarty, William R.: *See—*
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McColl, Bruce John, to Owens-Illinois, Inc. Debarking and debranching apparatus. 3,704,733, Cl. 144-2.00z.

McDonnell Douglas Corporation: *See—*
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McGhee, Everette G. Auxiliary door fuselage closure. 3,704,549, Cl. 49-370.000.

McIntire, Otis R.: *See—*
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McIntosh, Robert H.; and Hull, Ezekiel H., to Predicted Environments, Inc. Sanitizing plastic material. 3,705,235, Cl. 424-83.000.

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McKillip, William James: *See—*
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McMahon, Donald H., to Sperry Rand Corporation. Micro-holographic recording and reading apparatus. 3,704,930, Cl. 350-3.500.

McNamara, Robert A. Process and apparatus for producing improved photographic emulsion. 3,705,034, Cl. 96-94.000.

McNoldy, Larry Benjamin: *See—*
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Merck & Co., Inc.: *See—*
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Merz & Co., Chemische Fabrik: *See—*
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Mesiah, Raymond N.; Beck, William F.; and Goldstein, David, to FMC Corporation. Agglomeration of cyanuric acid. 3,705,019, Cl. 23-313.000.

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Metzger, Louis G., to JFD Electronics Corporation. Low height ceramic capacitor for printed circuit board mounting. 3,705,335, Cl. 317-249.00d.

Mevenkamp, Paul, to Friedrich Uhde GmbH. High pressure heat exchanger for ammonia gas synthesis plants. 3,704,690, Cl. 122-7.00r.

Meyer, Ernst; Grimm, Wolfgang Erlenbach; Gerlach, Klaus; and Linhart, Helmut, to Akzona Incorporated. Apparatus for mixing a pigment dispersion into polyamide melt. 3,704,863, Cl. 259-8.000.

Meyer, Leonard S., to Sybron Corporation, mesne. Fiber reinforced resin grating. 3,704,561, Cl. 52-180.000.

Meyers, Benjamin F.; and Oldis, John E., Jr., to Western Electric Company, Incorporated. Apparatus for fluidically controlling the assembly and dynamic resistance adjustment of acoustic resistors. 3,704,502, Cl. 29-203.00r.

Michaels of Oregon Co.: *See—*
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Microdisplay Systems, Inc.: *See—*
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Mikus, Daniel J.: *See—*
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Milakovich, Joseph. Knockdown chair. 3,704,911, Cl. 297-440.000.

Miles, John R., to Microdisplay Systems, Inc. Wide angle compact projection lens assembly. 3,704,998, Cl. 350-216.000.

Miles, Leon H.; and King, Graham E., to Atlantic Richfield Company. Process for inhibiting scale formation in oil well brines. 3,704,750, Cl. 166-279.000.

Miller, Alfred H., to Esso Research and Engineering Company. 1-Thiadiazolyl-hexahydro-1,3,5-triazine-2-ones. 3,705,155, Cl. 260-248.0ns.

Miller, Gerald G.: *See—*
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Minbiole, Louis J., Jr.: *See—*
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Minolta Camera Kabushiki Kaisha: *See—*
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Mizuguchi, Shunji: *See—*
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Mohr, Bruno R. Device for hanging Christmas tree decorations. 3,704,487, Cl. 24-73.0cp.
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Moller, Jens L., to Continental Can Company, Inc. Method for making and applying a bottle cap. 3,704,677, Cl. 113-121.00a.
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Monsanto Company: *See—*
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Moore, George G. I.; and Conway, Alvin C., to Minnesota Mining and Manufacturing Company. N-aroyl sulfonamides. 3,705,185, Cl. 260-465.00d.
Moore, John Russell Crompton. Suspension systems. 3,704,740, Cl. 152-75.000.
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Mourey, Jean-Jacques; and Badertscher, Ernest, to Societe d'Assistance Technique pour Produits Nestle S.A. Production of casein by passage through a duct with a constriction. 3,705,143, Cl. 260-120.000.
Mueckter, Heinrich: *See—*
Graudums, Ivars; Mueckter, Heinrich; and Frankus, Ernst, 3,705,162.
Mueller, Charles L., to TRW Inc. Automatic grinding machine. 3,704,551, Cl. 51-5.000.
Mueller, Rolf K., to Bendix Corporation, The. Method and apparatus for providing an enhanced image of an object. 3,704,931, Cl. 350-3.500.
Mukai, Junji: *See—*
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Mulford, Jack A.: *See—*
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Muller-Lindemann, Dieter: *See—*
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Mundy, Joseph L., to General Electric Company. Content addressed memory cell with selective bit writing. 3,705,390, Cl. 340-173.0am.
Munsingwear, Inc.: *See—*
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Muralidhara, Ranya: *See—*
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Murayama, Keisuke; and Morimura, Syoji, to Sankyo Company Limited. Acrylic acid derivatives of 2,2,6, 6-tetramethylpiperidines. 3,705,166, Cl. 260-293.860.
Muroi, Tadashi; Sato, Mikio; and Ogata, Masatzugu, to Hitachi Ltd. and Hitachi Chemical Co., Ltd. Epoxy resin composition containing metallocenes. 3,705,129, Cl. 260-47.0ec.
Muse, Kenneth K. Taco shell jig. 3,705,042, Cl. 99-426.000.
Muth, Karl: *See—*
Weber, Helmut; Aumuller, Walter; Weyer, Rudi; Muth, Karl; and Stach, Kurt, 3,705,151.
Muzyczko, Haddeus M.; Shore, Samuel; and Martin, Jerome A., to Richardson Company, The. Non-oxidizing acidic compositions containing resin amine and acetylenic corrosion inhibitors. 3,705,106, Cl. 252-148.000.
Myers, John A. Method for making lengths of rope. 3,704,578, Cl. 57-1.00r.
N L Industries, Inc.: *See—*
Estes, James D.; and De Gough, Kirby, 3,704,749.
Weeks, Wyatt J., 3,704,962.
Nachtman, Elliot S., to La Salle Steel Company. Metals having improved machinability and method. 3,705,020, Cl. 29-182.800.
Nadolski, Francis Joseph, to American Cyanamid Company. Ink marking compositions. 3,705,045, Cl. 106-22.000.
Nagaki, Takehiro; and Yamamoto, Teruo, to Sony Corporation. Drive mechanism for use with information cards. 3,705,396, Cl. 340-174.10c.
Nagano, Akira: *See—*
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Nagayama, Masuzo: *See—*
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Nagayama, Masuzo; and Okada, Hiroshi, to Lion Fat and Oil Co., Ltd. Method of preparing light-colored olefin sulfonate. 3,705,192, Cl. 260-513.00r.
Nakamura, Isao; and Matsuzaki, Hiroshi, to Tokyo Shibaura Electric Co., Ltd. Duplex interphone. 3,705,412, Cl. 179-37.000.
Nakamuta, Masaji; Tsukui, Michio; Mukai, Junji; Narahara, Toshikazu; and Noguchi, Sumio, to Hitachi, Ltd. and Hitachi Chemical Co., Ltd. Polyester resin and method of manufacturing same. 3,705,208, Cl. 260-861.000.
Nakayama, Kiyoshi, to Kyowa Hakko Kogyo Co., Ltd. Method for producing nicotinamide adenine dinucleotide. 3,705,080, Cl. 195-28.00n.
Nakayama, Kiyoshi, to Kyowa Hakko Kogyo Co., Ltd. Method for producing nicotinamide adenine dinucleotide. 3,705,081, Cl. 195-28.00n.
Nakazawa, Shozo; and Ikeda, Osamu, to Daiichi Seiyaku Co., Ltd. Antibacterial composition. 3,705,243, Cl. 424-250.000.
Narahara, Toshikazu: *See—*
Nakamuta, Masaji; Tsukui, Michio; Mukai, Junji; Narahara, Toshikazu; and Noguchi, Sumio, 3,705,208.
Naruse, Oyhsuke; Ashiya, Ryosuke; Nii, Takehiko; and Fuse, Yuzo, to Sony Corporation. Shadow mask having apertures at intersections of barrel-shaped horizontal and pin cushion-shaped vertical lines. 3,705,322, Cl. 313-85.00s.
Naskar, Sasanka Sekhar; Hulsmann, Hans-Leo; and Renckhoff, Gustav, to Chemische Werke Witten GmbH. Process for the preparation of diphenyl terephthalate. 3,705,186, Cl. 260-475.0pn.
National Distillers and Chemical Corporation: *See—*
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National Research Development Corporation: *See—*
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Nedreski, Robert Joseph, to General Electric Company. Speed adjusting system for grinding wheel drives and the like. 3,704,556, Cl. 51-134.50r.
Neeff, Rutger: *See—*
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Neergaard, Ejler Baastrup, to Niels Erik Guldbaek Kaiser. Optical signal averaging apparatus. 3,704,939, Cl. 350-321.000.

Neff, Harry F.; and Sabo, Stephen C., to Goodrich, B. F., Company, The. Method of making a jack. 3,705,224, Cl. 264-96.000.
Neff, Ray A.; and Gowings, Dan D., to Visu-Phonics, Incorporated. Aircraft proximity device. 3,705,405, Cl. 343-112.0ca.
Nelson, Robert D., to Burroughs Corporation. Method for mounting connectors on printed circuit boards. 3,704,515, Cl. 29-626.000.
Neumann, John W.; Clark, Chester G.; and Minbiole, Louis J., Jr., to Oxy Metal Finishing Corporation, mesne. Processing apparatus. 3,704,685, Cl. 118-6.000.
Neuro-Data, Inc.: *See—*
John, Erwin Roy, 3,705,297.
Nicholds, Kenneth Edmund, to Hymatic Engineering Company Limited. Cooling apparatus. 3,704,597, Cl. 62-222.000.
Nicholson, Denzel Allan, to Procter and Gamble Company, The. Methylenediphosphonate esters. 3,705,219, Cl. 260-932.000.
Nicol, Edward A.; and Frederick, Harold M., to Burroughs Corporation. Sheet stacking device. 3,704,793, Cl. 214-7.000.
Nicolay, Karl; and Pollmeier, Konrad, to Durkoppwerke GmbH. Stacking device for flexible workpieces. 3,704,884, Cl. 271-85.000.
Nicolson, Garth Fancher; and Wilms, Carl Alfred, to Jackson, Byron, Inc. Power pipe tong with torque responsive brake means. 3,704,638, Cl. 81-57.180.
Nieboer, Pieter Hendrik, to DEMAG Aktiengesellschaft. Charging apparatus construction for a blast furnace. 3,704,992, Cl. 214-37.000.
Niedrach, Leonard W.; and Grubb, Willard T., to General Electric Company. Carbon dioxide sensor. 3,705,088, Cl. 204-195.00p.
Niels Erik Guldbaek Kaiser: *See—*
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Nienart, Louis F., to Allied Chemical Corporation. Novel hot-pressed refractory articles and preparation thereof. 3,705,112, Cl. 252-520.000.
Nigg, Paul, to Ego Werke AG. Food service tray with cutlery. 3,704,779, Cl. 206-47.00r.
Nihon Tokushu Noyaku Seizo Kabushiki Kaisha: *See—*
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Nippon Carbon Company Limited: *See—*
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Nippon Electric Company, Limited: *See—*
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Nishikawa, Eikichi, to Kyoritsu Manufacturing Company Limited. Electric vise. 3,704,879, Cl. 269-222.000.
Nishimoto, Tetsunori, to Kogyo Gijutsuin. Memory control system which enables access requests during block transfer. 3,705,388, Cl. 340-172.500.
Nishino, Tadashi: *See—*
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Noel, Eugene M.; and Connelly, Frank, said Connelly assor. to said Noel, Eugene M. Automatic splitting machine for hand-opened muffins. 3,704,735, Cl. 83-2.000.
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Nohmura, Ryotaro. Fish farming nest. 3,704,687, Cl. 119-3.000.
Nomura, Hirokazu, to Nippon Kokan Kabushiki Kaisha. Apparatus for forming T-welds between mutually perpendicular plates. 3,704,822, Cl. 228-25.000.
North American Rockwell Corporation: *See—*
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Northern Illinois Gas Company: *See—*
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Norton, Orien K. Seal for disposable media filter apparatus. 3,704,787, Cl. 210-387.000.
Nortron, Inc.: *See—*
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Noy, Jack M., to Kennecott Copper Corporation. Process for extracting molybdenum and rhenium from raw materials containing same. 3,705,230, Cl. 23-15.00w.
Noyori, Yasuyuki; Uehira, Eiji; and Katayama, Tadao, to Fujitsu Limited. Magnetic recording and reproducing apparatus. 3,705,273, Cl. 179-100.20z.
Nozaki, Choji: *See—*
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Nunes, John; Geary, Arthur L.; and Roberts, John A. Means and method of energy storage and damping. 3,704,877, Cl. 267-166.000.
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Oetzel, George N., to Standard Research Institute. Generation of high-power high-frequency radio impulses. 3,705,354, Cl. 325-106.000.
Ogata, Masatzugu: *See—*
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Ogiso, Mitsutoshi; and Yamada, Katsuhiko, to Canon Kabushiki Kaisha. Exposure detector device and a camera system with the exposure detector device. 3,704,656, Cl. 95-42.000.
Ohga, Shizuo; Yasutomi, Hideatsu; and Fujita, Masuo. 2,2'-Dichlorodiisopropyl ether as a nematocide. 3,705,252, Cl. 424-342.000.
Ohi, Reiichi: *See—*
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Ohta, Noriyuki: *See—*
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Okada, Hisao; and Morita, Koji, to Sony Corporation. Control signal generator with selectively switchable duration control circuit. 3,705,363, Cl. 331-174.000.
Okada, Kazuya: *See—*
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Okada, Takashi, to Sony Corporation. Video signal control circuit for color television. 3,705,260, Cl. 178-5.40r.
Okamoto, Hiroshi; and Okada, Kazuya, to Kawasaki Jukogyo Kabushiki Kaisha. Method of correcting a number of revolution of a screw propeller. 3,704,500, Cl. 29-401.000.
Okamoto, Miyoshi; Mizuguchi, Shunji; and Watanabe, Koji, to Toray Industries, Inc. Artificial leather and a method of manufacturing the same. 3,705,226, Cl. 264-162.000.
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Ord, Michael. Airplane hijacking prevention system. 3,704,845, Cl. 244-121.000.
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Orr, LaVern G.; and Yutani, Nobuo, to Boeing Company, The. Electromagnetic high energy forming. 3,704,506, Cl. 29-243.540.
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  - Preston, Jerome A.; and Davis, Carlton J., Sr., 3,705,125.
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- Oxy Metal Finishing Corporation, mesne: *See—*
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- Packel, Morton A., to Moore Products Co. Strip chart recorder. 3,705,425, Cl. 346-72.000.
- Page, Hans-Peter: *See—*
  - Krock, Alwin; Page, Hans-Peter; and Hirschmann, Joachim, 3,705,389.
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- Palencher, Jacques; and Penard, Michel, to Societe dite: Lebacey Industrie. Moving frame measuring device. 3,705,351, Cl. 324-151.00r.
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- Palmer, Fred Irwin; and Fogleboch, John Richard, to RCA Corporation. Wide dynamic range product detector. 3,705,355, Cl. 325-450.000.
- Pan, Coda Hoong-Tao, to Mechanical Technology Incorporated. Combination clamping and bearing system. 3,704,920, Cl. 308-9.000.
- Panhard, Jean, to Societe de Construction Mecaniques Pamhard & Levassor. Post-combustion devices for internal combustion engines. 3,704,592, Cl. 60-290.000.
- Pannier, Karl A., Jr.: *See—*
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- Papaioannou, Christos George, to American Cyanamid Company. Preparation of 2-substituted-5-amino or substituted amino 1,3,4-thiadiazoles. 3,705,171, Cl. 260-306.80d.
- Paramonoff, Elpidifor, to Standum, Inc. Redraw blankholder positioning mechanism for cup-shaped article formers such as metallic can body formers and the like. 3,704,619, Cl. 72-349.000.
- Parikh, Jekishan R.; and Breuer, Max E., to Upjohn Company, The. Method for the preparation of 6-methyl-3-oxo-delta 4,6-steroids. 3,705,181, Cl. 260-397.400.
- Park, Sang C. Catheter. 3,704,711, Cl. 128-305.000.
- Parks, Howard L., to Bunker-Ramo Corporation, The. Electrical circuit packaging structure and method of fabrication thereof. 3,705,332, Cl. 317-101.0cm.
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- Pawletko, Joseph P.: *See—*
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- Pearson, Alan; and Marhanka, John E., to Aluminum Company of America. Producing sintered alumina fibers from an alumina slip of very high solids content. 3,705,223, Cl. 264-56.000.
- Peil, William; Daino, Peter R.; and Sauter, Lon J., to General Electric Company. Push-button switch assembly. 3,705,367, Cl. 335-186.000.
- Pelluet, Jacques Guy, to Societe Anonyme: Les Produits Organiques du Santerre Orsan. Method for extracting and separating enzymes. 3,705,085, Cl. 195-66.00r.
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- Penton, Hugh V.; and Dunphy, Gerald P., to California Metal Enameling Company. Sign construction including novel section assemblies and section joinders. 3,704,535, Cl. 40-125.00k.
- Peonski, Edward, to American Gage & Machine Company. Machine tool and gaging apparatus. 3,704,557, Cl. 51-165.750.
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  - Chai, Hi D.; Mills, Stephen H.; Pawletko, Joseph P.; Peters, Francis E.; and Young, Carl T., 3,705,370.
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- Petersen, Ross. Tablet press. 3,704,976, Cl. 425-352.000.
- Peterson, Donald L.: *See—*
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- Petree, Harris E., to Ciba-Geigy Corporation. Suppression of tris(alkylamino)-s-triazine formation in the production of chloro-bis (alkylamino)-s-triazines through the addition of formaldehyde. 3,705,156, Cl. 260-249.800.
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- Petrocci, Alfonso N.: *See—*
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  - Keith, Carl D.; and Pfefferle, William C., 3,705,094.
  - Keith, Carl D.; and Pfefferle, William C., 3,705,994.
- Pfeiffer, Francis R.; and Weisbach, Jerry A., to Smith Kline & French Laboratories. Adamantoyl and adamantyl (alkyl) glycerophosphoryl (and phosphonyl) ethanolamines. 3,705,213, Cl. 260-945.000.
- Pfiffner, Albert: *See—*
  - Chodnekar, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert; and Schwieter, Ulrich, 3,705,187.
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  - Savey, Lenfred L., 3,705,422.
- Philip, Alexander Schroder, to Plessey Handel und Investments A.G. Telephone switching systems. 3,705,266, Cl. 179-15.0at.
- Philippaerts, Herman Adelbert; Ghys, Theofiel Hubert; and Depoorter, Henri, to Gevaert-Agfa N.V. Spectral sensitization of silver halide Lippman emulsions. 3,705,038, Cl. 96-140.000.
- Phys-Chemical Research Corporation: *See—*
  - Hershler, Abe, 3,705,375.
- Piacentino, Thomas J., to Longwood Development Corporation. Apparatus for working the compost of mushroom beds. 3,704,752, Cl. 172-116.000.
- Piccitto, Francesco. Pedal operated water sport vehicle. 3,704,682, Cl. 115-26.300.
- Pickett, Charles G.; and Chadha, Desh D., to Bio-Medical Sciences, Inc. Temperature indicator. 3,704,985, Cl. 73-356.000.
- Piech, Ferdinand V., to Porsche, Dr.-Ing. H.c.F., K.G., Firma. Combined crankshaft for multi-cylinder piston engines, especially internal combustion engines. 3,704,636, Cl. 74-597.000.
- Pillsbury Company, The: *See—*
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  - Marmor, Ralph A.; and Brandberg, Lawrence C., 3,705,012.
  - Wilson, Jerry M., 3,704,688.
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  - Hansen, Robert A.; and Jerchower, Lewis A., 3,704,547.
- Pipkin, Edward L., to United States of America, Navy. Resonant target sonar system. 3,705,381, Cl. 340-3.00r.
- Pipkins, David D., to Valspar Corporation, The. Method for manufacturing paints and inks, and product produced thereby. 3,705,044, Cl. 106-20.000.
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  - Saint Onge, Ronald J.; and Sherman, Charles I., 3,704,668.
  - Schrempp, Ernst; and Beck, Christian A., 3,704,686.
  - Zucker, Fredric E.; Kaswer, Joseph, Jr.; and Wilczynski, Thomas S., 3,704,890.
- Pitt, Richard E., to Owens-Corning Fiberglas Corporation. Method and apparatus for reducing torque changes in rock shafts. 3,704,878, Cl. 267-182.000.
- Pittet, Alan O.; Muralidhara, Ranya; and Theimer, Ernst T., to International Flavors & Fragrances, Inc. Bicyclic dehydropiperazine compositions. 3,705,158, Cl. 260-250.00r.
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  - Vargiu, Silvio; Pitzalis, Mario; and Abruzzi, Pierluigi, 3,705,116.
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- Plachenov, Tikhon Grigorievich; Belotserkovsky, Grigory Markovich; Dolgova, Ekaterina Nikolaevna; Ezhov, Jury Valentinovich; Fogel, Vladimir Alexandrovich; Benediktov, Andrei Pavlovich; and Avilov, Iliya Yakovlevich, to Leningradsky Tekhnologichesky Imeni ensoveta. Dehumidifying composition and a method for preparing the same. 3,704,806, Cl. 220-64.000.
- Plaskolite, Inc.: *See—*
  - Lee, Jimmy D., 3,705,221.
- Plastetics, Inc.: *See—*
  - Bellasalma, Gerald J., 3,704,675.

- Plemmons, Jerry R.; and Raymond, Mark H., to General Electric Company. Luminaire. 3,705,300, Cl. 240-25.000.
- Plempel, Manfred: *See—*
  - Buchel, Karl-Heinz; Regel, Erik K.; and Plempel, Manfred, 3,705,172.
- Plessey Handel und Investments A.G.: *See—*
  - Philip, Alexander Schroder, 3,705,266.
- Plummer, William T., to Polaroid Corporation. Method and apparatus for fabricating imaging means. 3,704,617, Cl. 72-311.000.
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  - Hansen, Eric Lowell; McNoldy, Larry Benjamin; and Pohl, Karl-Heinz, 3,705,377.
- Pohr, Jack. Fly gun. 3,704,981, Cl. 43-135.000.
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  - Goulston, Arthur B.; and Huyffer, Paul S., 3,705,184.
  - Plummer, William T., 3,704,617.
- Polgar, Michael S.: *See—*
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- Poncet-Montange, Daniel: *See—*
  - Kneller, Klaus; Poncet-Montange, Daniel; Prost, Jean-Louis; and Trub, Jean, 3,704,972.
- Ponder, Charles L. Nursing bottle. 3,704,803, Cl. 215-11.00a.
- Popkov, Eduard Jurievich: *See—*
  - Kuznetsov, Lev Vasilievich; Slavinsky, Zunya Mikhalevich; Kalachev, Vasily Alexeevich; Krupin, Alexandr Leonidovich; Aristarkhov, Nikolal Alexandrovich; Popkov, Eduard Jurievich; Trutnev, Vladimir Alexandrovich; and Bulychev, Nikolai Petrovich, 3,704,496.
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- Poss, Emilio, to TIMI S.p.A. Device for positioning workpieces in a pre-established sequence of machining positions. 3,704,956, Cl. 408-91.000.
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  - Snead, William K.; and Knoop, John F., 3,705,008.
- Prast, Gijsbert; and Hargreaves, Clifford McDonald, to U.S. Phillips Corporation. Cryogenic refrigerator. 3,704,600, Cl. 62-457.000.
- Pratley, Clifford, to Hobart Manufacturing Company, The. Food slicing machines. 3,704,736, Cl. 146-102.00c.
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  - McIntosh, Robert H.; and Hull, Ezekiel H., 3,705,235.
- Prem, Lawrence L., to North American Rockwell Corporation. Energy conversion system utilizing exothermic reactions. 3,705,317, Cl. 310-11.000.
- Premyslovsky, Jiri: *See—*
  - Bayer, Oldrich; Snasel, Josef; Premyslovsky, Jiri; and Smalcl, Frantisek, 3,704,654.
- Preston, Jerome A.; and Davis, Carlton J., Sr., to Owens-Corning Fiberglas Corporation. Material for bonding resins to glass fibers and composites made therefrom. 3,705,125, Cl. 260-37.00n.
- Preu, Hans L., to American Hoist and Derrick Company. Articulated linkage connection for an escavating machine. 3,704,534, Cl. 37-83.000.
- Prevorsek, Dusan C.: *See—*
  - Lamb, George E. R.; Prevorsek, Dusan C.; Kotliar, Abraham M.; and Oswald, Hendrikus J., 3,705,074.
- Price, David D., Jr.: *See—*
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- Priestley, Ronald. Gas/liquid film contact apparatus. 3,704,869, Cl. 261-112.000.
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- Prost, Jean-Louis: *See—*
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- Quay, Roy G., to Petty Geophysical Engineering Company. Methods for improved deconvolution of seismic or similar data. 3,705,382, Cl. 340-15.5rr.
- Quick, Graeme R., to Iowa State University Research Foundation. Fruit and vegetable harvesting device. 3,704,576, Cl. 56-330.000.
- Rabiger, Wolfgang, to Grundig, E.M.V. Process for controlling and regulating piston-driven engines with hydrostatic motion transducers. 3,704,585, Cl. 60-1.000.
- Rabow, Gerald, to International Telephone and Telegraph Corporation. Frequency modulation demodulation system. 3,705,360, Cl. 329-110.000.
- Raciunas, Kazys. Skiing teaching device. 3,704,885, Cl. 272-57.00b.
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- Ranz, Erwin; Weyde, Edith; and Von Rintelen, Harald, to Agfa-Gevaert Aktiengesellschaft. Process for the production of photographic images. 3,705,033, Cl. 96-29.00r.
- Raphaelian, Leo A.: *See—*
  - Taber, David; and Raphaelian, Leo A., 3,705,104.
- Raschdorf, Richard. Garment bag. 3,704,778, Cl. 206-7.000.
- Ratliff, Goerge D., Jr., to United States Steel Corporation. Support assembly. 3,704,560, Cl. 52-122.000.
- Raymond, Mark H.: *See—*
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- Raynor, Russell C.: *See—*
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- Raytheon Company: *See—*
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  - Palmer, Fred Irwin; and Fogleboch, John Richard, 3,705,355.
  - Shidlovsky, Igal, 3,705,323.
- Reber, Walter, to Societe dite: Societe Kuhn Freres & Cie. Societe en Commandite Simple. Mechanism for regulating tool-carrier arms on spinner-type agricultural machines. 3,704,577, Cl. 56-370.000.
- Redelman, Paul E., to Interlake Steel Corporation. Hydraulic load carrier. 3,704,800, Cl. 214-730.000.
- Reehil, Edward G.: *See—*
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- Reeves, Alec Harley; Ramsay, Melvin Murray; Mounter, Anthony Edmund; and Laurence, Simon French, to International Standard Electric Corporation. Optical repeater with phase error correction. 3,705,307, Cl. 250-199.000.
- Reeves, John F., to Litewate Transport Equipment Corporation. Apparatus for reinforced plastic molding. 3,704,970, Cl. 425-128.000.
- Regel, Erik K.: *See—*
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- Reichhold-Albert-Chemie Aktiengesellschaft: *See—*
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- Reimann, Hubertus, to VEB Pentacon Dresen Kamera- und Kinwerke. Micro-film camera. 3,704,947, Cl. 355-68.000.
- Reimers Getriebe A.G.: *See—*
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- Remaud, Jacques, to Regie Nationale des Usines Renault and Automobiles Peugeot. Trim-correcting devices for vehicles. 3,704,895, Cl. 280-124.00f.
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- Renfrew, Robert Morrison; and Rees, Peter Leon, to Husky Manufacturing & Toolworks, Ltd. Electro-hydraulic means for opening and closing injection molds. 3,704,973, Cl. 425-150.000.
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- Rev Master Industries, Inc.: *See—*
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- Rex Chainbelt Inc.: *See—*
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  - Gley, Paul R., 3,704,907.
  - Marks, Walter R., 3,704,631.
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- Reynolds, Gordon S.: *See—*
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- Reynolds, John H., to Monsanto Company. Macroporous enzyme reactor. 3,705,084, Cl. 195-63.000.
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- Rhoades, John M., to General Electric Company. Automatic tool setting sensor. 3,704,641, Cl. 82-14.00r.
- Rhoades, John M.; and Cooper, Carroll C., to General Electric Company. Automatic servo motor control for lathes providing SFM and chip thickness control. 3,705,339, Cl. 318-571.000.

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- Richter, Johan C. F. C., to Aktiebolaget Kamyr Karlstad. Cellulose bleaching plant. 3,704,603, Cl. 68-18.00f.
- Rieke, James K.: *See—*
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- Robins, Morris J.; and Currie, Bruce L., to University of Utah. 3-Deazapyrimidine nucleosides and method of preparation thereof. 3,705,147, Cl. 260-211.500.
- Rock, Salvatore J. Necktie rack. 3,704,790, Cl. 211-13.000.
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- Rosenberg, Otto, to Agfa-Gevaert Aktiengesellschaft. Electronic flash circuit for photography. 3,705,330, Cl. 315-149.000.
- Rosenblatt, Leonard; Horn, Chris C.; and Gallo, Mario S., to Globe Illumination Company. Spring latch structure. 3,704,905, Cl. 292-175.000.
- Rosencranz, Robert, to Sargent-Welch Scientific Company. Electrical system for use in optical densitometry. 3,704,950, Cl. 356-73.000.
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- Rosvold, Donald M., to Minnesota Mining and Manufacturing Company. Underpacking for printing with dimensionally stable plastic core having elastomeric and pressure sensitive outer layers. 3,705,072, Cl. 161-167.000.
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- Ruckle, Robert A.: *See—*
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- Rudd, Kenneth Norman. Hooks and eyes. 3,704,489, Cl. 24-122.300.
- Rudel, Kurt, to Gerdts, Gustav F., KG. Safety device for valves of tank wagon bottoms. 3,704,718, Cl. 137-39.000.
- Ruegg, Rudolf: *See—*
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- Rundt, John W., to Timken Company, The. Method of welding bearing components. 3,704,498, Cl. 29-148.40a.
- Ruscitti, Tomaso, to Coster Tecnologie Speciali S.p.A. Valve for dispensing two distinct liquids from an aerosol container. 3,704,814, Cl. 222-145.000.
- Russek, Simon E., Jr. Filler tube locking device. 3,704,606, Cl. 70-164.000.
- Russell, William G., to Electrohome Limited. AFT system for signal receiver of type having tuner employing varactor diode. 3,705,356, Cl. 325-465.000.
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- Saint Onge, Ronald J.; and Sherman, Charles I., to Pitney-Bowes, Inc. Document imprinter for credit cards or the like. 3,704,668, Cl. 101-269.000.
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- Sakaguchi, Mitsuhito; and Nishida, Nobuo, to Nippon Electric Company, Limited. Large capacity associative memory employing holography. 3,704,929, Cl. 350-3.500.
- Sakai, Shozi, to Murata Machinery, Ltd. Automatic cop feeder. 3,704,810, Cl. 221-236.000.
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- Santa Fe International Corporation: *See—*
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- Santho, Albert T. Cargo securing apparatus and methods. 3,704,672, Cl. 105-369.00a.
- Sarem, Amir M.; and Holm, Leroy W., to Union Oil Company of California. Process for recovering oil from heterogeneous reservoirs. 3,704,990, Cl. 166-273.000.
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- Sarto, Jorma O.; and Dawson, Gary D., to Chrysler Corporation. Notched door valve for control carburetor air and crankcase vapors. 3,704,698, Cl. 123-119.00b.
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- Saunders, Leonard M., to United States Steel Corporation. Method of making sound large generally cylindrical ingots. 3,704,745, Cl. 164-126.000.
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- Sayer, William H., Jr., to Varian Associates. Microwave applicator employing a broadside slot radiator. 3,705,283, Cl. 219-10.550.
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- Scherm, Arthur; and Peteri, Dezso, to Merz & Co., Chemische Fabrik. Aminoadamantane derivatives and method for their production. 3,705,194, Cl. 260-561.00a.
- Schick, Dieter, to Leitz, Ernst, G.m.b.H. Stereomicroscope. 3,704,932, Cl. 350-35.000.
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- Schmalfeld, Paul; and Hahn, Helmut, to Metallgesellschaft Aktiengesellschaft. Coal carbonizing in trickling streams. 3,705,086, Cl. 201-34.000.
- Schmidt, Kenneth J., to General Trailer Co., Inc. Vehicle axle suspension. 3,704,898, Cl. 280-124.00r.
- Schmidt, Ulrich: *See—*
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- Schmitt, Fred A., to Litton Business Systems, Inc. Support. 3,704,847, Cl. 248-127.000.
- Schmitz, Ambrose J.; McCarty, William R.; and Erickson, Howard L., to Eaton Corporation. Fluid control system. 3,704,721, Cl. 137-102.000.
- Schneider, Jack M.: *See—*
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- Schneider, Rupert, to Sandoz Ltd.; a/k/a Sandoz AG. Herbicidal 2,4-di(substituted) amino-6-chloro pyrimidines. 3,705,159, Cl. 260-256.40n.
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- Schrader, Gerhard; Scheinpflug, Hans; Jung, Herbert F.; Kuyama, Shimpei; Kishino, Shigeo; and Yamada, Yasuo, to Nihon Tokushu Noyaku Seizo Kabushiki Kaisha. Fungicidal process employing organic phosphorous acid esters. 3,705,241, Cl. 424-223.000.
- Schrader, Robert W.: *See—*
  - Dotson, Billy R.; Schrader, Robert W.; Twomey, Marilyn A.; and Williams, Robert F., Jr., 3,705,148.
- Schreiber, Manfred, to Maschinenfabrik Schweiter AG. Conditioning apparatus for yarn or thread. 3,704,494, Cl. 28-59.000.
- Schrempp, Ernst; and Beck, Christian A., to Pitney-Bowes, Inc. Toner pump. 3,704,686, Cl. 118-429.000.
- Schrodt, Rudolf, to Reimers Getriebe A.G. Infinitely variable cone pulley transmission. 3,704,634, Cl. 74-230.17f.
- Schubeck, Joseph J., to Lakewood Industries, Inc. Traction device. 3,704,876, Cl. 267-66.000.
- Schultenkampger, Josef: *See—*
  - Kleinschmidt, Hans-Joachim; and Schultenkampger, Josef, 3,704,922.
- Schultz, Robert S. Child resistant safety cap closure assembly for a container. 3,704,802, Cl. 215-9.000.
- Schuster, Donald E. Bolster hoist for a dump vehicle. 3,704,913, Cl. 298-22.00j.
- Schwartz, Jerome, to Taylor Lock Company. Door chain lock. 3,704,908, Cl. 292-264.000.
- Schwarz, Robert J.: *See—*
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- Schweizerische Industrie-Gesellschaft: *See—*
  - Kneller, Klaus; Poncet-Montange, Daniel; Prost, Jean-Louis; and Trub, Jean, 3,704,972.
- Schwendeman, Wayne C., Jr. Key actuated switch. 3,705,369, Cl. 335-206.000.
- Schwieter, Ulrich: *See—*
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- Scott, Allan W. Microwave generator with interleaved focusing and interaction structures. 3,705,327, Cl. 315-3.500.
- Scott, Douglas R. Pneumatically actuated timer programming cam mechanism and switch. 3,705,278, Cl. 200-33.00b.
- Scott, Eugene W., to Westinghouse Electric Corporation. Reversible wall box for recessed water cooler. 3,704,925, Cl. 312-228.900.
- Scott, Francis A. Electrical alarm system. 3,705,401, Cl. 340-412.000.
- Seals, Calvin L. Nature art wood grain painting kit. 3,704,531, Cl. 35-26.000.
- Searle, G. D., & Co.: *See—*
  - Krimmel, Carl Peter, 3,705,141.
- Sedgwick, Robert K.; Behrendt, Werner K.; and Baechle, Hans J., to Kearney & Trecker Corporation. Machine tool with tool changer. 3,704,510, Cl. 29-568.000.
- Sedley, Bruce S., to Geer Hydraulics, Inc. Multi-code, tamper proof, card-operable magnetic locking mechanism. 3,705,277, Cl. 200-45.000.
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- Seeter, Richard E., Jr.; and Hodgson, George T., Jr., to Chomerics, Inc. Keyboard switch assembly with conductive plastic contactor and actuator spring sleeve biasing means. 3,705,276, Cl. 200-5.00a.
- Segawa, Humio: *See—*
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- Selby, Richard N.; and Williams, Donald M., to Du Pont de Nemours, E. I., and Company. Water-based enamel formulations from acrylic hydrosols. 3,705,124, Cl. 260-29.6ta.
- Semenova, Ljubov Mikhailovna: *See—*
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- Senkewich, Alexander Martin. Automobile cigarette case with an automatic electrical lighter. 3,705,414, Cl. 219-262.000.
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- Sergeev, Vladimir Alexandrovich: *See—*
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- Sessions, Donald W. Hulls in water craft. 3,704,473, Cl. 9-2.00s.
- Sessler, Gerhard Martin; and West, James Edward, to Bell Telephone Laboratories, Incorporated. Preparation of electret transducer elements by application of controlled breakdown electric field. 3,705,312, Cl. 307-88.0et.
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- Shachat, Norman: *See—*
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- Sharman, Samuel H., to Chevron Research Company. Hydrogenated olefin sulfonate-alkyl-1,2-glycol detergent compositions. 3,705,113, Cl. 252-555.000.
- Sheafe, Edward A., III. Beverage container having integral formed lip guard. 3,704,805, Cl. 220-54.000.
- Sheesley, John M.; and Gulick, Ronald A., to Research Engineering Company. Actuator. 3,704,986, Cl. 92-138.000.
- Shell Oil Company: *See—*
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- Shidlovsky, Igal, to RCA Corporation. Cathodochromic sodalite and cathode ray tube employing same. 3,705,323, Cl. 313-91.000.
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- Siegel, Arthur R., to International Business Machines Corporation. Unitary electro-optic array device making process. 3,704,512, Cl. 29-572.000.
- Siegler, Edouard Horace, Jr., to Cary Instruments. Radiation entrapping, multi-reflection Raman sample cell employing a single concave mirror. 3,704,955, Cl. 356-244.000.
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- Skarivrda, Edwin Larry, to AMF Incorporated. Time switch with indexing means for programming. 3,704,629, Cl. 74-3.520.
- Skytta, Osmo. Bearing box support for the shaft of a drying cylinder in a paper machine. 3,704,921, Cl. 308-22.000.
- Slavinsky, Zunya Mikhalevich: *See—*
  - Kuznetsov, Lev Vasilievich; Slavinsky, Zunya Mikhalevich; Kalachev, Vasily Alexeevich; Krupin, Alexandr Leonidovich; Aristarkhov, Nikolai Alexandrovich; Popkov, Eduard Jurievich; Trutnev, Vladimir Alexandrovich; and Bulychev, Nikolai Petrovich, 3,704,496.
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- Sliwkowski, Joseph J.; and Fryklund, Gilbert, to Computervision Corporation. Adaptive optical focusing system. 3,704,657, Cl. 95-44.00r.

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- Smith Kline & French Laboratories: *See—*
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- Smith, Luther W., to American Optical Corporation. Variable amplitude polarizing beam splitter. 3,704,997, Cl. 350-157.000.
- Smith, Thomas F.; and Frederick, Richard E., to General Electric Company. Gas turbine exhaust silencer and support. 3,704,762, Cl. 181-33.0hb.
- Smith, William E., to Dow Chemical Company, The. Method for purifying biphenyl. 3,705,203, Cl. 260-674.00r.
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  - Vargiu, Silvio; Pitzalis, Mario; and Abruzzi, Pierluigi, 3,705,117.
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- Societe Lyonnaise de Plomberie Industrielle: *See—*
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- Sorenson, James L.; Reynolds, Gordon S.; and Pannier, Karl A., Jr., to Le Voy's, Inc. Disposable body drainage receiver. 3,704,709, Cl. 128-277.000.
- Soto, Eduardo Rodriguez; and Longo, Joaquin. Tool having a head and a handle. 3,704,734, Cl. 145-29.00b.
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- South, William H.; and Dillman, Thayer L., to Westinghouse Electric Corporation. AC generator system including differential protection of exciter. 3,705,331, Cl. 317-13.00r.
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- Speakman, Edwin L., to Standard Brands Incorporated. Starch product. 3,705,046, Cl. 106-213.000.
- Spencer, Glenn S., to Bendix Corporation, The. One-way time delay electromagnetic clutch. 3,704,769, Cl. 192-52.000.
- Spencer, Glenn S., to Bendix Corporation, The. Adjustable time delay electromagnetic clutch. 3,704,770, Cl. 192-52.000.
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  - McMahon, Donald H., 3,704,930.
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- Stanadyne, Inc.: *See—*
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- Sterret, John D., Jr., to Westinghouse Electric Corporation. Rolling mill gauge control during acceleration. 3,704,609, Cl. 72-8.000.
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- Stork, Fritz, to Telefunken Patentverwertunzsgesellschaft m.b.H. Method of producing a semiconductor or thick film device. 3,705,060, Cl. 156-3.000.
- Stout, Thomas C.; and Kaiser, Andrew J., to Brunswick Corporation. Metallic composite sheathed element. 3,705,022, Cl. 29-191.600.
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  - Koegler, Ansel A., 3,704,504.
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- Studer, Hans-Luzius; Petri, Eckart; Wurmstedt, Karl; and Haas, Jan Tomas, to Hambger Flugzeubau GmbH. Aircraft fan with outflow deflectors. 3,704,828, Cl. 239-265.190.
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- Suchowski, Bernard, to Alsu Development Corporation. Doll. 3,704,542, Cl. 46-135.00r.
- Suda, Katsuhide, to Xerox Corporation. Transfer sheet peeling device for xerographic apparatus. 3,704,881, Cl. 271-51.000.
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- Szmuszkovicz, Jacob, to Upjohn Company, The. 1,3-Aminoalcohols. 3,705,176, Cl. 260-326.50m.
- Szostak, Roland; Hartwig, Karl; and Maurischat, Gunter, to Agfa-Gevaert Aktiengesellschaft. Electronic copying equipment with controlled heater. 3,705,289, Cl. 219-216.000.
- Taber, David; and Raphaelian, Leo A. Synergistic antiseptic compositions. 3,705,104, Cl. 252-107.000.
- Taira, Yasunori, to Tokyo Giken Kogyo Kabushiki Kaisha. Cold-working plastic bending machine. 3,704,616, Cl. 72-167.000.
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- Tatsutomi, Yasuo, to Toyo Kogyo Co., Ltd. System for purifying exhaust gas of an internal combustion engine. 3,704,591, Cl. 60-290.000.
- Taylor, Billy W. Resealable test tube. 3,705,018, Cl. 23-292.000.
- Taylor Lock Company: *See—*
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- Wernli AG Verbandstoff-Fabrik-Weberei: *See*—
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- Wernli, Karl, to Wernli AG Verbandstoff-Fabrik-Weberei. Warpbeam brake device. 3,704,731, Cl. 139-109.000.
- Wesemeyer, Jurgen, to Bosch, Robert, G.m.b.H. Ignition arrangement for internal combustion engines having an alternating current generator. 3,704,700, Cl. 123-148.00e.
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  - Meyers, Benjamin F.; and Oldis, John E., Jr., 3,704,502.
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- Weymann, Werner, to Daimler-Benz Aktiengesellschaft. Installation for the advance of the ignition point. 3,704,697, Cl. 123-117.00a.
- Whaledent, Inc.: *See*—
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- Wheat, Fred O. Solenoid valve assembly. 3,704,833, Cl. 239-585.000.
- Wheaton Industries: *See*—
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- Whirlpool Corporation: *See*—
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- Whitaker, Wiley M. Broom having a removable pivotable handle. 3,704,479, Cl. 15-172.000.
- Whitaker, Wiley M. Mop having a removable pivotable handle. 3,704,480, Cl. 15-144.00r.
- Wickersham, Arthur F., to Stanford Research Institute. Radio surface wave antenna. 3,705,407, Cl. 343-830.000.
- Wiegand, Gretchen Ellen; Bauer, Victor John; and Safir, Sidney Robert, to American Cyanamid Company. Azolylpyridazine compounds and quaternary salts thereof. 3,705,157, Cl. 260-250.00a.
- Wiegleb, Edward A., to Celotex Corporation, The. Safety door latch. 3,704,548, Cl. 49-199.000.
- Wiese, Lee R., to Henschel-Steinau, Inc., mesne. Knock-down display. 3,704,792, Cl. 211-126.000.
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- Wilder, Paul R.; and Smallwood, Donald L., to Dover Corporation. Cartridge insert for a dispensing nozzle. 3,704,817, Cl. 222-482.000.
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- Wilhelm, Frederick C., to Universal Oil Products Company. Catalytic composite of platinum group metal nickel, group metal and friedelcrafts metal halide on oxide support. 3,705,111, Cl. 252-439.000.
- Willcott, Walter F. Adjustable torso support attachment for wheel chairs and the like. 3,704,910, Cl. 297-411.000.
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  - Vernooy, Burton, 3,704,478.
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  - Nicolson, Garth Fancher; and Wilms, Carl Alfred, 3,704,638.
- Wilson, Jerry M., to Pillsbury Company, The. Method and apparatus for handling fowl. 3,704,688, Cl. 119-22.000.
- Wilson, Lee, Engineering Company, Inc.: *See*—
  - Hicks, Gerald W., 3,705,253.
- Wiltse, James: *See*—
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- Winkler, Alfred; Zanner, Johann; Fischern, Bernhard V.; and Fuchslf, Klaus, to Agfa-Gevaert Aktiengesellschift. Motion picture projector. 3,704,941, Cl. 352-92.000.
- Winkler, Julius G., to Compo Industries, Inc. Method of string-lasting. 3,704,474, Cl. 12-145.000.
- Withrow, James Bruce; and Gardner, Earl William, to Duff-Norton Company, Inc. Overload clutch. 3,704,765, Cl. 188-134.000.
- Witzig, Werner, to Sonoco Products Company. Convolute tube and method for making same. 3,704,730, Cl. 138-144.000.
- Wolda, Tiete O., to Boyles Industries Limited, mesne. Retrieving and lowering system for a core barrel. 3,704,755, Cl. 175-246.000.
- Wolda, Tiete O., to Boyles Industries Limited, mesne. Apparatus for lowering and retrieving a core barrel. 3,704,756, Cl. 175-246.000.
- Wolf, Jurgen: *See*—
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- Wolfgang, Lozure G., to International Telephone and Telegraph Corporation. Electron tube with bonded external semiconductor electrode. 3,705,321, Cl. 313-65.0ab.
- Wolfinger, Mark Dennis, to Monsanto Company. Inhibiting premature vulcanization of diene rubbers with N-thioformamides. 3,705,135, Cl. 260-79.50b.
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- Yamamoto, Syunichi: *See*—
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- Yamane, Izumi; Nagayama, Masuzo; and Takai, Makoto, to Lion Fat & Oil Co., Ltd. High molecular composition. 3,705,139, Cl. 260-92.80a.

- Yamano, Togo; Henmi, Teruji; Usui, Yoshiro; Noda, Etsunosuke; and Yamada, Masayuki, to Takeda Chemical Industries, Ltd. Antidermatophytosic composition and method of use. 3,705,246, Cl. 424-270.000.
- Yamanouchi, Teruo: *See*—
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- Yuguchi, Sadao: *See*—
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- Yutani, Nobuo: *See*—
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- Zabiak, Daniel M., to Dick, A. B., Company. Infrared absorptive jet printing ink composition. 3,705,043, Cl. 106-20.000.
- Zagar, Irvin Frank, to Wilfley, A. R., and Sons, Inc. Vertical centrifugal pump. 3,704,960, Cl. 415-131.000.
- Zakarian, A. David: *See*—
  - Beaver, Bud K.; and Zakarian, A. David, 3,704,552.
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- Zeigler, Rodney N.: *See*—
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- Zhigulev, Petr Georgievich: *See*—
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- Zickefoose, Rox L.; Miller, Gerald G.; and Judge, James R., to National Steel Corporation. Sampling bomb and method of sampling and analyzing a heat of unkilled steel. 3,704,621, Cl. 73-425.40r.
- Zimmerman, Abraham A.; Furlong, Louis E.; and Shannon, Hugh F., to Esso Research and Engineering Company. Fuel distribution in a gasoline engine. 3,705,024, Cl. 44-72.000.
- Zimmermann, F., & Co., Firma: *See*—
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- Zimmermann, Firtz: *See*—
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- Zimmermann, Gert, to Zimmermann, F., & Co., Firma. Method and apparatus for packing vertically stacked stamps and other articles in a shrinking firm. 3,704,566, Cl. 53-30.000.
- Zucker, Fredric E.; Kaswer, Joseph, Jr.; and Wilczynski, Thomas S., to Pitney-Bowes Inc. Device for displaying symbols in a pseudo-random sequence. 3,704,890, Cl. 273-143.00r.

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TO WHOM

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Alleman, Benjamin D., to Neptune Winch Corp. Multiple winch. 225,357, 12–5–72, Cl. D41—1.
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Broadley, Eric Harrison, to Lola Cars Ltd. Model racing car. 225,352, 12–5–72, Cl. D34—15.
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CLASSIFICATION OF PATENTS

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

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PATENT OFFICE NOTICES

Machine Search Service

The mechanized retrieval system formerly used by the Patent Office in making examiner searches in the field of steroids has been replaced by the ICIREPAT Shared System for this field (System ST). This new system is based upon the original U.S. Patent Office system, with certain additions and modifications. Following are the changes that have been or are being effected:

1. Two sub-systems have been created, one for steroid structures and the other for processes which produce steroid structures.
2. Patents relating to seco, nor, homo- and hetero steroids are within the scope of the new ICIREPAT system and are being added to the system.
3. The new system does not at this time include U.S. patents issued prior to 1965. It is anticipated that U.S. patents from 1961–1964 will be added. To date, no plans have been made for the indexing of non-patent literature.
4. Foreign patents relating to structures and processes within the scope of the sub-systems are being indexed by cooperating foreign patent offices.
5. The ICIREPAT structure sub-system includes substantially the same capabilities for searching compounds as the old system; the card format, however, has been modified.
6. Both the manual and the code sheet have been revised to reflect these additions and modifications as well as a number of other minor changes. The manual is still under revision; however, draft copies are available to users of the system.

The ICIREPAT System ST is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00. The instruction manual is still under revision; however, as noted above, draft copies are provided with the card file. A renewal fee of $35.00 per year entitles the subscriber to receive cards for newly issuing patents as well as for older documents (i.e., those indicated in items 2, 3 and 4 above) as these cards become available.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content [1]
Steroid..................	260	239.5+	1,937 U.S. Patents.
		397+	1,111 Foreign Patents.

[1] Approximate number of documents in the files as of October 1, 1972.

A substantial portion of the instruction manual is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed manual. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of steroids may be directed to the Supervisory Primary Examiner of Group Art Unit 124.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. and foreign patent references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address requests to the Patent Office, Office of Patent Classification, Washington, D.C. 20231.

Requests for searches in the original Steroid system will still be accepted, since the revised ICIREPAT system at present includes among the U.S. patents only those which issued after January 1, 1965. The content of this original file, updating for which terminated with the issues of January 1972, is as follows:

5940	U.S. patents
111	Foreign patents
4179	Non-patent literature items

The instruction manual is entitled "Revised Steroid Search System Coding Manual," R & D Report No. 19. Copies of this manual and code sheets may also be obtained from the Office of Patent Classification, and searches may be submitted according to the same procedures and guidelines set forth above for the new ICIREPAT Steroid system.

Proposed Amendment of Rules on Restriction Practice in Patent Cases

On October 20, 1972, the Patent Office published a notice of proposed rule making on restriction practice in patent cases (37 F.R. 22625). The notice proposed to amend Title 37 of the Code of Federal Regulations by revising §§ 1.141, 1.142, 1.144, 1.145, and 1.146. In the notice, it was stated that a hearing would be held at 9:30 a.m. on December 12, 1972, in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Virginia.

The Patent Office has received requests from interested persons that the hearing be postponed to a later date to allow ample opportunity to consider the proposed amendments. The hearing, accordingly, will not be held at the time originally set but has been rescheduled for 2:30 p.m. on January 16, 1973, in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Virginia. Written views, objections, recommendations or suggestions will be considered if submitted on or before the date of the hearing.

The text of the notice as originally published is reproduced below.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Nov. 14, 1972.

DEPARTMENT OF COMMERCE

Patent Office

[37 CFR Part 1]

RESTRICTION PRACTICE

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, Public Law 92–132, 85 Stat. 364, the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.141, 1.142, 1.144, 1.145, and 1.146.

All persons are invited to present their views, objections, recommendations or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before December 12, 1972, on which date a hearing will be held at 9:30 a.m. in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed changes have three main purposes, (1) to clarify when a requirement for restriction may properly be made by an examiner, (2) to remove the limitation of five species if there is an allowable generic claim in the case, and (3) to provide a basis in the rules for requiring restriction to a single invention when two or more patentably different inventions are claimed in a single Markush-type claim. See "Ex parte Markush," 1925 C.D. 126 (Comm'r. Pat. 1924).

The expression "patentably different" emphasizes the importance of requiring restriction between two or more inventions only where there are unobvious differences between those inventions and separate patents can properly be granted to each invention. Otherwise due to the double patenting prohibition of 35 U.S.C. 121, multiple patents would be granted on a single invention. The proposed changes make it clear that a requirement for restriction is proper only when two or more patentably different inventions are claimed in one application.

The practice under present §§ 1.141 and 1.146 of limiting an application to five species, even though a generic claim has been allowed, has caused some problems since 1953 when the present language of section 121 of the patent statute became effective. Section 121 prohibits the use of a patent as a reference in a subsequent divisional application filed as the result of a requirement for restriction in the application on which such a patent is based. Present §§ 1.141 and 1.146 indicate that an application may be limited to five species even though an allowable generic claim appears therein. If an application is so limited to five species, the other species can be specifically protected only if refiled in a divisional application. Such applications may be filed even though the species are not patentably different from each other. Since the first patent cannot be used as a reference against the second application, limiting the number of species in the first patent would result in a second patent issuing on species which are not patentably different from the species in the first patent. The proposed changes would avoid this problem by removing from the rules the language limiting the claims in one application to five species.

The Markush-type claim practice which allows enumeration in a claim of a plurality of alternatively usable substances or members, has been sanctioned to permit the inclusion of such members in a claim when a generic term covering them is not available. Over the years, this form of claim has been used, for example, in claiming compounds having a large variety of substituent groups, and as a result, Markush-type claims are presented which are each directed to a plurality of independent and distinct inventions.

More than one invention is present in a Markush-type claim if the alternatively usable members of the Markush group are so unrelated and diverse that a prior art reference which shows one of the members and otherwise anticipates the claim could not ordinarily be used to reject under 35 U.S.C. 103 a claim reciting another of the members. In such circumstances, the claim is considered to be an improper Markush-type claim and not a generic claim. Such a claim imposes an undue burden on the Patent Office, particularly with respect to the search which would have to be made for proper examination.

The proposed changes expressly sanctioned the withdrawal of improper Markush-type claims. It should be noted that the "withdrawal" of such improper Markush-type claims would provide the applicant with the benefits of the double patenting prohibition of 35 U.S.C. 121. This benefit would not be available if such improper Markush-type claims were rejected.

The proposed changes will permit examiners to expedite prosecution and make more meaningful searches to determine whether the disclosed and claimed inventions are novel and patentable.

The text of the proposed revised rules is as follows:

§ 1.141 *Different inventions in one application.*

An application claiming two or more independent and distinct, patentably different inventions may be required to be restricted to one of the inventions. Inventions are patentably different when one is not obvious in view of the other, and they may properly appear in separate patents.

§ 1.142 *Requirement for restriction between inventions.*

(a) If two or more independent and distinct, patentably different inventions are claimed in a single application and the examiner deems that restriction is appropriate, he may require the applicant to elect for prosecution in the application a single invention, to which his claims shall be restricted. Such a requirement may be made at any time before final action in the case, at the discretion of the examiner.

(b) In an application containing a claim which enumerates alternatively usable substances or members which are so unrelated that the claim is, in fact, directed to independent and distinct, patentably different inventions, the examiner may require the applicant to elect the invention to which his claims shall be restricted. After election by applicant, such an improper claim by enumeration may be withdrawn by the examiner from further examination because more than one invention is being claimed (35 U.S.C. 121).

(c) Claims not restricted to the elected invention, if not canceled, are nevertheless withdrawn from further consideration by the examiner by the election, subject, however, to reinstatement in the event the requirement for restriction is withdrawn or overruled pursuant to a petition under § 1.144.

§ 1.144 *Petition from requirement for restriction.*

Within 2 months after the examiner's adverse reply to a request for reconsideration of a requirement for restriction, the applicant may petition the Commissioner to review the requirement. A petition will not be considered if reconsideration of the requirement was not requested. (See § 1.181.)

§ 1.145 *Subsequent presentation of claims for different invention.*

If, after an examiner's action on an application, the applicant presents a claim or claims therein directed to a patentably different invention, distinct from and independent of the invention previously claimed, the examiner may require the applicant to restrict the claims to the invention previously claimed if the amendment is entered, subject to reconsideration and review as provided in §§ 1.143 and 1.144.

§ 1.146 *Election of species.*

In an application containing a generic claim and claims directed to a plurality of independent and distinct, patentably different species embraced thereby, the examiner may require the applicant to elect that species of his invention to which his claims shall be restricted if no generic claim is finally held allowable. If a generic claim is later found allowable, the application may also contain claims to species in addition to the one elected, provided that such additional species claims are either written to be dependent from a generic claim (§ 1.75 (c)) or to otherwise include all the limitations of the generic claim.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: October 13, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary
for Science and Technology.

[FR Doc. 72–17925 Filed 10–19–72; 8:47 am]

Pub. in 37 F.R. 22625, Oct. 20, 1972

TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

Chapter I—Patent Office, Department of Commerce

PART 1—RULES OF PRACTICE IN PATENT CASES

Formula and Table Format

On February 2, 1972, notice of proposed rule making regarding the amendment of §§ 1.52 and 1.75 and the addition of a new § 1.58 of Title 37, Code of Federal Regulations, dealing with Formula and Table Format, was published in the Federal Register (37 F.R. 2520). Interested persons were given until April 30, 1972, to submit written comments, suggestions, or objections. Full and careful consideration was given to all written comments received. In view of these comments the proposed rule language has been revised. The revised rules do not now require that the formulas and tables be presented on separate bristolboard sheets but simply require them to be presented in the specification in a form suitable for photographic reproduction.

These rule changes are intended to facilitate the microfilming of application papers and the printing of patents which contain formulas and tables in the text.

Under the new rules the text of printed patents would continue to be typeset, with formulas and tables being photographically reproduced and appearing at their proper location in the text. This procedure should result in a reduction of printing errors and costs.

This rule change also makes more liberal the size of paper permissible in patent applications.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations, is hereby amended as follows:

I. Section 1.52 is revised to read as follows:

§ 1.52 *Language, paper, writing, margins.*

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing or printing thereon to permit the production of readily legible copies in any number by use of photographic, electrostatic, photo-offset, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

(b) The application papers (specification, including claims, oath, or declaration, papers as provided for in §§ 1.42, 1.43, 1.47, etc.) and also papers subsequently filed, must be plainly written on but one side of the paper. The size of all sheets of paper should be 8 to 8½ by 10½ to 13 inches (20.3 to 21.6 cm. by 26.6 to 33.0 cm.). A margin of 1½ inches (3.8 cm.) must be reserved on the left-hand side and on the top of each page of the specification, including claims. The lines must not be crowded too closely together; typewritten lines should be double spaced. The pages of the specification, including claims, should be numbered consecutively, starting with 1, the numbers being placed in the center of the bottom margins.

(c) Any interlineation, erasure, or cancellation or other alteration of the application papers as filed must have been made before the application was signed and sworn to or declaration made, and should be dated and initialed or signed by the applicant in a marginal note or footnote on the same sheet of paper to indicate such fact. No such alterations are permissible after execution of the application papers. (See § 1.56.)

2. A new § 1.58 is added to read as follows:

§ 1.58 *Chemical and mathematical formulas and tables.*

(a) The specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams. The description portion of the specification may contain tables; claims may contain tables only if necessary to conform to 35 U.S.C. 112.

(b) All tables and chemical and mathematical formulas in the specification, including claims, and amendments thereto, must be on pure white durable paper, the surface of which is calendered and smooth, in order to permit use as camera copy when printing any patent which may issue. A good grade of bond paper is acceptable: watermarks should not be prominent. India ink or its equivalent, or solid black typewriter ribbon must be used to secure perfectly black solid lines.

(c) To facilitate camera copying when printing, the width of formulas and tables as presented should be limited normally to 5 inches (12.7 cm.) so that it may appear as a single column in the printed patent. If it is not possible to limit the width of a formula or table to 5 inches (12.7 cm.), it is permissible to present the formula or table with a maximum width of 10¾ inches (27.3 cm.) and to place it sideways on the sheet, in which case the formula or table will appear printed across both columns of the page in the printed patent. Typewritten characters used in such formulas and tables must be from a block (nonscript) type font or lettering style having capital letters which are at least 0.085 inch (2.2 mm.) high (elite type). Hand lettering must be neat, clean, and have a minimum character height of 0.085 inch (2.2 mm.). A space at least ¼ inch (6.4 mm.) high should be provided between the formulas and tables and the text. Tables should have the lines and columns of data closely spaced to conserve space, consistent with high degree of legibility.

§ 1.75 [*Amended*]

3. Section 1.75 is amended by adding at the end of paragraph (d)(1) the expression "(See § 1.58(a).)."

Effective date. These amendments shall become effective on January 1, 1973, and will apply to applications filed after that date.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: Oct. 12, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for
Science and Technology.

[FR Doc. 72-17727 Filed 10-17-72; 8:48 am]

Published in 37 FR 21994, Oct. 18, 1972

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

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3,318,062, P. R. Grants, PRECAST INSULATING MASONRY UNIT AND INSULATING FILLER, **filed** June 22, 1972, D.C.N.J. (Trenton), Doc. C-1074-72, *Formblac, Inc.* v. *Paul R. Grants, individually, and I.F.S., Inc.*

3,351,073, R. G. Gregg, COIFFURE PROTECTORS, **filed** June 12, 1972, D.C., N.D. Ala. (Birmingham), Doc. CA-72-511, *Richard Gregg Manufacturing Company* v. *Fairco Drug, Inc.*

3,386,192, R. P. Fornaciari, EQUIPMENT FOR FEEDING LAUNDRY TO FLATWORK IRONER, **filed** June 8, 1972, D.C., S.D. Fla. (Miami), Doc. 72-899-C-CA, *Chicago Dryer Co.* v. *Jensen Machinery, Inc.*

3,397,928, E. M. Galle, SEAL MEANS FOR DRILL BIT BEARINGS, **filed** June 2, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-1231-JWC, *Smith Tool Company* v. *Hughes Tool Company.*

3,407,196, Liechti, Maeder, Guglielmetti, Duennenberger and Siegrist, BENZOXAZOLYSTILBENES, **filed** June 22, 1972, D.C. Mass. (Boston), Doc. CA 72-1974-LC, *Bernard Plastics Molding Corporation* v. *Bay State Plastic Corporation.*

3,408,306, F. J. Boylan, METHOD OF CONTROLLING FOAMING, **filed** July 6, 1972, D.C., N.D. Ga. (Atlanta), Doc. CA 16830, *Hercules Incorporated* v. *North Chemical Company, Inc.*

3,491,585, R. H. Roberts, PICTURE MOUNTING ARRANGEMENT, **filed** June 7, 1972, D.C., E.D.N.Y. (Brooklyn), Doc. 72C742, *Art Leather Manufacturing Co., Inc.* v. *Classic Albums, Inc.*

3,474,553, G. E. Moore, FABRIC SPREADING AND FEEDING MACHINE, **filed** June 27, 1972, D.C., S.D. Fla. (Miami), Doc. 72-996-C-NCR, *R. L. Sjostrom Co., formerly known as Sheetmaster Corp.* v. *Power Controls, Inc. et al.*

3,547,106, S. V. Seiffert, COMBINATION DEFIBRILLATOR AND HEARTBEAT MONITORING SYSTEM, **filed** June 12, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1456, *Physio-Control Corporation* v. *Gould, Inc.*

3,588,095, Ward, Ward and Bachmann, SUCTION TABLE SYSTEM FOR FEEDING OF WARPED SHEETS, **filed** July 6, 1972, D.C. Md. (Baltimore), Doc. 72-683-H, *The Ward Machinery Company (formerly The Ward-Turner Machinery Company)* v. *Wm. C. Staley Machinery Corporation.*

3,593,930, R. D. Lautzenheiser, SHREDDER, **filed** June 30, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1625, *The Red Cross Manufacturing Corporation* v. *Toro Sales Company.*

3,599,921, W. J. Cumber, INDEPENDENT SUPPORT CLIPS, **filed** May 25, 1972, D.C., N.D. Ohio (Cleveland), Doc. C72-549, *Erico Products, Inc.* v. *Fastway Fastners, Inc.*

3,622,029, G. K. Ware, ELECTRICAL OUTLET BOX, **filed** June 30, 1972, D.C., W.D. Wash. (Seattle), Doc. 448-72C2, *Nelco Corporation* v. *Ware Fuse Corporation.*

3,632,879, R. Freisinger, AUTOMATIC TELEPHONE DIALER FOR EMERGENCY MESSAGES, **filed** June 3, 1972, D.C.N.J. (Newark), Doc. C-984-72, *Atlantic Metal Products, Inc.* v. *Napco Security Systems, Inc.*

3,633,722, A. R. Bone, HAND OPERATED EMBOSSING MACHINE, **filed** May 26, 1972, D.C., N.D. Calif. (San Francisco), Doc. C-72-964 WTS, *Dymo Industries* v. *Dennison Manufacturing Co.*

3,634,864, J. Trachtenberg, ANTENNA FOR USE WITH AN AUTOMOBILE, **filed** June 23, 1972, D.C.N.J. (Trenton), Doc. C-1076-72, *Interdynamics, Inc.* v. *Budge Manufacturing Co., Inc.*

3,647,983, Fitzsimons and Phelps, KEY SYSTEM LINE CARD CIRCUIT, **filed** June 15, 1972, D.C., N.D. Calif. (San Francisco), Doc. C-72-1108 OJC, *San/Bar Corporation* v. *Stromberg-Carlson Corporation.*

3,660,797, J. Firestone, TELEPHONE CONNECTOR, **filed** June 8, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-1285-R, *Tron-Tech, Inc.* v. *Saxton Products, Inc.*

presented in the specification in a form suitable for photographic reproduction.

These rule changes are intended to facilitate the microfilming of application papers and the printing of patents which contain formulas and tables in the text.

Under the new rules the text of printed patents would continue to be typeset, with formulas and tables being photographically reproduced and appearing at their proper location in the text. This procedure should result in a reduction of printing errors and costs.

This rule change also makes more liberal the size of paper permissible in patent applications.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations, is hereby amended as follows:

1. Section 1.52 is revised to read as follows:

§ 1.52 *Language, paper, writing, margins.*

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing or printing thereon to permit the production of readily legible copies in any number by use of photographic, electrostatic, photo-offset, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

(b) The application papers (specification, including claims, oath, or declaration, papers as provided for in §§ 1.42, 1.43, 1.47, etc.) and also papers subsequently filed, must be plainly written on but one side of the paper. The size of all sheets of paper should be 8 to 8½ by 10½ to 13 inches (20.3 to 21.6 cm. by 26.6 to 33.0 cm.). A margin of 1½ inches (3.8 cm.) must be reserved on the left-hand side and on the top of each page of the specification, including claims. The lines must not be crowded too closely together; typewritten lines should be double spaced. The pages of the specification, including claims, should be numbered consecutively, starting with 1, the numbers being placed in the center of the bottom margins.

(c) Any interlineation, erasure, or cancellation or other alteration of the application papers as filed must have been made before the application was signed and sworn to or declaration made, and should be dated and initialed or signed by the applicant in a marginal note or footnote on the same sheet of paper to indicate such fact. No such alterations are permissible after execution of the application papers. (See § 1.56.)

2. A new § 1.58 is added to read as follows:

§ 1.58 *Chemical and mathematical formulas and tables.*

(a) The specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams. The description portion of the specification may contain tables; claims may contain tables only if necessary to conform to 35 U.S.C. 112.

(b) All tables and chemical and mathematical formulas in the specification, including claims, and amendments thereto, must be on pure white durable paper, the surface of which is calendered and smooth, in order to permit use as camera copy when printing any patent which may issue. A good grade of bond paper is acceptable; watermarks should not be prominent. India ink or its equivalent, or solid black typewriter ribbon must be used to secure perfectly black solid lines.

(c) To facilitate camera copying when printing, the width of formulas and tables as presented should be limited normally to 5 inches (12.7 cm.) so that it may appear as a single column in the printed patent. If it is not possible to limit the width of a formula or table to 5 inches (12.7 cm.), it is permissible to present the formula or table with a maximum width of 10¾ inches (27.3 cm.) and to place it sideways on the sheet, in which case the formula or table will appear printed across both columns of the page in the printed patent. Typewritten characters used in such formulas and tables must be from a block (nonscript) type font or lettering style having capital letters which are at least 0.085 inch (2.2 mm.) high (elite type). Hand lettering must be neat, clean, and have a minimum character height of 0.085 inch (2.2 mm.). A space at least ¼ inch (6.4 mm.) high should be provided between the formulas and tables and the text. Tables should have the lines and columns of data closely spaced to conserve space, consistent with high degree of legibility.

§ 1.75 [*Amended*]

3. Section 1.75 is amended by adding at the end of paragraph (d)(1) the expression "(See § 1.58(a).)."

Effective date. These amendments shall become effective on January 1, 1973, and will apply to applications filed after that date.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: Oct. 12, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17727 Filed 10-17-72; 8:48 am]

Published in 37 FR 21994, Oct. 18, 1972

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,715,231, O. F. Marston, FLEXIBLE BUOYANT ARTICLE, **filed** Apr. 21, 1972, D.C., E.D. Va. (Richmond), Doc. 200-72-R, *Oliver F. Marston* v. *Thalhimer Bros., Inc.*

2,806,832, Anderson and Rapp, PROCESS FOR FEEDING RUMINANTS AND IMPROVED FEED SUPPLEMENT THEREFOR, **filed** May 22, 1972, D.C., N.D. Ill. (Freeport), Doc. 72c33, *Feed Service Corporation* v. *Kent Feeds, Inc. and Grain Processing Corporation.*

2,821,975, R. K. Thulman, FIREPLACE CONSTRUCTION, **filed** Apr .12, 1972, D.C., N.D. Ala. (Birmingham), Doc. CA 72-332, *American Standard, Inc.* v. *Martin Stamping & Stove, Inc.*

2,841,056, L. D. Hincher, PAPER EDGE FLARING MACHINE, **filed** May 18, 1972, U.S. Court of Appeals, First Circuit, Mass. (Boston), Doc. 72-1165, *Custom Paper Products Co. et al.* v. *Atlantic Paper Box Co.*

2,906,875, E. T. Molinaro, STATION SAMPLING RADIO, **filed** June 7, 1972, D.C. Md. (Baltimore), Doc. 72-589-N, *Edward T. Molinaro and Anthony P. Catanzaro* v. *Watkins-Johnson CEI Division.*

2,933,333, Bredtschneider, Drewes, Laird and Onak, PIPE COUPLING, **filed** June 12, 1972, D.C., E.D. Mich. (Detroit), Doc. 38436, *Aeroquip Corporation* v. *Crane Company.*

2,956,114, Ginsburg, Henderson, Dolby and Anderson, BROAD BAND MAGNETIC TAPE SYSTEM AND METHOD, **filed** June 9, 1972, D.C., N.D. Calif. (San Francisco), Doc. C-72-1068 AJZ, *Cartridge Television, Inc.* v. *Ampex Corporation.*

3,011,057, H. O. Anger, RADIATION IMAGE DEVICE, **filed** July 7, 1972, D.C., N.D. Calif. (San Francisco), Doc. C-72-1255 RHS, *Ohio Nuclear, Inc.* v. *Nuclear-Chicago Corporation.*

3,012,303, Whitaker, Whitaker and Whiting, PRODUCTION OF MULTICOLORED PILE FABRIC, **filed** June 5, 1972, D.C., E.D. Tenn. (Chattanooga), Doc. 6525, *Fred Whitaker Company* v. *Colorstrand Corporation.*

3,039,760, G. W. Jackson, SHOCK ABSORBER AND AIR SPRING UNIT ASSEMBLY, **filed** June 22, 1972, D.C., E.D. Mich. (Detroit), Doc. 38480, *General Motors Corp.* v. *Monroe Auto Equipment Company.*

3,047,196, Levine and Phillips, GARMENT HANGER, **filed** June 14, 1972, D.C., E.D.N.Y. (Brooklyn), Doc. 72C781, *Barnard Plastics Molding Corporation* v. *W. R. Grace & Co.*

3,052,081, M. Wallshein, ORTHODONTIC ARCH WIRE CONSTRUCTION AND METHOD, **filed** May 1, 1972, D.C., E.D.N.Y. (Brooklyn), Doc. 72C551, *Melvin Wallshein* v. *G.A.C. International, Inc.*

3,178,673, J. H. Krehbiel, WIRE CONNECTOR, **filed** July 7, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1664, *Molex Inc.* v. *Aro Manufacturing Co.*

3,202,006, W. G. Lewellen, ROTATING MECHANISM FOR PLATING BARREL OR THE LIKE, **filed** June 2, 1972, D.C., E.D. Mich. (Detroit), Doc. 38390, *Imperial Industries, Inc.* v. *Rea A. York, doing business as C & R & D Industries.*

3,202,792, S. Bukata, BRAZING FURNACE, **filed** June 9, 1972, D.C., S.D. Ind. (Indianapolis), Doc. IP 72-C-278, *Badische Anilin- & Soda-Fabrik Aktiengesellschaft* v. *The General Motors Corporation.*

3,246,336, Baribo, Porter, Turner and Wright, MOLASSES FEED BLOCKS AND METHOD OF PREPARATION AND USE, **filed** June 20, 1972, D.C., N.D. Ind. (South Bend), Doc. 72S123, *A. E. Staley Manufacturing Company* v. *VyLactos Laboratories, Inc.*

3,260,028, R. Fraser, METHOD OF CONSTRUCTING A BUILDING, **filed** June 15, 1972, D.C., N.D. Calif. (San Francisco), Doc. C-72-1107 OJC, *International Environmental Dynamics, Inc.* v. *R. Lee Fraser.*

3,288,248, Gurian and Bernstein, POOL LADDER, **filed** June 23, 1972, D.C., E.D.N.Y. (Brooklyn), Doc. 72C841, *Coleco Industries* v. *Living Industries, Inc.*

3,304,397, E. W. Bernhagen, PRESSURE CONTROL ACTUATOR WITH SEAL-MOUNTED ELECTRICAL ELEMENT, **filed** June 13, 1972, D.C., N.D. Ind. (South Bend), Doc. 72S118, *BEC Pressure Controls Corporation* v. *Dwyer Instruments, Inc.*

3,312,124, Meier and Meier, STEERING-WHEEL ASSEMBLY FOR AUTOMOTIVE VEHICLES, **filed** July 10, 1972, D.C., E.D. Mich. (Detroit), Doc. 38556, *Kamei-Autokomfort and Superior Industries, Inc.* v. *S. S. Kresge Company.*

3,318,062, P. R. Grants, PRECAST INSULATING MASONRY UNIT AND INSULATING FILLER, **filed** June 22, 1972, D.C.N.J. (Trenton), Doc. C-1074-72, *Formbloc, Inc.* v. *Paul R. Grants, individually, and I.F.S., Inc.*

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3,407,196, Liechti, Maeder, Guglielmetti, Duennenberger and Siegrist, BENZOXAZOLYSTILBENES, **filed** June 22, 1972, D.C. Mass. (Boston), Doc. CA 72-1974-LC, *Bernard Plastics Molding Corporation* v. *Bay State Plastic Corporation.*

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3,474,553, G. E. Moore, FABRIC SPREADING AND FEEDING MACHINE, **filed** June 27, 1972, D.C., S.D. Fla. (Miami), Doc. 72-996-C-NCR, *R. L. Sjostrom Co., formerly known as Sheetmaster Corp.* v. *Power Controls, Inc. et al.*

3,547,108, S. V. Seiffert, COMBINATION DEFIBRILLATOR AND HEARTBEAT MONITORING SYSTEM, **filed** June 12, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1456, *Physio-Control Corporation* v. *Gould, Inc.*

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3,593,930, R. D. Lautzenheiser, SHREDDER, **filed** June 30, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1625, *The Red Cross Manufacturing Corporation* v. *Toro Sales Company.*

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3,632,879, R. Freisinger, AUTOMATIC TELEPHONE DIALER FOR EMERGENCY MESSAGES, **filed** June 3, 1972, D.C.N.J. (Newark), Doc. C-964-72, *Atlantic Metal Products, Inc.* v. *Napco Security Systems, Inc.*

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3,647,983, Fitzsimons and Phelps, KEY SYSTEM LINE CARD CIRCUIT, **filed** June 15, 1972, D.C., N.D. Calif. (San Francisco), Doc. C-72-1108 OJC, *Son/Bar Corporation* v. *Stromberg-Carlson Corporation.*

3,660,797, J. Firestone, TELEPHONE CONNECTOR, **filed** June 8, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-1285-R, *Tron-Tech, Inc.* v. *Saxton Products, Inc.*

Certificates of Correction for the Week of Dec. 12, 1972

P.P. 3,156
D. 222,768
Re. 27,200
3,436,378
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3,547,905
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3,683,976

Adverse Decisions in Interferences

In the designated interferences involving the indicated claims of the following patents, final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,367,961, James L. Brewbaker, PREPARATION OF ESTERS BY CARBONYLATING ESTERS OF ALLYL ALCOHOLS IN THE PRESENCE OF GROUP VIII NOBLE METAL CATALYSTS, decided Apr. 28, 1972, Interference No. 96,929, claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16.

Patent No. 3,407,576, Richard T. Staunton, SELF-SUPPORTING FILTER ELEMENT, decided Oct. 31, 1972, Interference No. 97,337, claims 1, 2, 4, 5, 7 and 8.

Patent No. 3,408,438, Richard T. Staunton, METHOD OF MAKING SELF-SUPPORTING FILTER ELEMENT, decided Oct. 31, 1972, Interference No. 97,338, claims 1, 2, 3, 4, 5 and 7.

Patent No. 3,468,744, Thomas J. Reinhart, COLOR CHANGEABLE EMBOSSABLE LABEL TAPE, decided July 13, 1972, Interference No. 97,257, claims 1 and 2.

Patent No. 3,512,373, Jack H. White, REFRIGERATION SYSTEM WITH ELECTRIC AUXILIARY PRIME MOVER, decided on Oct. 12, 1972, Interference No. 97,885, claim 2.

Patent No. 3,525,616, Ernst-August Hackmann and Johannes Munder, LIGHT SENSITIVE COMBINATION OF A HALOGEN HYDROCARBON, A LEUCO TRIARYL METHANE DYE AND AN N-VINYLCARBAZOLE, decided Oct. 17, 1972, Interference No. 97,912, claims 1, 2, 3, 4 and 5.

Patent No. 3,527,894, Lee O. Mesenhimer and Neil A. Kammiller, VOLTAGE BOOSTING AND POLARITY CONTROL CIRCUIT, decided Oct. 16, 1972, Interference No. 97,908, claims 3, 4 and 5.

Patents Available for Licensing or Sale

3,591,925. LINE ANGLE DEGREE LEVEL INSTRUMENT. Frank Dupin, Box 109, Gurnee, Ill., 60031.

3,664,061. METHOD OF AND APPARATUS FOR THE DEVELOPMENT OF PLANT GROWTH. Karl Oepen, Cologne, Germany. Correspondence to: Holman & Stern, 2401 15th St. NW., Washington, D.C., 20009.

3,666,185. CRYOGENIC CRUSHING OF MATERIALS. Robert P. Williams, 12 Sioux Road, Trenton, N.J., 08638.

3,670,927. METHOD AND MEANS PROVIDING DOSAGES OF ORAL HYGIENIC SUBSTANCES. Alan M. Hubbard, 62 Hill St., Morristown, N.J., 07060.

3,671,555. TRIALKYLSILYLOXY - STEROID COMPOUNDS AND PROCESS FOR MAKING SAME. VEB Jenpharm Jena, Germany, Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,672,425. CURTAIN SUSPENSIION DEVICES WITH AN ELECTRIC MOTOR DRIVE. Rilogа-Werk J. Schmidt Remscheid, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,677,543. ELASTIC PULL TYPE EXERCISER. John H. Richardson, Rte. 2, Box 680–79, Sonora, Calif., 95370.

3,692,011. WHEEL REFACER. Albert L. Reese et al., 1031 Sagamore Way, Sacramento, Calif., 95822.

3,695,727. TRACTION ATTACHMENT FOR VEHICLES. Julius Sesky et al., Chitina, Alaska, 99566.

3,697,157. MOTOR VEHICLE ALL-WEATHER FORWARD VIEW MIRROR. Jim Satcher, Jr., 12204 SW. 27th St., Miami, Fla., 33165.

3,701,354. POWER ACTUATED HAIR TEASING APPARATUS WITH FLEXIBLE CABLE DRIVE. Charles C. May, 2234 Midvale Ave., West Los Angeles, Calif., 90064.

General Motors Corporation is prepared to grant non-exclusive licenses under the following patent upon reasonable terms.

Applications for license may be addressed to: The Director, Patent Section, General Motors Bldg., 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,529,492. POWER TRAIN.

The General Tire & Rubber Company is prepared to grant non-exclusive licenses at reasonable royalty rates under the following patent.

Inquiries respecting licenses should be addressed to: General Tire & Rubber Co., 1 General St., Akron, Ohio, 44309.

3,574,149. FLAME RETARDANT FLEXIBLE POLYURETHANE FOAMS.

The RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 27 patents.

Inquiries respecting licenses should be addressed to: RCA Corporation, Staff Vice President Domestic Licensing, 1133 Avenue of The Americas, New York, N.Y., 10036.

RE. 27,490. ELECTROSTATIC PRINTING.
RE. 27,492. TELEVISION DEFLECTION SYSTEM INCLUDING AFC CIRCUIT WITH REGENERATIVE PHASE DETECTOR.
3,689,129. HIGH RESOLUTION, REDUNDANT COHERENT WAVE IMAGING APPARATUS EMPLOYING PINHOLE ARRAY.
3,689,131. LIQUID CRYSTAL DISPLAY DEVICE.
3,689,312. SPRAY METHOD FOR PRODUCING A GLARE-REDUCING COATING.
3,689,692. SOUND RECORDS AND REPRODUCING APPARATUS.
3,689,694. SPECIAL EFFECTS GENERATOR.
3,689,913. CONVERSION TO A DIGITAL CODE WHICH IS SELF-CLOCKING AND ABSOLUTE PHASING.
3,689,914. WAVEFORM GENERATOR.
3,690,889. PHOTOCOLORABLE VACUUM SUBLIMED XANTHENE DYE.
3,690,943. METHOD OF ALLOYING TWO METALS.
3,690,944. ELECTROLESS NICKEL PLATING METHOD.
3,691,338. SOLID STATE MICROWAVE HEATING APPARATUS.

3,691,444. REMOTE CONTROLLED TELEVISION TUNER MOTOR SWITCHING CIRCUIT.
3,691,978. APPARATUS FOR THE AUTOMATIC NAVIGATION OF A SAILING VESSEL.
3,692,592. METHOD AND APPARATUS FOR DEPOSITING EPITAXIAL SEMICONDUCTIVE LAYERS FROM THE LIQUID PHASE.
3,692,593. METHOD OF FORMING SEMICONDUCTOR DEVICE WITH SMOOTH FLAT SURFACE.
3,692,594. METHOD OF FORMING AN EPITAXIAL SEMICONDUCTIVE LAYER WITH A SMOOTH SURFACE.
3,692,655. METHOD OF RADIO FREQUENCY SPUTTER ETCHING.
3,692,918. AUTOMATIC REGISTRATION OF COLOR TELEVISION CAMERAS.
3,692,931. TELEVISION IMAGE CONTROL CIRCUIT.
3,692,932. HORIZONTAL OSCILLATOR DISABLING CIRCUIT CONTROL APPARATUS.
3,693,030. TIME DELAY CIRCUITS.
3,693,118. VARIABLE TUNING ARRANGEMENT FOR A STRIP TRANSMISSION LINE CIRCUIT.
3,694,275. METHOD OF MAKING LIGHT EMITTING DIODE.
3,694,719. SCHOTTKY BARRIER DIODE.
3,694,756. MIXER CIRCUIT.

The Clary Corporation offers to sell or grant licenses on reasonable terms under the following 35 patents.

Inquiries regarding these patents should be addressed to: Patent Department, Clary Corporation, 408 Junipero Serra Drive, San Gabriel, Calif., 91776.

2,818,018. TYPE WHEEL SELECTING AND PRINT ACTUATING MEANS.
2,894,449. SALES TRANSACTION MACHINE.
2,910,936. PRINTER MECHANISM.
2,915,968. PRINTER.
2,916,989. PRINTING APPARATUS.
2,981,170. PRINTER.
2,981,466. READ-OUT SYSTEM FOR A VALUE REGISTERING DEVICE.
3,001,470. BOOKKEEPING MACHINE.
3,010,647. MERCHANDISE REGISTERING APPARATUS.
3,028,063. PAPER FEEDING APPARATUS.
3,028,080. DATA TRANSLATING AND REGISTERING SYSTEM.
3,031,954. CARD PRINTING MACHINE.
3,034,692. STRIP FEEDING DEVICE.
3,036,292. READ-OUT SYSTEM.
3,043,214. INKING DEVICE.
3,058,638. PAPER FEEDING APPARATUS.
3,077,589. READ-OUT SYSTEM.
3,090,298. HIGH SPEED PRINTING SYSTEM.
3,101,664. PRINTER.
3,128,695. PRINTER.
3,136,243. PRINTER.
3,136,989. READ-OUT AND CODE TRANSLATING SYSTEM.
3,168,948. PULLEY SELECTION MEANS IN ROTARY TYPE CARRIERS.
3,198,306. WIRE MATRIX PRINTER.
3,216,348. HAMMER TIMING MEANS IN A HIGH SPEED BELT PRINTER.
3,279,363. PRINTING SYSTEM.
3,291,042. HIGH SPEED PRINTING MECHANISM.
3,294,212. PAPER LOADING DEVICE FOR DATA PRINTER.
3,310,147. WHEEL STRIKING DATA PRINTER.
3,344,722. DATA RECORDER.
3,350,005. TEN KEY PRINTING CALCULATING MACHINE.
3,378,127. DATA PRINTER WITH FLEXIBLE PRINT WHEEL.
3,388,782. SERIAL DATA PRINTER HAVING PLURAL HAMMERS ACTUATED IN SEQUENCE.
3,419,678. DATA PRINTING SYSTEM.
3,539,779. PERFORATED CARD CONTROLLED REGISTERING MACHINE.

The General Electric Company is prepared to grant non-exclusive licenses under the following 81 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: General Electric Company, Patent Counsel, Housewares Business Division, 1285 Boston Ave., Bridgeport, Conn., 06602.

3,497,974. STEAM IRON SPRAY VALVE STRUCTURE.

Applications for license under the following patent may be addressed to: Division Patent C Counsel, AC Motor & Generator Business Div., 1 River Road, Bldg. 41, Room 106, Schenectady, N.Y., 12305.

3,684,906. CASTABLE ROTOR HAVING RADIALLY VENTING LAMINATIONS.

Applications for license under the following 5 patents may be addressed to: General Electric Co., Transformer and Distribution Equipment Business Div., Bldg. 43, Room 529, 100 Woodlawn Ave., Pittsfield, Mass., 01201.

3,365,535. TRANSFORMER ENCLOSURE AND LOCKING MEANS THEREFOR.
3,580,714. DISCHARGE CONTROL ELEMENT FOR GLASS-MELTING FURNACE.
3,621,374. VOLTAGE REGULATOR WITH ZERO CURRENT STATIC SWITCHING BETWEEN TAPS FOR A REGULATOR TRANSFORMER.
3,621,375. VOLTAGE REGULATOR WITH ZERO CURRENT STATIC SWITCHING BETWEEN TAPPED PORTIONS OF THE PRIMARY OF A REGULATOR TRANSFORMER.
3,641,359. MONITOR CIRCUIT FOR VACUUM TYPE ELECTRIC CIRCUIT INTERRUPTER.

Applications for license under the following 6 patents may be addressed to: Patent Counsel, LSTG–I & MT Divisions, General Electric Company, 1 River Road, Bldg. No. 43, Schenectady, N.Y., 12305.

3,546,757. METHOD OF MANUFACTURING A VARIABLE CAPACITANCE TRANSDUCER.
3,637,319. METHOD FOR DUAL MODE CONTROL CHANGE-OVER IN A STEAM TURBINE.
3,652,889. LAMINATED DYNAMOELECTRIC MACHINE CORE AND METHOD OF STACKING.
3,659,956. WELDED INLET PIPE AND NOZZLE BOX CONSTRUCTION FOR A STEAM TURBINE.
3,660,705. POLYPHASE GENERATOR WINDINGS.
3,667,430. MODULAR COMBINED MOISTURE SEPARATOR AND REHEATER.

Applications for license under the following 9 patents may to addressed to: General Electric Company, Appliance Components Business Division, 1635 Broadway, Fort Wayne, Ind., 46804, Attn.: Patent Counsel.

3,421,034. SINGLE-PHASE INDUCTION ELECTRIC MOTOR.
3,573,510. CUSHION THRUST WASHER.
3,628,240. METHOD AND APPARATUS FOR TREATING MAGNETIC CORES AND WINDINGS.
3,648,214. CONDITION-RESPONSIVE ELECTRIC SWITCH MECHANISM.
3,651,445. LAMPHOLDER.
3,668,779. METHOD OF MANUFACTURING DOUBLE INSULATED PLUGS.
3,673,532. THERMAL SWITCH MECHANISM.
3,678,436. MAGNETIZING APPARATUS AND METHOD.
3,685,773. RESILIENT MOUNTING ARRANGEMENT FOR ROTATING MACHINES AND METHOD OF PRODUCING SAME.

Applications for license under the following 15 patents may be addressed to: General Electric Company, Construction Materials Division, 1701 College St., Fort Wayne, Ind., 46804. Attention: Division Patent Counsel.

2,858,478. APPARATUS FOR FLASHING FLUORESCENT LAMPS.
2,878,421. BALLAST APPARATUS.
2,965,799. FLUORESCENT LAMP BALLAST.
3,010,050. BALLAST APPARATUS.
3,201,646. BALLAST APPARATUS UTILIZING TEMPERATURE RESPONSIVE FUSE.
3,222,572. APPARATUS FOR OPERATING ELECTRIC DISCHARGE DEVICES.

3,225,255. BALLAST APPARATUS.

3,265,930. CURRENT LEVEL SWITCHING APPARATUS FOR OPERATING ELECTRIC DISCHARGE LAMPS.

3,374,396. STARTING, CURRENT LIMITING AND VOLTAGE STABILIZING CIRCUIT HIGH INTENSITY ARC DISCHARGE LAMPS.

3,386,063. TEMPERATURE RESPONSIVE FUSES AND APPARATUS EMBODYING SUCH FUSES.

3,648,207. APPARATUS FOR STARTING AND OPERATING ELECTRIC DISCHARGE LAMPS.

3,648,506. APPARATUS AND METHOD FOR WINDING ELECTRICAL COILS.

3,655,908. LAMP BALLAST AND METHOD OF PRODUCING SAME.

3,679,931. APPARATUS FOR OPERATING ELECTRIC DISCHARGE LAMPS AND AUXILIARY LIGHTING LAMPS.

3,659,197. APPARATUS FOR ELECTRICALLY TESTING A COIL INCLUDING A PRIMARY COIL AND CORE, A PICK UP COIL, AND LIMITED SUPPLY OF HIGH VOLTAGE D.C. FOR ENERGIZING THE PRIMARY COILS.

Applications for license under the following 44 patents may be addressed to: The Patent Counsel, General Electric Company, Industrial and Power Capacitor Products Department, John Street, Hudson Falls, N.Y., 12839.

2,865,400. ELECTRIC CAPACITOR.

2,760,121. ELECTRIC PROTECTIVE DEVICE.

2,819,429. ELECTRIC PROTECTIVE EQUIPMENT.

2,819,492. ELECTRICAL CAPACITOR AND METHOD OF MAKING THE SAME.

2,922,937. CAPACITOR AND DIELECTRIC MATERIAL THEREFOR.

2,947,927. ELECTRIC CAPACITOR AND DIELECTRIC MATERIAL THEREFOR.

3,025,440. ELECTRICAL DEVICE AND DIELECTRIC MATERIAL THEREFOR.

3,133,238. ELECTRICAL CAPACITOR CONSTRUCTION TO REDUCE SHOCK HAZARD.

3,137,545. ALLOY FOR BONDING METALS TO CERAMICS.

3,144,371. METHOD OF PRODUCING DRY TYPE CAPACITORS.

3,153,180. ELECTRICAL CAPACITOR AND METHOD OF MAKING THE SAME.

3,155,878. ELECTRICAL CAPACITOR PROTECTIVE ARRANGEMENT.

3,185,908. PALIGORSKITE DIELECTRIC CAPACITOR.

3,225,278. ELECTRICAL CAPACITOR WITH THERMAL FUSE.

3,229,174. ROLLED CAPACITOR AND TERMINAL CONNECTION THEREFOR.

3,231,701. CAPACITOR PROTECTIVE SYSTEM.

3,235,780. ELECTRICAL CAPACITOR AND METHOD OF MAKING THE SAME.

3,236,978. FUSE DEVICE.

3,242,401. ELECTRICAL CAPACITOR AND DIELECTRIC MATERIAL THEREFOR.

3,242,402. ELECTRICAL CAPACITOR AND DIELECTRIC MATERIAL THEREFOR.

3,247,355. SOLDERING MACHINE.

3,247,454. DIELECTRIC TESTING APPARATUS INCLUDING A MOVABLE TABLE FOLLOWING A PREDETERMINED PATH.

3,252,830. ELECTRIC CAPACITOR AND METHOD FOR MAKING THE SAME.

3,256,472. ELECTRICAL CONNECTING STRUCTURE FOR ROLLED CAPACITORS.

3,259,816. ELECTRICAL CAPACITOR WITH A PLASTIC DIELECTRIC.

3,274,663. ELECTRICAL CAPACITOR AND METHOD OF MAKING THE SAME.

3,275,888. INTERRUPTED ARC RESPONSIVE PROTECTIVE EQUIPMENT FOR SERIES CAPACITORS.

3,287,613. VARIABLE CAPACITOR.

3,292,061. ELECTRICAL CAPACITOR WITH A POLYPHENYLENE ETHER DIELECTRIC.

3,296,509. CAPACITOR WITH POLYPHENYLENE OXIDE DIELECTRIC.

3,302,081. CAPACITOR ASSEMBLY WITH HIGH RESISTANCE SHUNT.

3,328,654. CAPACITOR WITH A POLYCARBONATE DIELECTRIC.

3,335,343. ELECTRICAL CAPACITOR.

3,335,345. HIGH TEMPERATURE CAPACITOR.

3,363,156. CAPACITOR WITH A POLYOLEFIN DIELECTRIC.

3,365,632. WOUND CAPACITOR.

3,377,510. ELECTRICAL APPARATUS.

3,395,207. METHOD OF REDUCING DISSIPATION FACTOR OF POLYPHENYLENE OXIDE.

3,407,562. CAPACITOR ASSEMBLY METHOD.

3,423,655. DIELECTRIC LIQUID EPOXIDE SCAVENGER.

3,424,957. ELECTRICAL CAPACITOR AND DIELECTRIC MATERIAL THEREFOR.

3,444,602. ELECTRICAL CAPACITOR AND METHOD OF MAKING THE SAME.

3,447,048. ELECTRIC CAPACITOR WITH EXTENDED WICKING.

3,450,968. ELECTRICAL ELEMENTS WITH IMPREGNATED DIELECTRIC AND INSULATORS.

Erratum

In the OFFICAL GAZETTE of Nov. 7, 1972, the following patent listed as being available for licensing or sale offered by: Robert E. Hall, Arlington, Va. Correspondence to: Mrs. A. H. Cravens, 1619 N. Highland St., Arlington, Va., 22201, should read as follows:

2,730,207. COLLAPSIBLE TOWER AND HOIST.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF NOVEMBER 28, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries, Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-19-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-16-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-09-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-30-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-09-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	4-05-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	12-13-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	7-21-71
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director Receptacles; Joint Packing: Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-21-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-29-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts: Household, Personal and Fine Arts.	4-15-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	11-30-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-01-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry: Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-27-71
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control: Lubrication.	12-22-71
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	9-15-71

Expiration of patents: The patents within the range of numbers indicated below expire during December 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents........ Numbers 2,725,558 to 2,728,912, inclusive
Plant Patents........ Numbers 1,436 to 1,441, inclusive

REISSUES

DECEMBER 12, 1972

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,529

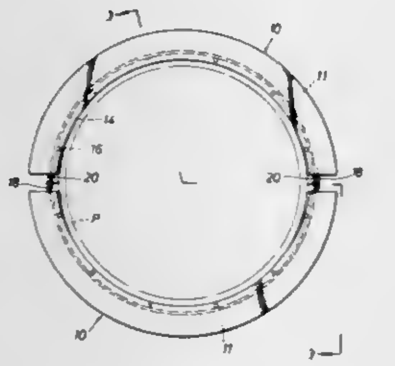
GALVANIC ANODE

Gordon L. Doremus, 7555 Haywood Drive 77017, and Jack G. Davis, 3600 Montrose, Apt. 405 77006, both of Houston, Tex.

Original No. 3,616,422, dated Oct. 26, 1971, Ser. No. 817,916, Apr. 21, 1969. Application for reissue Aug. 7, 1972, Ser. No. 277,381

Int. Cl. C23f *13/00*

U.S. Cl. 204—197 **14 Claims**



A galvanic anode adapted particularly for the cathodic protection of relatively large diameter pipelines submerged in water bodies. The anode consists of *at least* a pair of [semicylindrical] *arcuate* segments constructed of a suitable galvanic metal and having completely embedded within the galvanic metal steel core or armature sections, adapted to be connected together to join the anode sections into a "bracelet" about the pipe.

27,530

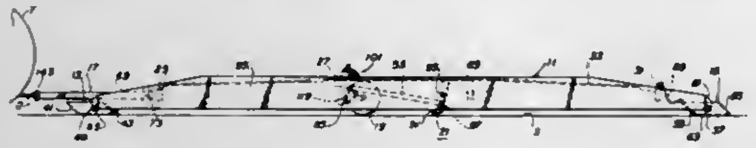
LAND LEVELING IMPLEMENT

James L. Mitchell, Meridian, Miss., assignor to Midland Manufacturing Co. Inc., Memphis, Tenn.

Original No. 3,534,821, dated Oct. 20, 1970, Ser. No. 665,105, Sept. 1, 1967. Application for reissue May 17, 1971, Ser. No. 144,027

Int. Cl. E02f *3/76*

U.S. Cl. 172—780 **10 Claims**



A land leveling implement adapted to be trailingly drawn by a tractor. The implement includes a long frame, slide type runner members on the forward and rearward ends of the frame, an earth working member mounted at the middle of the frame, and trip means or unloader means including land running wheels for raising the earth working member when the tractive effort or draft force on the implement reaches a certain point.

27,531

AMYLOSE COATED, FRIED POTATO PRODUCT AND PROCESS FOR PREPARING THE SAME

Daniel G. Murray, Muscatine, Iowa, and Nicholas G. Marotta, Green Brook, and Richard M. Boettger, Morristown, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Original No. 3,597,227, dated Aug. 3, 1971, Ser. No. 718,356, Apr. 3, 1968, which is a continuation-in-part of applications Ser. No. 412,818 and Ser. No. 412,843, Nov. 20, 1964, both now abandoned. Application for reissue Oct. 4, 1971, Ser. No. 186,505

Int. Cl. A23l *1/12*

U.S. Cl. 99—100 P **4 Claims**

A process for preparing deep fried potato products, including potato chips, french fried potatoes, and specialty products which are all characterized by their improved quality and the products thus produced; said process comprising the coating of such potato products, prior to the deep frying thereof in a hot cooking oil, with an aqueous dispersion of a high amylose starch or the amylose fraction resulting from the separation of whole starch into its amylose and amylopectin components.

27,532

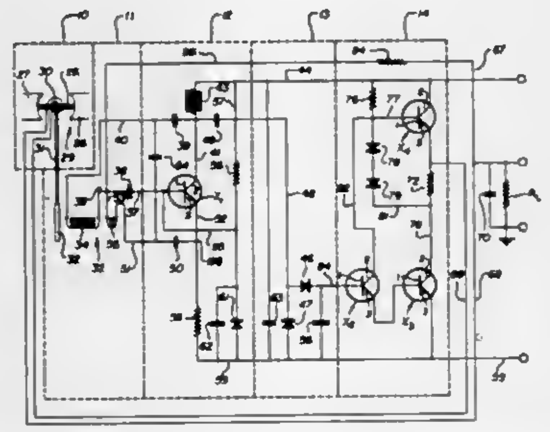
POSITION DETECTING TRANSDUCER

Harold D. Morris, Pleasant Hills, Calif., assignor to Systron-Donner Corporation, Concord, Calif.

Original No. 3,074,279, dated Jan. 22, 1963, Ser. No. 794,487, Feb. 4, 1959. Application for reissue Apr. 24, 1970, Ser. No. 31,578

Int. Cl. G01p *15/08*

U.S. Cl. 73—517 R **20 Claims**



Position detecting transducer for measuring acceleration having a conducting planar element and means for mounnting said planar element for angular movement. A magnet is provided and a coil is disposed in the magnetic field of said magnet and is secured to said planar element for angular movement with said conducting planar element. An inductive pickoff element consisting of a pair of coaxial windings is provided with the windings lying in a plane substantially parallel to the plane of the conducting element and on one side of the conducting element. Means is provided for applying excitation to the pickoff element to establish a magnetic field with the conducting element being positioned relatively close to the pickoff element so that the coupling between the windings is disturbed and losses are reflected into the windings by the conducting element. Detector means is connected to said means for supplying excitation to the pickoff element to give an indication of the position of the conducting element relative to the pickoff. Feedback means is coupled to said detector means for applying a current to said coil proportional to the displacement of the conducting planar element. The means for applying excitation to the inductive pickoff element consists of an oscillator which normally oscillates continuously. The oscillator includes a tank circuit and a feedback circuit. One of the windings of the inductive pickoff element is connected into the tank circuit of the oscillator to form a part of the tank circuit and the other of the windings is connected into the feedback circuit of the oscillator. The output of the oscillator is modulated by variations in spacing between the conducting element and the inductive pickoff element. Additional feedback means couples the detector means to the oscillator to change the gain of the oscillator to thereby control the loop gain and the frequency response of the transducer.

PLANT PATENTS

GRANTED DECEMBER 12, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,267

FLOWERING CRABAPPLE TREE

William H. Collins, Circleville, Ohio, assignor to Cole Nursery Company, Inc., Circleville, Ohio

Filed Feb. 8, 1971, Ser. No. 113,774

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct variety of flowering crabapple tree, *Malus cultivar*, having an abundance of small, glossy, bright to dark red fruits, well distributed and displayed on the upper two-thirds of the plant that persist in a firm and attractive condition after leaf drop and well into late fall or early winter or later, with such glossiness persisting even after the fruits start to shrivel; relatively large, leathery, dark green, glossy foliage that holds late; and a sturdy, straight trunk, the stiff scaffold branches diverging at wide or nearly wide angles to the trunk assuring strong crotch structure, resulting in a small tree of sturdy upright compact branching habit.

3,268

PEONY PLANT

Carl G. Klehm, 2 E. Algonquin Road, Arlington Heights, Ill. 60005

Filed Feb. 18, 1971, Ser. No. 116,687

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora*, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous and strong plant habit, exceptionally thick, stout and strong stems, large, thick and clean foliage, extremely large, many-petalled and high-crowned flowers of a fully double-rose type form and the petals of which unfold with a "crater" effect of seemingly unending ruffled petals, a distinctive and attractive light red flower color, and especial suitability for garden and landscape use, including border or background uses for other flower settings, as well as for cut-flower use.

3,269

PEONY PLANT

Carl G. Klehm, 2 E. Algonquin Road, Arlington Heights, Ill. 60005

Filed Feb. 18, 1971, Ser. No. 116,688

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora*, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a short, petite and compact habit of growth, with a balanced and vigorous root system, clean, disease free, lush green shoots, stems and foliage, a full-double, slightly flat rose type bloom form, with no stamens or carpels, a distinctive and attractive vivid coral pink flower color, with deeper highlights and a slight silver petal edging, and especial suitability for garden and landscape plantings, including neat and formal hedges, as well as groupings with other perennial settings.

3,270

PEONY PLANT

Carl G. Klehm, 2 E. Algonquin Road, Arlington Heights, Ill. 60005

Filed Feb. 22, 1971, Ser. No. 117,845

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora*, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a short but strong habit of growth, a balanced, vigorous, clean and disease-free root system, disease-free shoots, stems and foliage of a lush, bright green color, a medium flower size, a frilly and ruffled bomb-shaped flower form, with slightly atropic carpels and no stamens, a distinctive and attractive color of the flowers which have a double row of pure white, notched guard petals dorsalled with 6 to 9 rows of lemon yellow petaloids and true petals which are dorsalled again with 15 to 30 slightly larger and ruffled light pink petals, and especial suitability for cut-flower and garden landscape uses, and for borders and backdrops for other flower settings.

3,271

PEONY PLANT

Carl G. Klehm, 2 E. Algonquin Road, Arlington Heights, Ill. 60005

Filed Feb. 22, 1971, Ser. No. 117,846

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of peony plant of the species botanically known as *Paeonia lactiflora*, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of an extremely vigorous plant habit, strong, stout, tall and straight stems, very large flowers of fully double-rose type form, a distinctive and attractive blend of cherry red, rose red and vivid rose pink flower colors, with a slight moon silver petal edging, and especial suitability for cut-flower uses.

PATENTS

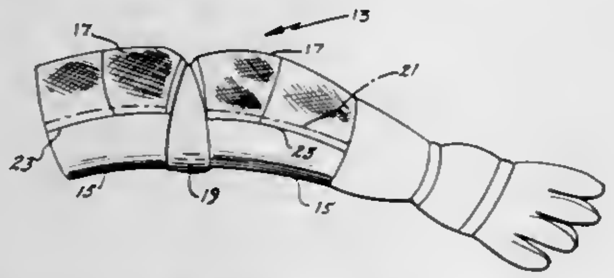
GRANTED DECEMBER 12, 1972

GENERAL AND MECHANICAL

3,705,426
PRESSURE SUIT JOINT SYSTEM

Alfred L. Marcum, Jr., Centerville, Ohio; Marvin Burns, Wilmette, and Richard A. Rodzen, Bolingbrook, both of Ill., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Aug. 27, 1971, Ser. No. 175,532
Int. Cl. B63c *11/04*
U.S. Cl. 2—2.1 A **6 Claims**

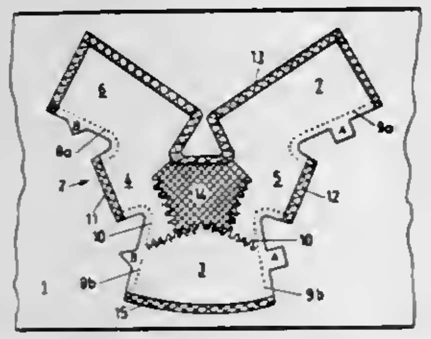


An improved, single plane, soft joint for use as elbow and knee joint systems in a pressure suit wherein increased comfort and freedom of motion is achieved by constructing the joint-covering portions of the suit with fabrics of differing degrees of extensibility on the compression and extension sides of the joint and by applying a tapered band near the pivotal plane of the joint to maintain constant volume at all degrees of flexure.

3,705,427
BLANK AND DRESS MADE THEREFROM

Wera Schroner, Aschaffenburg am Main, Germany, assignor to Fiotti Puppenkleiderspiele Gesellschaft mit beschrankter Haftung, Bruchsal, Germany

Filed Jan. 8, 1968, Ser. No. 696,309
Claims priority, application Germany, Jan. 31, 1967, SCH 41921
Int. Cl. A41d *1/00*
U.S. Cl. 2—74 **2 Claims**



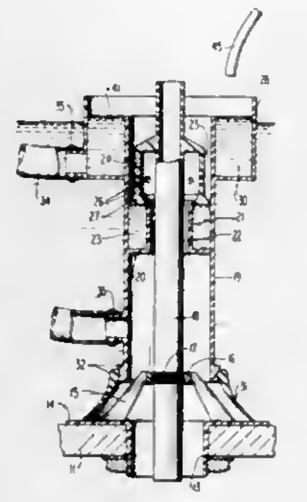
A strip of material for the production of clothing, particularly for the production of doll's dresses, comprises a blank defined by cutting lines and seam areas directly on the material, the seam areas having adhesive thereon for securing the seams together.

3,705,428
FLUSHING APPARATUS

James W. Braswell, 218 Hooker Road, Wilmington, N.C.

Filed May 24, 1971, Ser. No. 146,159
Int. Cl. E03d *1/34*
U.S. Cl. 4—58 **19 Claims**

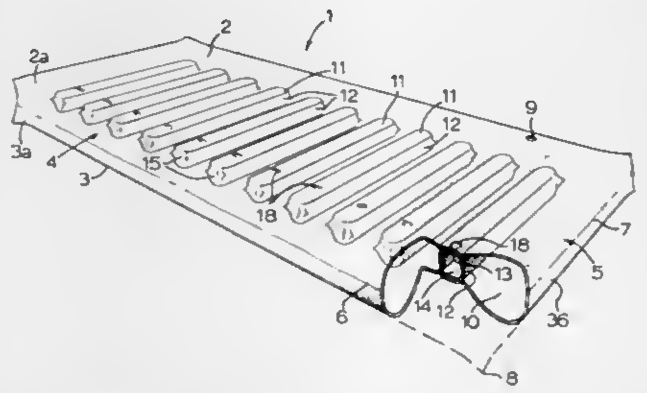
A flushing apparatus particularly for plumbing fixtures embodies only one main moving part which is adapted alternately to receive water and serve as a weight for closing the main flush valve and to discharge said water and in so doing to become a float for opening the flush valve. The main flush valve is essentially self-cleaning and non-corrosive. The entire apparatus is characterized by simplicity, economy of construction, silent operation and reliability. Maintenance requirements are minimized and the apparatus is adaptable to new or old fixtures.



3,705,429
INFLATABLE LOAD SUPPORTING STRUCTURES

Walter P. Nall, 260 Renforth Drive, Etobicoke, Ontario, Canada

Filed Jan. 6, 1970, Ser. No. 885
Claims priority, application Canada, Jan. 9, 1969, 039,632
Int. Cl. A47c *27/08*
U.S. Cl. 5—349 **6 Claims**

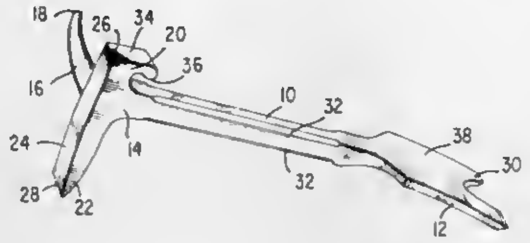


The invention is an inflatable structure which has both shape and load control achieved by locating a plurality of inflatable beams columns or chambers within an outer inflatable chamber, all formed of flexible substantially non expansible (limited stretch) air impervious material, the beams columns or chambers being connected to opposed walls of the outer chamber to limit their separation and being constructed and arranged to preclude transfer of air between the interior thereof and the outer chamber in at least certain directions, the beams or columns being side by side or spaced as desired relative to each other in accordance with the intended load and the connections between the beams or columns and the opposing walls of the outer chamber including connections extending in different directions to give stability under load.

3,705,430
MINIATURIZED FORCIBLE ENTRY TOOL

Theodore Zlaylek, Jr., P.O. Box 292, Yardley, Pa.

Filed May 21, 1971, Ser. No. 145,645
Int. Cl. B25f *1/100*
U.S. Cl. 7—9 **5 Claims**



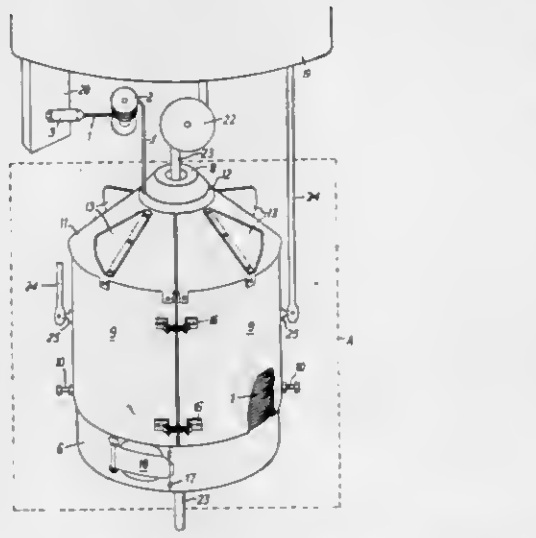
A forcible entry tool is provided having a shank portion, a tail portion and a head portion. The head consists of a spike extending normal to the axis of the shank and wedge and wrench portions extending mutually opposite from each other along a line extending generally normal to both the extension of the shaft and that of the spike. The wedge and wrench portions consist of approximately equal masses so that when an impact is applied to an object by the spike portion, any lateral turning moment about the spike is minimized.

The wrench is formed as an extension of the wedge portion and presents an arcuate upper surface extending between the two so that when the wedge is used, a greater fulcrum distance is provided than heretofore known. Furthermore, in using the wrench portion, both the shank portion and the wedge may be utilized as a dual handle system for applying additional torque to a hose coupling and the like. The shank may be formed to bend away from the side presenting the wrench to facilitate the application of torque to a hose coupling when using the wrench.

3,705,431
MOORING DEVICES

Samuel Bell, and Leslie Gerald Bullen, both of Dartmouth, Nova Scotia, Canada, assignors to Electric & Musical Industries Limited, Middlesex, England

Filed May 7, 1970, Ser. No. 35,544
Claims priority, application Great Britain, May 7, 1969, 23,191/69
Int. Cl. B63b *21/52*
U.S. Cl. 9—8 R **4 Claims**

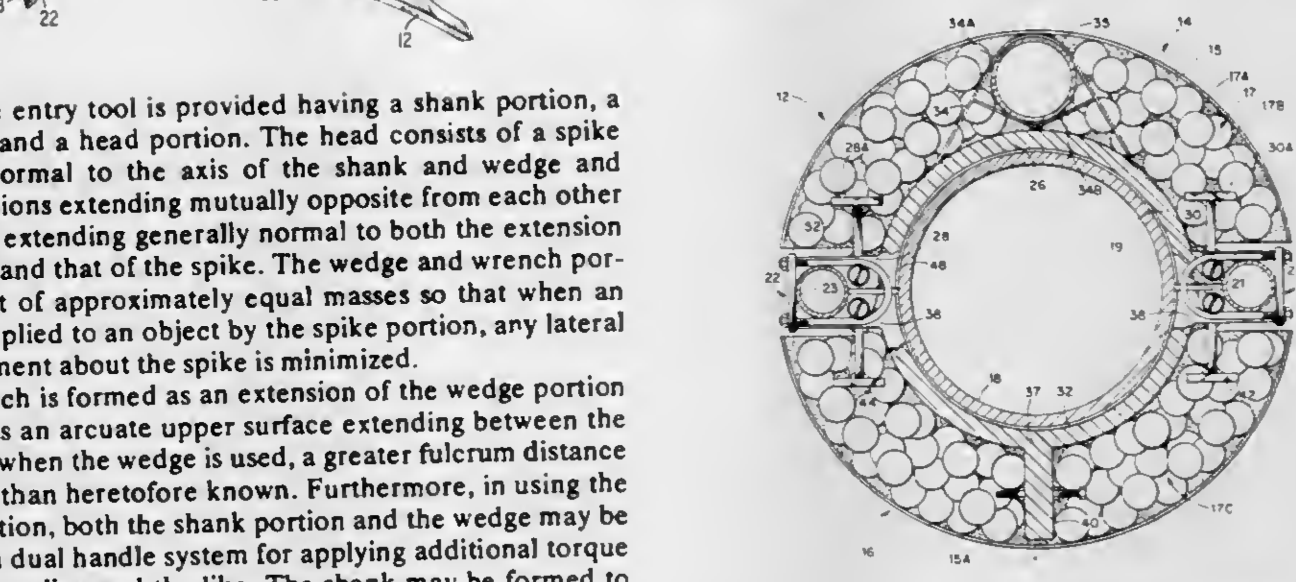


A mooring device includes a tethering cable for tethering a buoyant object, at least one instrument package assembly attached to the buoyant object and through part of which at least the tethering cable passes, connecting cable connecting the buoyant object and the instrument package assembly and formed into a coiled configuration, and means for releasing the instrument package assembly from the buoyant object so that it can be allowed to fall from the buoyant object under its own weight down the tethering cable to a depth predetermined by the available length of the connecting cable. Preferably the arrangement is such that the connecting cable is wrapped round the tethering cable as the instrument package assembly falls and the connecting cable is electrically conductive.

3,705,432
SECURING DEVICE FOR A FLOTATION ASSEMBLY

Louie W. Watkins, Jr., Brookline, Mass., assignor to Data Packaging Corporation, Cambridge, Mass.

Filed May 25, 1971, Ser. No. 146,694
Int. Cl. F21b *15/02;* **B63b** *21/52*
U.S. Cl. 9—8 R **5 Claims**

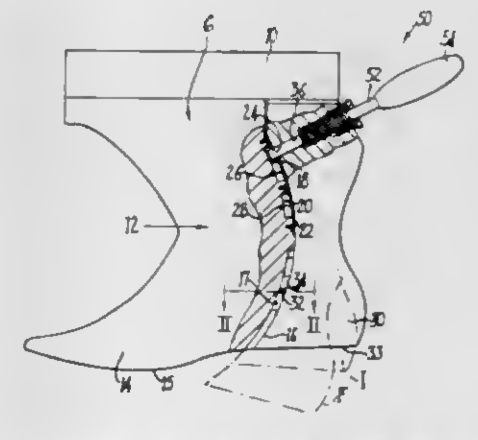


A flotation assembly for a riser pipe generally includes a pair of elongated semiannular flotation collars fabricated in part of a buoyant material and each including a pair of spaced clamps useful in attaching the collars about the riser pipe. These clamps are preferably imbedded within an inner surface of the collar. The present invention is directed to securing devices for retaining the clamps, and in turn the collars, in place tightly against the riser pipe. These securing devices also hold the choke and kill lines, conventionally associated with a riser pipe, in place adjacent the riser pipe.

3,705,433
FOOT FORM AND SHOEMAKING METHOD

Ivan Stoddard, Sutton-in-Ashfield, and Terence D. Broughton, Kirkby-in-Ashfield, both of England, assignors to USM Corporation, Flemington, N.J.

Filed March 8, 1971, Ser. No. 122,082
Claims priority, application Great Britain, March 6, 1970, 10,773/70
Int. Cl. A43d *3/00*
U.S. Cl. 2—133 R **3 Claims**



A foot form for injection molding string lasted footwear in which the heel portion of the form is movable between foreshortened, intermediate, and extended conditions, with means for locking the form in such conditions. The shoemaking method includes the steps of mounting a loose shoe upper having a lasting string in the margin on the form in foreshortened condition, tensioning the string to partially last the upper on the foreshortened last, moving the heel portion of the form to extended condition to fully tension the string and last the upper, and injection molding a shoe bottom on the lasted upper.

3,705,434

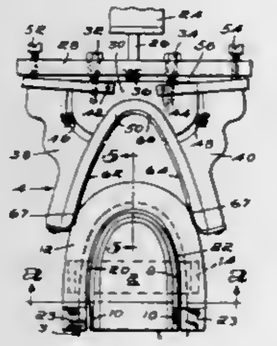
STITCHDOWN COUNTER MOLDING, FLANGING AND WRAPPING MACHINE

Chesterton S. Knight, Brockton, and Randolph H. Baker, Foxboro, both of Mass., assignors to Geo. Knight & Co., Inc., Brockton, Mass.

Filed June 7, 1971, Ser. No. 150,451

Int. Cl. A43d *11/00*

U.S. Cl. 12—146 D **13 Claims**



A machine for molding the back part of a shoe upper into stitchdown configuration. The lower edge of the back part which preferably includes a thermoplastic counter is turned outwardly in two stages; the first stage occurring when a resilient molded liner of a female mold is clamped about the male mold to cause the counter to adhere to the back part over their engaging surfaces. Simultaneously, a partially formed flange is created by the interaction of a flanging plate on the bottom of the male mold and creasing blades on the bottom of the molded liner. In the second stage, an adjustable gauging plate initially used to locate the back part in proper vertical position with respect to the mold moves upward past the flanging plate to engage the partially formed flange, to press it against the underside of the creasing blades and to hold it there for a sufficient time to allow the counter to set in the finished stitchdown configuration. The invention also includes the method performed by the machine. In a modification, the outer periphery of the flange is turned inward to provide a groove to receive the outer edge of a midsole.

3,705,435

APPARATUS FOR WASHING VEHICLES

Ulrich Von Kulmer, Friedberg, Germany, assignor to Maschinenfabrik Kleindienst & Co., Augsburg, Germany

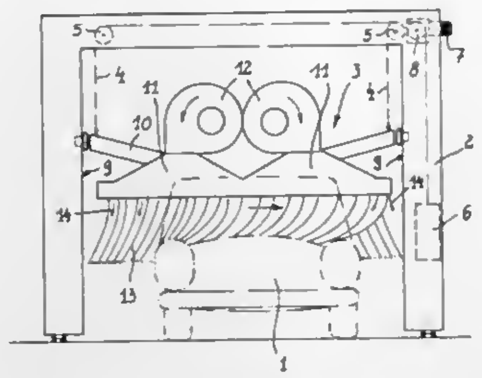
Filed Sept. 16, 1970, Ser. No. 72,719

Claims priority, application Germany, Dec. 15, 1969, P 19 62 818.3

Int. Cl. B60s *3/04*

U.S. Cl. 15—21 R **8 Claims**

A method of, and apparatus for, washing cars and other vehicles involves the use of relatively soft bristles which are pressed on to the vehicle surface by means of compressed air jets conducted along the bristles which also serve to dry the vehicle. The bristles which may be in groups are suitably mounted on axes substantially at right angles to the surface of the vehicle.



3,705,436

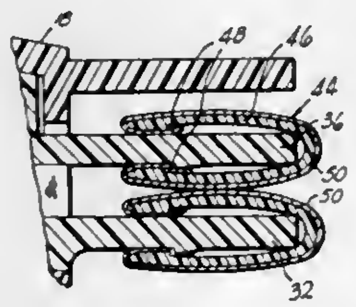
FICHE CLEANING ELEMENT

Robert G. Holliday, Ann Arbor, Mich., assignor to Xerox Corporation, Ann Arbor, Mich.

Division of Ser. No. 13,276, Feb. 24, 1970, Pat. No. 3,633,761. This application June 18, 1971, Ser. No. 154,403

Int. Cl. G11b *1/02*

U.S. Cl. 15—210 R **3 Claims**



A file unit for storing microfiche which keeps the microfiche flat and clean. A vertical column of storage sections is provided which is four sided and which is on a turntable base to facilitate access to storage spaces opening to each of the sides. Replaceable cleaning elements are mounted at the top of the column to permit cleaning of the microfiche.

3,705,437

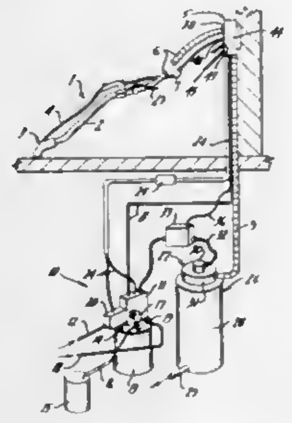
COMBINATION HIGH PRESSURE WASHER AND VACUUM

Louis Rukavina, Jr.; Robert L. Brower, both of Milwaukee, Wis., and Daniel J. Lane, Park Ridge, Ill., assignors to Cleaning Systems Industries, Inc., Milwaukee, Wis.

Filed Aug. 17, 1970, Ser. No. 64,314

Int. Cl. A47l *5/38*

U.S. Cl. 15—302 **5 Claims**



A cleaning device having a cleaning head for working over a surface to be cleaned. The head forms an elongated suction channel which is connected to a vacuum system. A high pressure liquid line is connected to a nozzle which directs a patterned jet of liquid to the cleaning surface through the suction channel. A shield assembly separates the liquid jet from the suction channel and is adjustable to correspond to the desired liquid jet pattern. The vacuum line and liquid line are removably attached to an outlet which connects the liquid line to a pumping station where cleaning and rinsing liquid are selectively supplied to the line in response to electrical signals from a set of dead man switches on the cleaning device, while the vacuum system is controlled by an on-off switch at the outlet.

3,705,438

LOCABLE RUNNERS

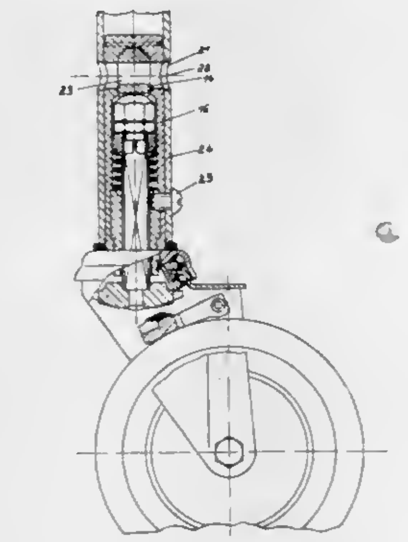
Herbert Stosberg; Horst Fleischmann, both of Wermelskirchen-Tente/Rhineland; Gunter Reinhards, Wermelskirchen/Rhineland, and Siegfried Engels, Wermelskirchen, all of Germany, assignors to Firm Tente-Rollen Gesellschaft mit beschrankter Haftung Companie, Wermelskirchen-Tente/Rhineland, Germany

Filed Nov. 9, 1970, Ser. No. 88,005

Claims priority, application Germany, April 29, 1970, G 7 n16 058.6

Int. Cl. B60b *33/00*

U.S. Cl. 16—35 **10 Claims**



A runner has a conventional back-set bearing and bearing pivot. An axially movable pin passes through the pivot to operate retaining components in the runner fork to lock the wheel against running and/or swivelling movement. The pin is operated by a trip cam housed in a casing which surrounds the pivot and locking pin. The casing may be made in two half-shells and has a lower beading which engages in a groove of the bearing pivot. The casing forms an attachment plug whereby the runner can be fitted to a foot of an article of furniture.

3,705,439

CURTAIN SUSPENSION RAILS

Frank Cooksey, 90 Canning Road; Terence A. Dix, 27 Orchard Close, and David J. Hobson, c/o The Miners Welfare Club, Lichfield St., all of Tamworth, England

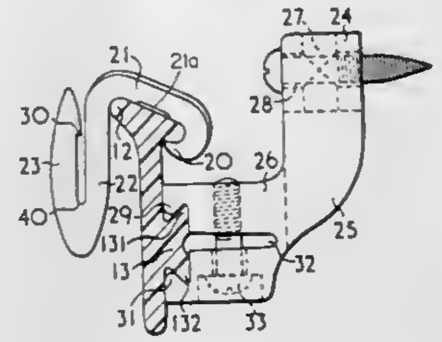
Filed Jan. 23, 1970, Ser. No. 5,191

Claims priority, application Great Britain, Feb. 20, 1969, 9,222/69; Feb. 20, 1969, 9,223/69; Sept. 1, 1969, 3,3054/69

Int. Cl. A47h *1/04, 15/00*

U.S. Cl. 16—94 D **9 Claims**

A curtain suspension arrangement comprises a rail, support means for said rail, a plurality of hook-gliders which are combined hooks for engagement with a curtain and gliders for engagement with a rail, said rail being relatively deep with a smooth front surface and comprising a glider-securing means along the upper edge portion thereof, each hook-glider comprising a rail-engagement portion adapted to be supported solely by and slide smoothly along said glider-securing means, the hook portion of each hook-glider lying above the lower edge of the rail, whereby a curtain can be supported at a high level relative to the rail.



3,705,440

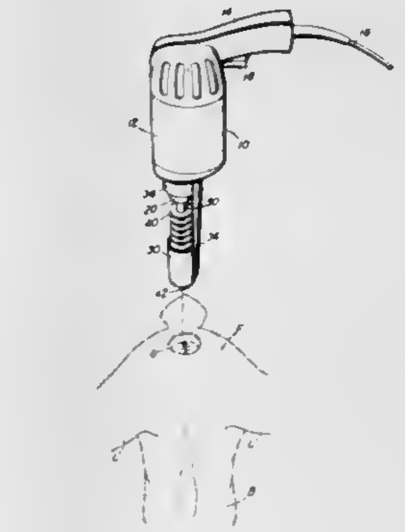
FOWL VENT REMOVAL APPARATUS AND METHOD

Ernest E. Lewis, Flowery Branch, Ga., assignor to Gainesville Machine Company, Inc., Gainesville, Ga.

Filed Jan. 21, 1971, Ser. No. 108,316

Int. Cl. A22c *21/06*

U.S. Cl. 17—11 **7 Claims**



A rotating means in the form of a power operated tool rotates an elongated spiral member relative to a tubular serrated cutting member. The spiral member has a sharp tapered outer end which extends beyond the cutting edge of the cutting member. The spiral member penetrates into the area of the fowl adjacent the vent thereof and produces a reaction force to urge such area of the fowl into engagement with the cutting member to make a circular cut in the tissue surrounding the vent so as to disconnect the vent from the surrounding tissue and thereby remove the vent of the fowl.

3,705,441

STRIPPER FOR THE DRAWING FRAMES OF SPINNING MACHINES

Adolf M. Muller, Waxensteinstr 67, and Josef Grosselfinger, Schillstr. 186, both of Augsburg, Germany

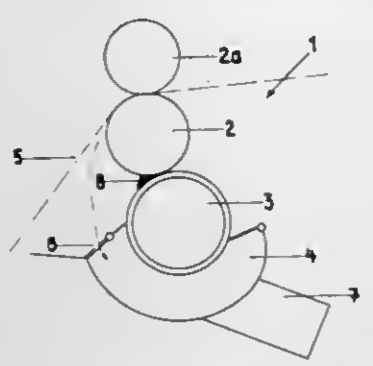
Filed May 25, 1970, Ser. No. 40,129

Claims priority, application Germany, May 23, 1969, P 19 26 419.8

Int. Cl. D01b *5/62*

U.S. Cl. 19—263 **6 Claims**

A leather-covered stripper roller, bearing upon one of two coacting transport rollers for the conveyance of filamentary material to remove adhering lint or fluff with the aid of an associated suction device, comprises a tube rotatably journaled on a fixed shaft which carries an externally operable brake engageable with the tube from within. The brake preferably includes an elastically expandable sleeve which is intermittently inflatable by compressed air to arrest the stripper roller against frictional entrainment by the engaged transport roller.



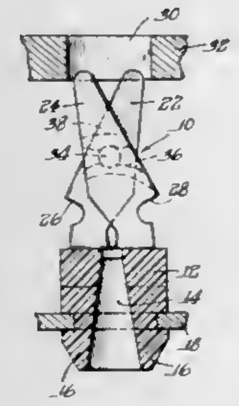
3,705,442
SNAP-IN FASTENER

Harry A. Sygnator, Arlington Heights, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Oct. 6, 1971, Ser. No. 187,016

Int. Cl. A44b ***21/00***

U.S. Cl. 24—73 P **10 Claims**



This invention relates generally to improvements in spring type fasteners and more particularly to a one-piece fastener for attaching and detaching the back panel of a television set with respect to the chassis thereof. An embodiment of the invention disclosed herein comprises a pair of elongate, blade-like members resiliently coupled at one extremity to a snap-in head having a clamping surface for engaging one side of an apertured workpiece or panel. Said blade-like members are movable in scissors-like fashion and are provided with oppositely disposed shoulders for engaging the opposite side of said apertured workpiece. Said members may be temporarily retained in panel disengaged relation against the opposing force of said resilient coupling to facilitate attachment or detachment of a back panel with respect to a television chassis.

3,705,443
AUTOMATIC BUTTON FASTENING DEVICE

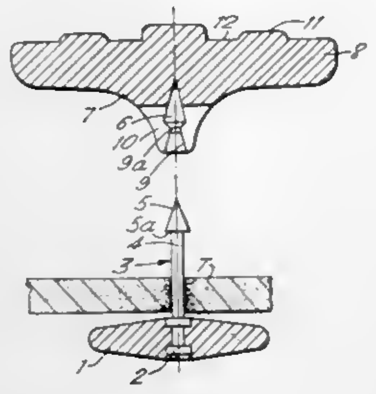
Marsilio Camporese, 28, via Gustavo Modena, and Alberto Levi, 4, via Londonio, both of Milan, Italy

Continuation-in-part of Ser. No. 732,271, Dec. 9, 1968, abandoned. This application Feb. 1, 1971, Ser. No. 111,690

Int. Cl. A44b ***1/18***

U.S. Cl. 24—90 PR **6 Claims**

An automatic button fastening device comprised of a locking stud and a receptacle portion. The locking stud is adapted to be passed through the article to be fastened and then inserted into the receptacle portion which may be in the form of a button body. Involuntary removal from the receptacle portion is prevented by the retaining shoulders holding the locking stud in place. The locking stud can be released by the lateral movement of the locking stud accompanied by the radial displacement of the receptacle portion which is accompanied by the lateral shifting of the retainer shoulder.



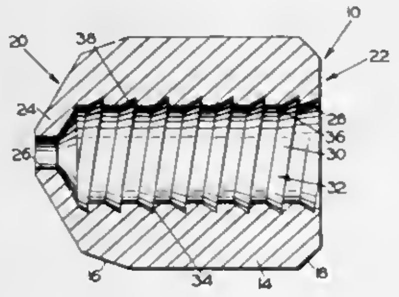
3,705,444
SWAGABLE WIRE ROPE FERRULE

Kenneth L. Werusing, 1931 N. E. 72nd Avenue, Portland, Oreg.

Filed March 24, 1971, Ser. No. 127,652

Int. Cl. F16g ***11/02***

U.S. Cl. 24—114.5 **4 Claims**



A ferrule for use on the end of a wire rope comprises a swageable metal body having a forward nose section and a rearward open terminal section interconnected by a longitudinally extending bore. The bore has a plurality of circumferentially formed ridges defined by leading and trailing surfaces meeting at an angle of not more than about 90°. When a wire rope is inserted into the bore and the ferrule swaged, the metal is displaced from the rope into the recesses present between the ridges. The leading surface of each ridge thereupon provides a buttress, backing up the metal displaced into the recesses, and opposing withdrawal of the rop when a pulling stress is applied to it.

3,705,445
VIBRATION DAMPED FITTING

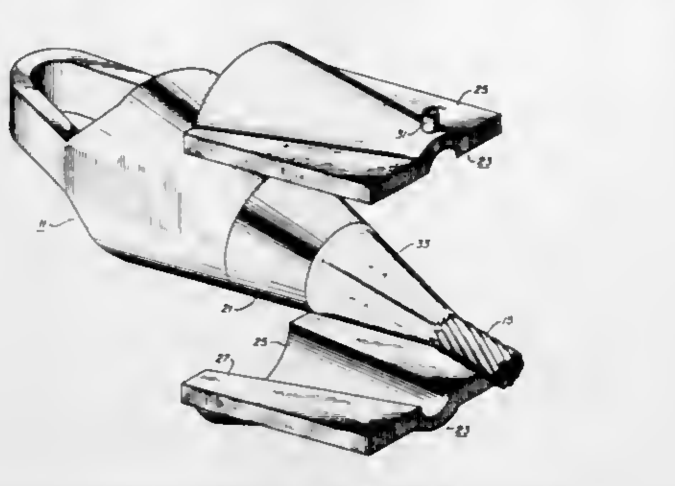
Carl W. Smollinger, 1621 Marlin Ave., Williamsport, Pa.

Filed Dec. 31, 1969, Ser. No. 889,381

Int. Cl. F16g ***11/00***

U.S. Cl. 24—123 **11 Claims**

A socket type end fitting for wire rope and strand is provided with a plastic cone intimately shaped about the strand adjacent to the fitting to dampen vibrations in the rope.



ERRATUM

For Class 24—265 see:
Patent No. 3,705,456

3,705,446
APPARATUS FOR PROCESSING SLIDE FASTENERS

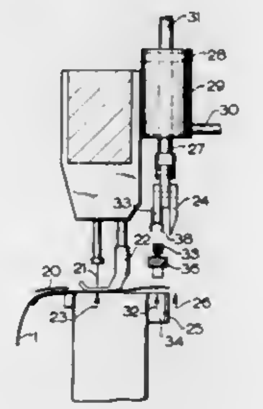
Pertti O. Gustavsson, Boras, Sweden, assignor to William Prym-Werke KG, Stollberg/Rheinland, Germany

Division of Ser. No. 734,262, June 4, 1968, Pat. No. 3,570,434. This application March 3, 1971, Ser. No. 120,614

Claims priority, application Sweden, June 5, 1967, 7840/67; Germany, Sept. 6, 1967, P 42946

Int. Cl. B23p ***23/00***

U.S. Cl. 29—34 A **14 Claims**



Apparatus for processing slide fasteners including a two needle sewing machine for sewing portions of a pair of continuous slide fastener stringers with engaged coupling elements to portions of a garment or the like, cutting means for cutting off the remainder of the continuous stringers from the sewn on portions thereof, and means to permanently connect the cut-off ends of the remainder of the stringers.

3,705,447
MACHINE TOOL BIT

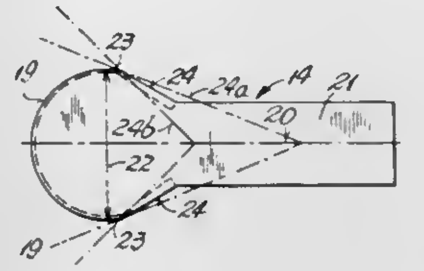
John P. Kollar, Trumbull, Conn., assignor to Thomas J. Kollar, Milford, Conn.

Filed Oct. 22, 1970, Ser. No. 83,067

Int. Cl. B26d ***1/00***

U.S. Cl. 29—95 **4 Claims**

There is disclosed a single end, full radius, contouring and disposable machine tool bit having on its cutting end cutting edges comprising a centralized semicircular segment which is larger in diameter than the width of the body of the bit for cutting work during its forward and lateral movements and means for cutting the work during the retrograde movements of the bit including an arcuate segment which is a continuation of said semicircular segment at each end of the latter for about 10° and a straight segment forming a continuation of each of said arcuate segments extending toward and forming an included angle of about 60° with the longitudinal axis of the body of the bit.



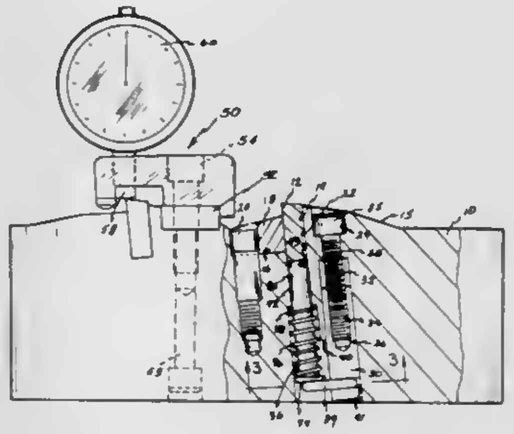
3,705,448
BROACH ASSEMBLY

Kurt Bansen, 2142 Walter Court, Warren, Mich.

Filed Sept. 10, 1970, Ser. No. 70,983

Int. Cl. B26d ***1/00, 1/12***

U.S. Cl. 29—95.1 **4 Claims**



A broach assembly useful in shaving or skiving operations including a broach block, a cutting blade and means accessible from the cutting blade side of the broach block to mount the blade to the block and to adjust the position of the blade with respect to the block. The adjustment is provided by a pin engageable with the underside of the cutting blade and a screw actuated device accessible from adjacent the blade for moving the pin vertically beneath the blade.

3,705,449
ROLLING AND SQUEEZING APPARATUS

Eduard Kuesters, Gladbacher Strasse 457, 415 Krefeld, Germany

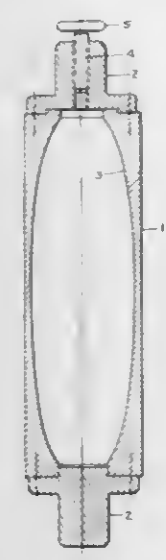
Filed Sept. 25, 1970, Ser. No. 75,315

Claims priority, application Germany, Sept. 27, 1969, P 19 48 890.5

Int. Cl. B21b ***31/32***

U.S. Cl. 29—113 AD **2 Claims**

An improved rolling and squeezing apparatus comprising a rotating hollow roll shell having an inside surface the generatrix of which is symmetrical about its midpoint and is



non-linear in at least some portions, and pressure means acting on said inside surface.

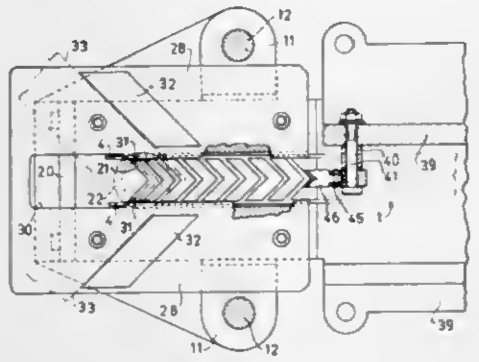
3,705,450
BEARING MATERIAL
Nobukazu Morisaki, Aichi-ken, Japan, assignor to Daido Metal Company Ltd., Nagoya, Japan
Filed July 16, 1971, Ser. No. 163,250
Claims priority, application Japan, Oct. 27, 1970, 45/94498
Int. Cl. B22f *7/00*
U.S. Cl. 29—182.3 **2 Claims**

A bearing material comprising a steel back metal, a porous layer of sintered copper or copper alloy, and a layer of an impregnated and sintered mixture filling the voids of said porous layer and forming a surface layer of the bearing material, said sintered mixture consisting of polytetrafluoroethylene, lead or lead oxide and graphite or a mixture of PTFE, lead fluoride and graphite.

3,705,451
METHOD OF PREPARING DAMPENING TRANSFER AND MATERIAL CONDITIONING ROLLER
Harold P. Dahlgren, 6919 Blackwood, Dallas, Tex.
Continuation of Ser. No. 414,574, Nov. 30, 1964, abandoned, which is a continuation-in-part of Ser. No. 26,035, May 2, 1960, Pat. No. 3,168,037, which is a continuation-in-part of Ser. No. 844,372, Oct. 5, 1959, abandoned. This application Dec. 9, 1966, Ser. No. 600,650
Int. Cl. B21h *1/14;* **B21k** *1/02*
U.S. Cl. 29—148.4 D **2 Claims**

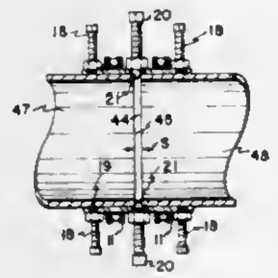
A fluid transfer and material conditioning roller, and method of preparing same, wherein a metallic roller is chrome plated, the surface of the chrome plating is ground and polished to provide a very smooth, uninterrupted surface thereon, the surface is treated with a solution of chrome solvent such as hydrochloric, or sulfuric acid mixed with equal parts of water and gum arabic to remove chromium oxide from the surface thereof and to coat said surface with an oxidation-preventing coating to render the roller permanently hydrophilic. The roller is particularly adaptable for use in a continuous duty dampening system such as that shown in Dahlgren U.S. Pat. No. 3,168,037, for transferring dampening fluid to a lithographic plate by depositing the fluid on a film of ink from which it is transferred to the plate. The roller has further applicability in transferring fluid to a moving web or other surface and for conditioning surfaces such as polishing and calendaring.

3,705,452
METHOD AND DEVICE FOR UNITING WOOD STRIPS TOGETHER
Alfredo Motta, Via Cesare Battisti, Zero Branco, Italy
Filed April 20, 1971, Ser. No. 135,602
Claims priority, application Italy, April 28, 1970, 24008 A/70
Int. Cl. B23p *17/00, 19/00*
U.S. Cl. 29—155 R **3 Claims**



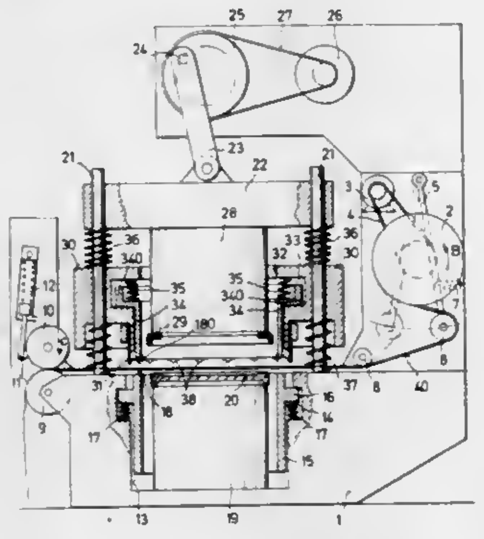
A method and a device are disclosed for joining wooden strips set at an angle, such as the wooden strips employed for picture frames and the like. The metal fasteners are chevron shaped metal sheet blanks whose respective ends are integral with two parallely running bands. The fasteners have teeth projecting perpendicularly to their common plane, said teeth being intended to be driven into the wood strips. A hydraulic punching press is provided which, once the wood strips set at the desired angle have been positioned on the press bench, drives a punch which severs each chevron-like fastener individually and drives the relevant teeth into the wood strips to be joined.

3,705,453
PIPE CENTERING JIG
Neil W. Olson, 417 Alton Ave., Murray, Utah
Filed Nov. 13, 1970, Ser. No. 89,226
Int. Cl. B23k *37/04;* **B23p** *19/00*
U.S. Cl. 29—200 P **10 Claims**



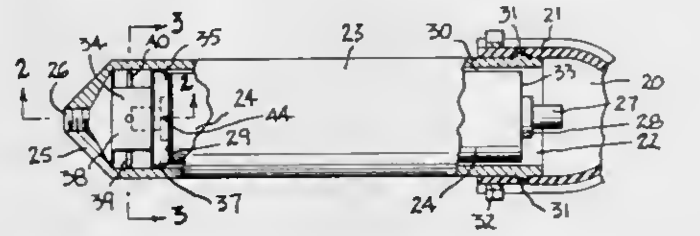
A flexible elongate clamping device constructed for temporary securement about a pair of adjacent pipe sections which are to be welded or otherwise secured together. The device preferably takes the form of a pair of mutually-spaced, elongate, link-type chains having mutually spaced cross-plates secured thereto at corresponding links thereof. Such plates accommodate central bolts having tapered ends for aiding the selection of the desired spacing between the adjacent pipe sections prior to tack welding thereof. Likewise, the cross-plates accommodate other, side adjustment means for insuring the mutual co-axial alignment of the adjacent pipe sections, whether their outside diameters differ or whether the configuration of such adjacent pipe sections assumes a rectilinear or even a curved form.

3,705,454
APPARATUS FOR FRAMING A FOIL PORTION
Gerhard Zuhlke, Geroldswil, Switzerland, assignor to Schweiger & Schweizer AG, Zug, Switzerland
Division of Ser. No. 864,048, Oct. 6, 1969, Pat. No. 3,623,211. This application May 7, 1971, Ser. No. 141,168
Claims priority, application Switzerland, Oct. 21, 1968, 15674/68
Int. Cl. B23p *19/04*
U.S. Cl. 29—288 D **9 Claims**



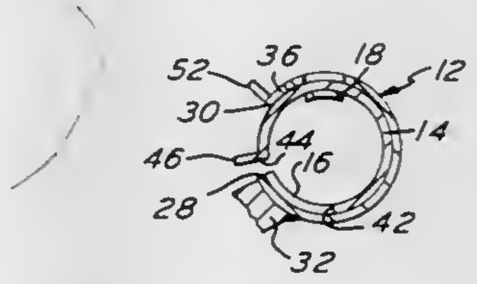
In order to frame a foil portion with a mirror surface, a foil is perforated along a circular line, a marginal zone of the foil is frictionally held within the endless line, the foil is cut along the endless line, and the marginal zone is firmly clamped and moved over a first frame part and tensioned, whereupon a second frame part is pressed against the first frame part and clamps the tensioned foil to the first frame part without any wrinkles or folds.

3,705,455
REPLACEABLE ROLLER SURFACE FOR CONVEYOR AND APPLICATION TECHNIQUES THEREFOR
John R. Lovett, 23604 Lake Road, Village, Ohio
Continuation-in-part of Ser. No. 43,349, June 4, 1970, abandoned. This application Jan. 28, 1971, Ser. No. 110,462
Int. Cl. B23p *19/04*
U.S. Cl. 29—234 **11 Claims**



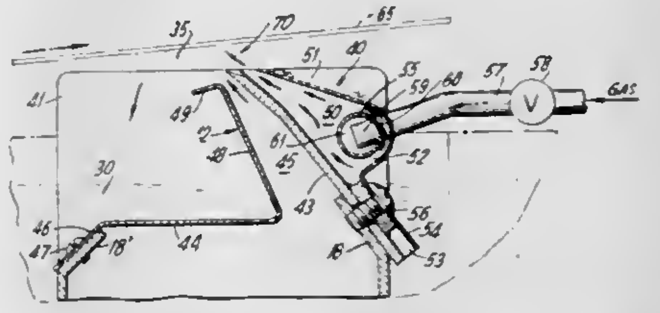
A resilient tubular sleeve of elastomeric material provided with a plurality of longitudinally-extending circumferentially-spaced cavities inwardly thereof to provide a replaceable surface for a conveyor roller. The cavities provide an intermittent series of compressible wall sections on the sleeve for engagement with and displacement by a conveyor belt in response to axial rotation of the roller to provide a seal cleaning roller surface. The tubular sleeve has a smaller internal diameter, in its unstressed condition, than the diameter of the roller on which it is mounted. The tubular sleeve is mounted on the roller by expanding its internal diameter sufficiently to permit it to slide axially along the roller to the desired position and thereafter permitting it to contact upon the roller surface and resiliently grip it. Improved techniques, tools and devices for effecting the mounting of the tubular sleeve on the roller for disclosed, as well as the utilization of these techniques for deforming the sleeve to provide a self-aligning conveyor roller.

3,705,456
WATCHBAND COUPLING
Mates A. Bruner, 1113 Wynnbrook Place, Secane, Pa.
Continuation-in-part of Ser. No. 110,215, Jan. 27, 1971, abandoned, which is a continuation-in-part of Ser. No. 866,325, Oct. 14, 1969, Pat. No. 3,605,212. This application Aug. 19, 1971, Ser. No. 173,054
Int. Cl. A44c *5/18*
U.S. Cl. 24—265 B **19 Claims**



A watchband coupling adapted to secure a watchband to a watch having spaced lugs with a pin secured therebetween. The watchband is readily removable from the watch by providing a pair of concentric partially cylindrical sections, with one section rotatable within the other. A slot is formed in each cylindrical section. The inner partially cylindrical section is secured within the outer partially cylindrical section by an inwardly extending lip which lies parallel to the outer cylindrical section, and over which the inner cylindrical section will rotate. In another aspect of the invention, a pair of resilient partially cylindrical sleeves is positioned in the outer cylindrical section. These resilient sleeves can be moved toward and away from each other in order to adjust the effective width of the watchband coupling. In this way, the coupling is adapted to be used with watches having different widths between the lugs.

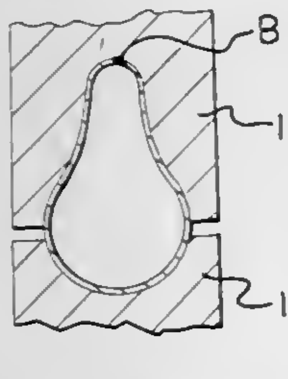
3,705,457
WAVE SOLDERING USING INERT GAS TO PROTECT PRETINNED AND SOLDERED SURFACES OF RELATIVELY FLAT WORKPIECES
Louis V. Tardoskegyi, Montreal, Quebec, Canada, assignor to Electrovert Manufacturing Co., Ltd., Montreal, Quebec, Canada
Filed Nov. 2, 1970, Ser. No. 86,181
Int. Cl. B23k *31/02, 35/38*
U.S. Cl. 29—494 **11 Claims**



Relatively flat workpieces, such as printed circuit boards, are pretinned and soldered using the wave solder technique in which molten solder is forced upwardly through a nozzle to form a standing wave of molten solder which is gently curved in a direction parallel to the work travel direction. A flat workpiece is moved in the work travel direction with its undersurface in contact with the standing wave and, as its forward end emerges from the wave, it defines, with the surface of the wave, a space. Inert gas under pressure is supplied to this space to exclude air from the solder coated undersurface of the workpiece to inhibit oxidation thereof. The disclosure apparatus includes a nozzle for forming a one-sided standing wave, and a second nozzle is positioned above and extends in the same direction as the solder wave-forming nozzle. The second nozzle is supplied with the inert gas under pressure to be discharged over the surface of the standing wave of solder, with the inert gas flowing over the undersurface of the workpiece and exiting at the side edges thereof.

3,705,458
METHOD FOR TESTING WELDED SEAM PIPES IN A TUBE MILL

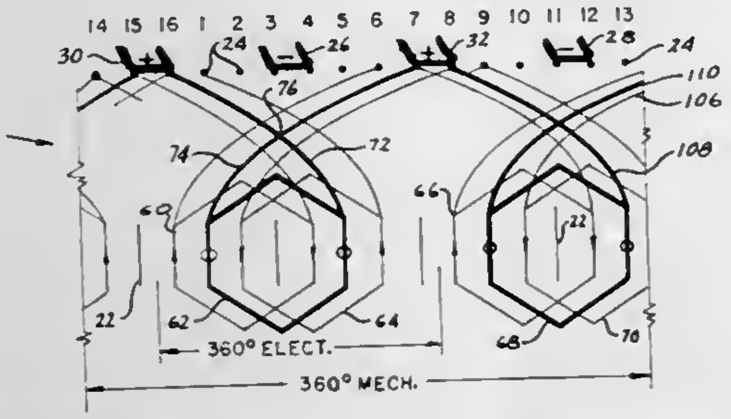
Clyde W. Vassar, Vancouver, Wash., assignor to Nelson D. Abbey, Jr., Perrysburg, Ohio
Filed May 22, 1969, Ser. No. 826,865
Int. Cl. B23k *31/02*
U.S. Cl. 29—477.7 **1 Claim**



The testing of welded seam tubing in a tube mill which commences with an endless metallic strip or ribbon and ends with a welded seam tube cut to a predetermined length after passing through a series of roll passes to form the cylindrical tube, welding the free abutting edges, sizing and shaping the tube and finally recurrently cutting the continuous tube into the desired lengths. After the welding station the tubing is subjected to deformation pressures in order to detect imperfections in the welded seam as well as to the parent metal itself adjacent to the weld, thereby to improve the end product and militate against leaks. Thereafter, the tubing is sized and straightened to its desired shape. Imperfections disclosed by such deformations are determined as the tube travels by accepted methods, such as by ultrasonic testing devices, and thereafter such imperfect areas are either cut out, reworked or discarded as scrap.

3,705,459
WAVE WINDING OF ARMATURES

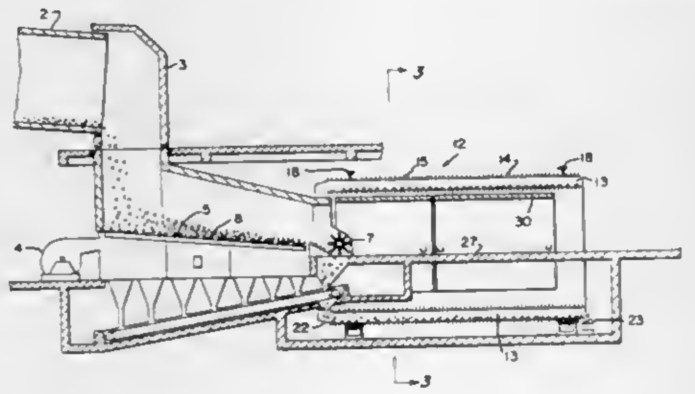
John M. Biddison, Dayton, Ohio, assignor to The Globe Tool and Engineering Company, Dayton, Ohio
Filed June 24, 1971, Ser. No. 156,359
Int. Cl. H01r *43/00*
U.S. Cl. 29—597 **3 Claims**



Procedures are described for wave winding armatures to be used in dynamoelectric machines having four or more poles utilizing flier type armature winding machines. After the winding of each coil or pair of coils, the armature is rotated through 360 electrical degrees plus or minus the angle between adjacent armature slots to position the armature for the winding of the next coil or pair of coils. Intermediate the winding of coils by the same flier the lead wire connections are made to the commutator by looping the lead wires about hooks projecting from the commutator. All coils are wound with the flier or fliers rotating in the same direction.

3,705,460
MATERIAL COOLING APPARATUS

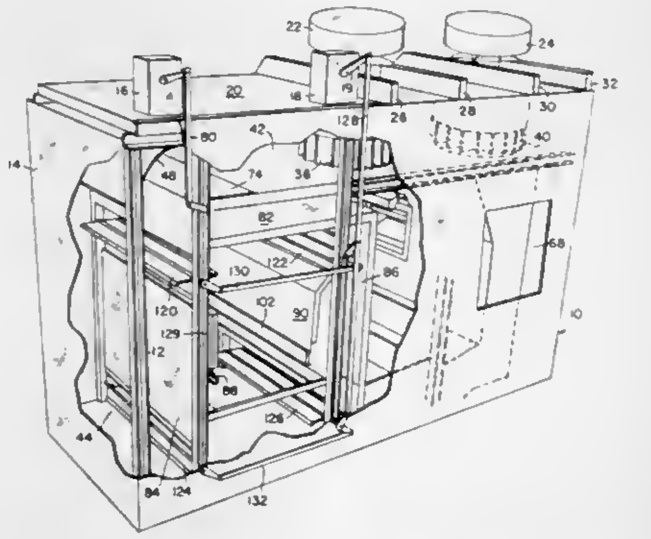
Karl-Heinz Kayatz, Hamburg-Nienstedten, Germany, assignor to Claudios Peters Aktiengesellschaft
Filed Jan. 18, 1971, Ser. No. 107,216
Int. Cl. F26b *19/00*
U.S. Cl. 34—60 **3 Claims**



A cement clinker cooler for use with a kiln which includes a grate-type recuperation cooler wherein the cooling air is returned to the kiln for use as combustion air. The cooling apparatus also includes a second-stage cooler which may be in the form of an indirect heat exchanger or a radiation cooler or a combination of an indirect heat exchanger and a radiation cooler.

3,705,461
DRYER DAMPER AND CONTROL MECHANISM

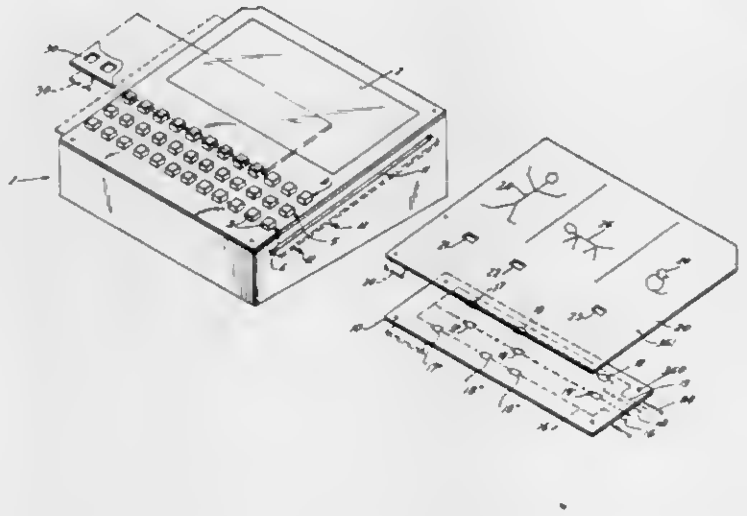
Ralph C. Parkes, North Hancock St. & Lehigh Ave., Rydal, Pa.
Filed Sept. 24, 1970, Ser. No. 74,958
Int. Cl. F26b *21/06*
U.S. Cl. 34—191 **5 Claims**



A dryer and damper control mechanism designed to dry articles by forced warm air including a plurality of internal baffles directing the flow of heated air through the dryer, a first set of dampers co-operating to guide the air downwardly through the articles being dried, a second pair of dampers to direct the heated air upwardly through the articles being dried and, controls to precisely regulate the temperature, humidity, and volume of the heated air through all portions of the apparatus.

3,705,462
TEACHING MACHINE

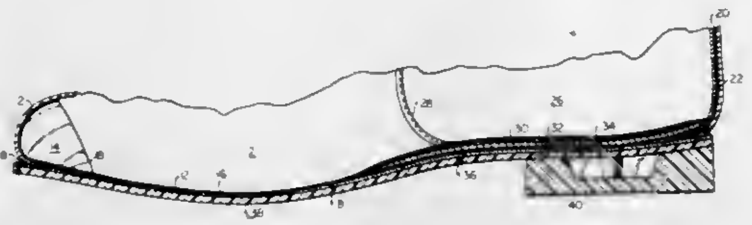
Matthew Mansfield, 418 West 20th Street, New York, N.Y., and Morton Cooperman, 55 West 92nd Street, New York, N.Y.
Filed Aug. 13, 1971, Ser. No. 171,548
Int. Cl. G09b *7/02*
U.S. Cl. 35—9 D **15 Claims**



A teaching machine is provided with a plurality of inserts, the first insert illustrating a question or problem and allowing for the depression of only certain selector keys. A second insert, aligned with the first insert, is provided with a plurality of openings which are acted upon by the selector keys, the openings in the second insert being connected by particular circuitry to allow for recognition by the operator of the teaching machine that an individual segment of the problem has been correctly selected and that the entire problem or question has been successfully completed. The machine may be so constituted, based upon an operator's selection, that only completion of a final answer is recognized.

3,705,463
CONSTRUCTION FOR SHOE, SLIPPER OR THE LIKE

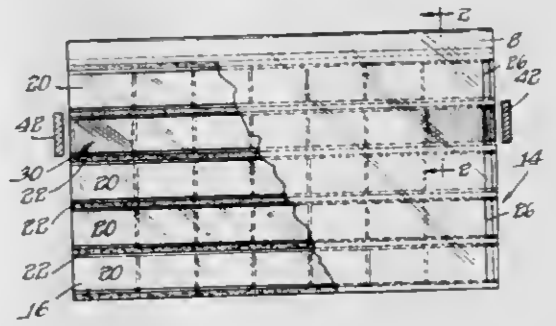
Milton Lown, Bangor, Maine, assignor to Northeast Shoe Company, Pittsfield, Maine
Filed Dec. 30, 1969, Ser. No. 889,074
Int. Cl. A43b *13/00, 23/00*
U.S. Cl. 36—25 **4 Claims**



An improved shoe having a front upper provided with a pair of opposing side edges which are turned under, and flexible elastic bridging means joining the side edges to each other underneath the upper. A rear upper member is secured adjacent its forward edge to the rear portion of the front upper. A midsole member is secured to the front upper and to the rear upper member and has recess means for positioning therein cushion means of a relatively soft compressible material. A rigid toe insert member is secured to the front upper forwardly of the bridging means and a rigid heel insert member is secured to the front upper rearwardly of the bridging means and to the rear upper member. Outersole and heel members are secured to the midsole member, and the cushion means underlies the bridging means and is adhesively secured thereto.

3,705,464
MICROFILM HOLDER

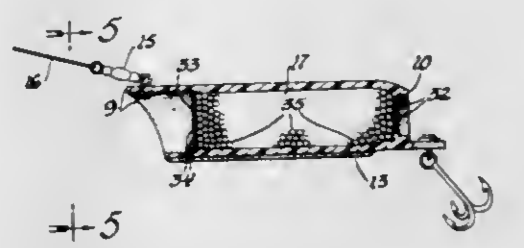
Ernest A. Dahl, Jr., 729 Greenwood Ave., Wilmette, Ill.
Filed Oct. 2, 1970, Ser. No. 77,581
Int. Cl. G09f *1/12*
U.S. Cl. 40—105.5 **4 Claims**



A transparent holder for a plurality of microfilm strips arranged in parallel pocketed array thereacross and including thin magnetic strip means carried by a pocket of the holder in a position adapting the assembly for use in a fanning magnetic type of filing system wherein a storage file tray or drawer includes magnet means along the sides thereof acting through the magnetic strip means to cause fanning out or separation of the upper margins of a prearranged group of holders by magnetic repulsion in order to facilitate visual survey of the fanned holders for selective holder removal from the storage file or insertion thereof at a predetermined, proper location.

3,705,465
FISH LURE

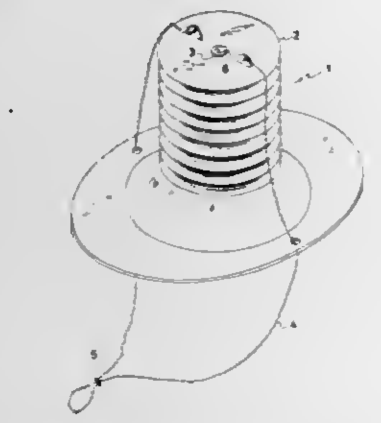
Andrew Charney, 20918 Botsford Drive, Farmington, Mich.
Filed Jan. 11, 1971, Ser. No. 105,503
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.06 **9 Claims**



A fish lure having an elongated hollow body of light refracting plastic material with smoothly curved sidewalls which terminate at one or both ends with an oblique face to provide a circle of emitted light. The surfaces of the body are also provided along the bottom thereof with a pair of ribs extending substantially the full length of the body with relatively narrow outwardly facing, light emitting surfaces disposed obliquely to the adjacent wall surfaces. Interiorly of the body is a rollable "knocker" ball, a spinner or a quantity of salmon eggs.

3,705,466
MUSICAL HEAD GEARS

Ramy M. Sela, No. 4 Eleazar Hachorany Street, Tel Aviv, Israel
Filed Dec. 31, 1969, Ser. No. 889,652
Claims priority, application Israel, Jan. 27, 1969, 31495
Int. Cl. A63b *33/00*
U.S. Cl. 46—1 F **1 Claim**



A festive head gear capable of emitting comic, sounds, or tunes used in various occasions and named "Musical Hat".

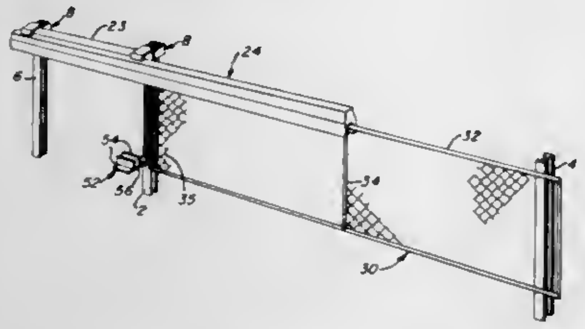
3,705,467
SOIL BED PREPARATION, SOIL STABILIZING, SOIL CONDITIONING, AND SOIL IMPROVING PROCESS

James T. McKnight, 8 Fawn Lane, Martinsville, N.J.
Filed May 27, 1971, Ser. No. 147,642
Int. Cl. A01n *7/02*
U.S. Cl. 47—9 **14 Claims**

A method of seed bed preparation, and soil improvement, conditioning, and stabilization comprising coating soil particles with a reactive high molecular weight cationic polymer or latex so as to form coated, positively charged soil particles and reacting coated, charged soil particles with an anionic alkali-treated lignin binder to provide a film or a network on the soil of sufficient wet strength to provide the soil with resistance to rainfall and water runoff. In addition to effectively stabilizing the soil, the soil treatment method accelerates the rate of seed germination and decreases the loss of valuable fertilizer material and seed.

3,705,468
CANTILEVER SLIDE GATE

James E. Asbworth, Moraga, Calif., assignor to United States Steel Corporation
Filed May 13, 1971, Ser. No. 143,076
Int. Cl. E05d *13/02*
U.S. Cl. 49—409 **10 Claims**



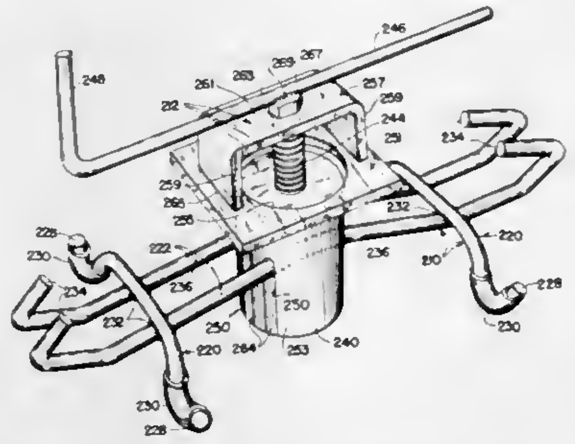
A cantilever slide gate is supported on a gate post and on a line post spaced from the fence post on the side opposite the gate opening by means of a pair of brackets, one secured to each post. Each bracket supports a pair of fixed rollers with their axes horizontal in a transverse vertical plane normal to a longitudinal vertical plane through the post. A longitudinally movable track is supported on the rollers by means of two spaced apart top flanges. The track also has two spaced apart bottom flanges which support the gate by means of two pairs of spaced apart rollers secured to the top of the gate with their axes parallel to the axes of the fixed rollers, these rollers resting on the bottom flanges. One pair of the gate rollers is positioned generally centrally of the gate and the other pair is positioned on the side toward the line post. Means are provided to cause the track and gate to move in unison with the gate movement being twice that of the track movement.

ERRATUM

For Class 51—287 see:
Patent No. 3,705,619

3,705,469
ANCHOR INSERT AND SETTING CONE FOR A PRECAST CONCRETE BODY

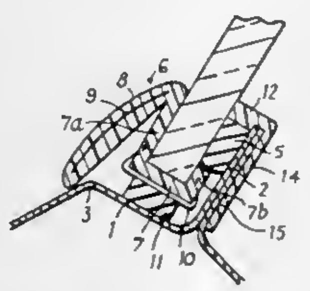
George J. Erlksson, Morton Grove, Ill., assignor to Superior Concrete Accessories, Inc., Franklin Park, Ill.
Filed Dec. 10, 1970, Ser. No. 96,702
Int. Cl. F04b *1/41*; **B28b** *7/16*; **B29c** *7/00*
U.S. Cl. 52—125 **11 Claims**



An anchor insert and a cooperating setting cone, the insert being designed for embedment in a concrete slab or other body, and the cone constituting a hole-forming pattern member which, when extracted from the hardened concrete, exposes a limited portion of the insert and renders it accessible for slab-lifting purposes. Novel cone-extracting means in the form of a torque rod facilitates breaking of the bond between the cone and the concrete and lifting the cone from the hole which it establishes in the concrete.

3,705,470
GLAZING WINDOWS OR WINDSCREEN OPENINGS, PARTICULARLY IN VEHICLE BODIES

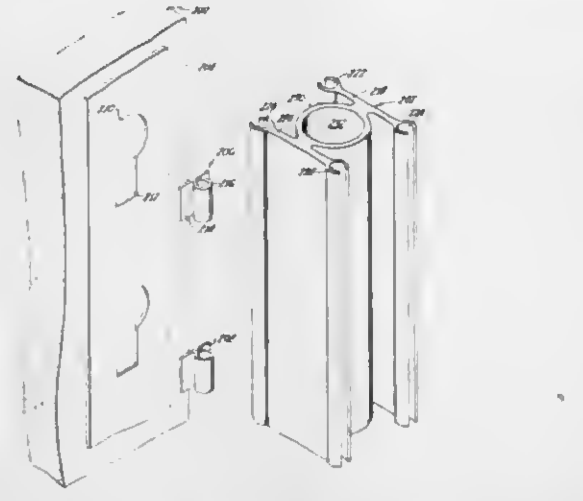
Cecil Kent, Woking, England, assignor to Creators Limited, Woking, England
Continuation-in-part of Ser. No. 827,633, May 26, 1969, abandoned. This application Oct. 10, 1969, Ser. No. 865,428
Claims priority, application Great Britain, March 21, 1969, 15,106/69; Aug. 1, 1969, 38,765/69; Oct. 1, 1969, 48,325/69
Int. Cl. E06b *3/56*
U.S. Cl. 52—208 **16 Claims**



The invention relates to glazing window or windscreen openings, particularly in vehicle bodies by securing the glass, with a trim strip surrounding its edge, in the rebate of the opening by means of an adhesive pressed between the glass and/or the trim strip and the rebate. The trim strip is made of flexible plastics material with a channel portion which embraces the edge of the glass, and a front decorative strip portion which extends from and can hinge relative to the edge of the front wall of the channel portion which lies on the inside of the trim strip when it is fitted around the glass. The outer edge of the front portion bears against the front of the rebate. By this construction the inside edge of the trim strip is urged close against the glass, and any tendency to buckling is avoided.

3,705,471
SNAP ON DRYWALL FASTENING SYSTEM II

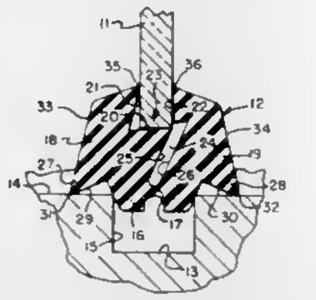
Charles R. Allen, 551 Elinor Drive, Fullerton, Calif.
Continuation-in-part of Ser. No. 87,124, Nov. 5, 1970. This application Jan. 14, 1971, Ser. No. 106,469
Int. Cl. E04b *2/32*
U.S. Cl. 52—243 **9 Claims**



A building wall or other partition and a system for making such partitions in which individual wallboards or panel members can be removed and rearranged by being simply snapped into place and removed from studs is disclosed. The wallboards are held in position by resilient fastener clips received in grooves formed on supporting beams or studs.

3,705,472
ELASTOMERIC GLAZING STRIP AND GLAZED FRAME INCORPORATING SUCH STRIP

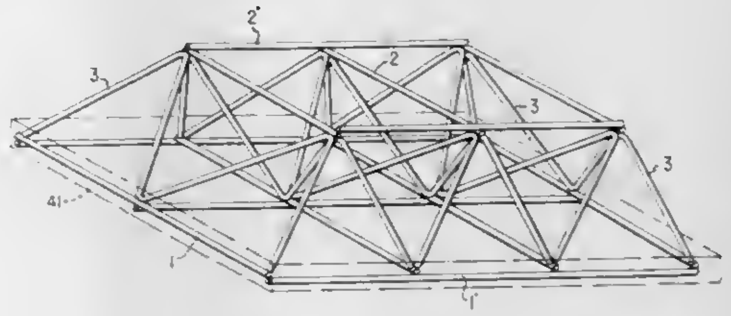
Harry P. Van Oss, 150-17 12th Road, Whitestone, N.Y.
Filed Jan. 5, 1971, Ser. No. 104,080
Int. Cl. E04f *1/36*; **E06b** *7/14*
U.S. Cl. 52—400 **1 Claim**



A novel elastomeric glazing element of extruded form, utilized in the mounting of glass panes and other panels in channeled frame structures. The cross-sectional configuration of the element is such as to provide a pair of hingedly connected clamping and sealing arms, the upper portions of which engage edge margins of the panel to be mounted. One of the sealing arms is provided with an integral panel edge supporting abutment, which provides the entire edge support for the panel. Frame engaging abutments extending outwardly from each of the sealing arms at intermediate points and serve to support the elastomeric element in the frame. When the panel is seated in the elastomeric element and urged into the channel provided therefore in the frame structure, the action of the frame engaging abutments, seating against the frame, serves to close the respective sealing arms tightly on the opposed surfaces of the panel to achieve highly effective clamping and sealing thereof.

3,705,473
STRUCTURAL SLAB MEMBERS

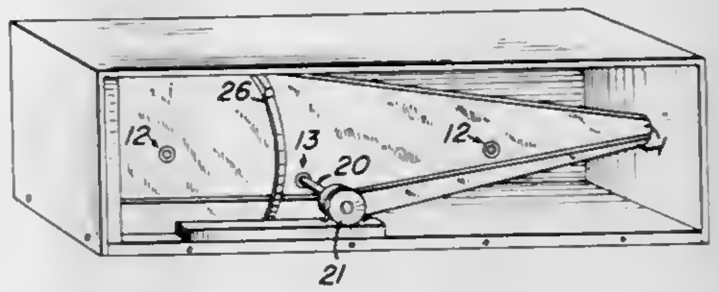
Manuel Yeffal-Rueda, Mexico City, Mexico, assignor to Tridilosa International, Inc., Mexico D.F, Mexico
Filed July 20, 1970, Ser. No. 56,260
Int. Cl. E04c *3/09*
U.S. Cl. 52—650 **2 Claims**



A structural slab element composed of two grid frames and a series of diagonal members extending between the two frames, with each diagonal member end being connected to an intersection point of a respective grid frame, wherein certain of the diagonal members and/or portions of the grid frames are removed to provide rectangular passages for conduits and the regions around the removed portions are strengthened by reinforcing members. Certain of the diagonal members are prolonged to extend out of the resulting slab perpendicular to the grid frames for reinforcing walls built on the slab. A basic slab of the type described has one side, corresponding to the location of a grid frame, embedded in a slab of concrete to provide a reusable, large-area, light weight construction mold form.

3,705,474
METHOD TO PREVENT TOXIC GAS EMISSION

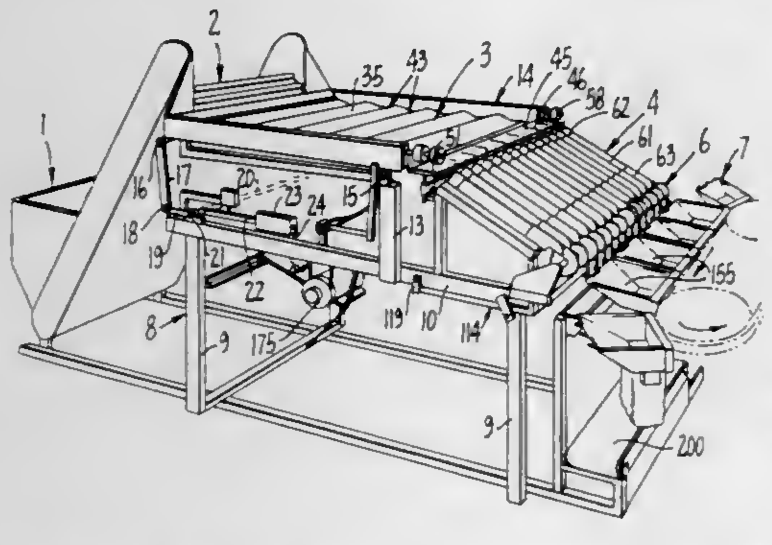
Donald E. Smith, Towson, Md., assignor to The United States of America as represented by the Secretary of the Army
Division of Ser. No. 796,367, Feb. 4, 1969, Pat. No. 3,593,767. This application Jan. 21, 1971, Ser. No. 108,541
Int. Cl. B65b *31/04*
U.S. Cl. 53—22 A **2 Claims**



A method of containing, shipping, storing, and handling objects to prevent water vapor from entering the container atmosphere and to avoid toxic gas emission from the container atmosphere to the outside environment.

3,705,475
PACKAGING MACHINE AND METHOD

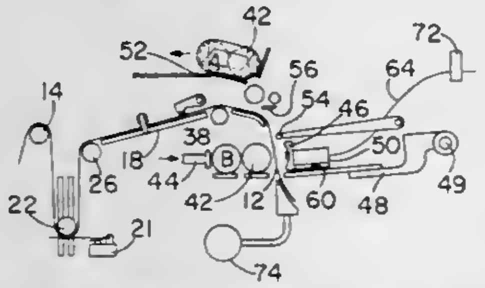
Lloyd D. Riley, Danville, Calif., assignor to Filper Corporation, San Ramon, Calif.
Continuation-in-part of Ser. No. 37,131, May 14, 1970, Pat. No. 3,650,083. This application Aug. 24, 1970, Ser. No. 66,218
Int. Cl. B65b *5/10*
U.S. Cl. 53—35 **26 Claims**



A machine including conveyor mechanisms for supporting and delivering articles that are preferably substantially round, from a bulk supply of a random arrangement of said articles to a plurality of single files in which the leading articles are held in alignment in a series thereof for discharge, in succession, into a container moving past the articles so aligned, and a release mechanism on said machine actuatable by each container-support for releasing one of said articles into each container as each container and its support moves past one of said series of articles.

3,705,476
WRAPPING APPARATUS

Ernest Robert Wolf, Aiken, S.C., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Jan. 12, 1971, Ser. No. 105,909
Int. Cl. B65b *11/38, 25/16*
U.S. Cl. 53—210 **3 Claims**

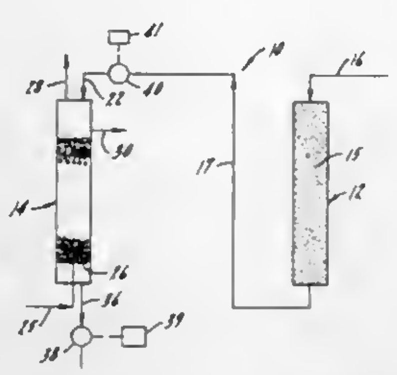


Improved wrapping apparatus for items such as one or more toilet tissue or toweling rolls especially wherein a film of thermoplastic material is used as the wrapper. Wrinkling of the wrapper and excessive roll compression are avoided by a vacuum loaded receiver placed adjacent the articles being wrapped but on the opposite side of the wrapper so as to maintain the wrapping film in a smooth condition until wrapping is substantially completed.

3,705,477
CONDENSATE ANALYZER

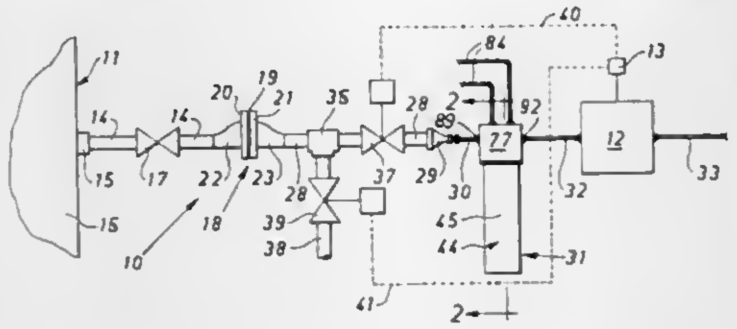
John F. Longo, Brooklyn, N.Y., and Joseph H. Duff, Basking Ridge, N.J., assignors to Ecodyne Corporation
Filed Feb. 8, 1971, Ser. No. 113,523
Int. Cl. B01d
U.S. Cl. 55—18 **6 Claims**

A method and apparatus for stripping carbon dioxide from a liquid for use in measuring true acid conductivity of boiler feed condensate. The condensate is passed through a standard Larson-Lane column connected in series with a column, packed with an inert packing material. An inert gas is bubbled through the packed column to displace the carbon dioxide by mechanical action.



3,705,478
ELECTROSTATIC PRECIPITATOR AND GAS SAMPLING SYSTEM

Jan Frederik Vaneldik, Edmonton, Alberta; Ronald Ian Wilson, Sherwood Park, Alberta; Gerrit Richard Kampjes, and William James Lavender, both of Edmonton, Alberta, all of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada
Filed Aug. 4, 1970, Ser. No. 60,785
Int. Cl. B03c *3/01*
U.S. Cl. 55—120 **1 Claim**

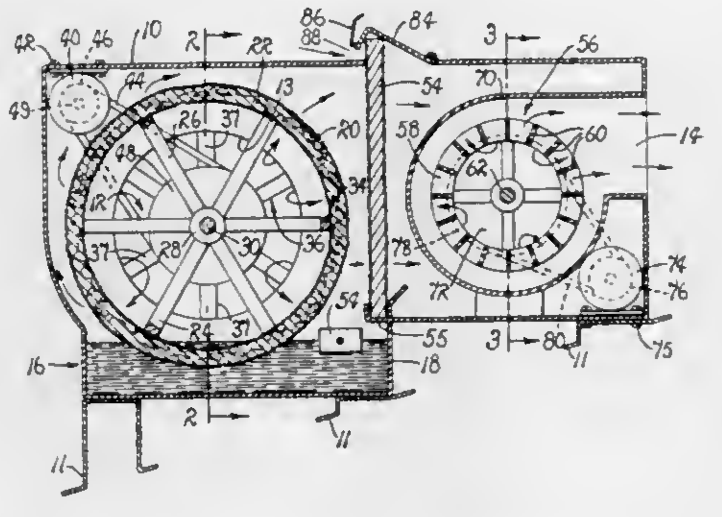


An electrostatic precipitator especially suited for use in a gas sampling system for removing solid particulate material from a sample gas stream withdrawn from an ore reduction roaster for passage to a gas chromatography unit is designed to remove residual and very small particulate material from such a gas stream after such a stream has first passed through a relatively coarse screen filter. The electrostatic precipitator includes a housing divided by a downwardly extending partition into an ionization chamber containing an ionizing wire electrode and a collector chamber containing a plate-type collector electrode. The partition terminates upwardly of the floor of the housing to provide a dust-collection chamber through which the gas stream flows on passing from the ionization chamber to the collector chamber. In the overall gas sampling system, a blow-back gas system is provided for dislodging solid material from the screen filter and from the upstream portion of the sampling conduit and for returning dislodged material to the roaster to prevent cumulative plugging of the system. Operation of such a blow-back system is usefully controlled by a sampling programmer of the gas chromatography unit to which the system is coupled so that such blow-back system operates automatically between successive analyses.

3,705,479
APPARATUS FOR COOLING AIR

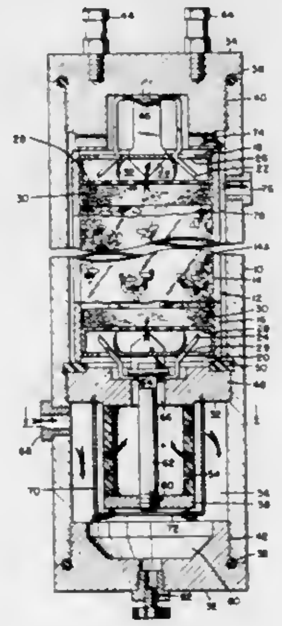
Wilson W. McPherson, 925 E. Griffith, Fresno, Calif.
Filed May 15, 1969, Ser. No. 824,778
Int. Cl. B01d *47/00*
U.S. Cl. 55—223 **1 Claim**

An apparatus for providing a stream of substantially dry evaporatively cooled air for use in dwellings and the like, characterized by the utilization of a high-speed blower for establishing a stream of air, a continuously rotating water-saturated pad interposed in the stream adapted to provide a radial discharge of moisture-ladened, evaporatively cooled air and a substantially dry perforated pad interposed in the stream of air between the blower and the periphery of the saturated pad for extracting moisture from the air, whereby a stream of relatively dry cooled air is provided.



3,705,480
DEHYDRATOR FOR GASEOUS FLUIDS

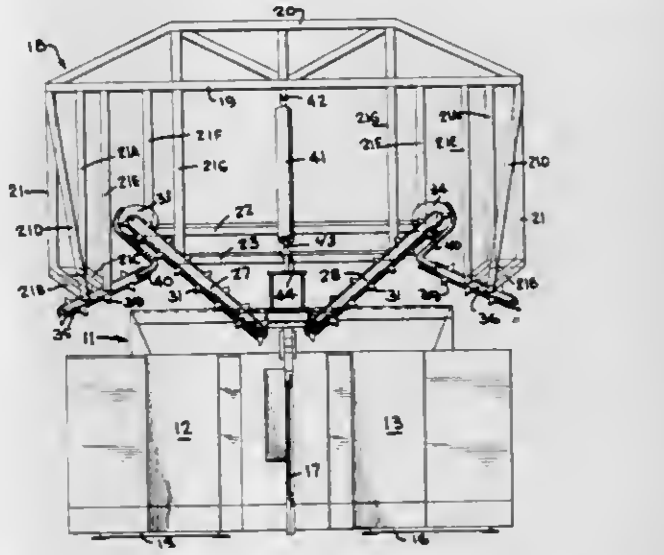
Wallace M. Wireman, 3514 Handman Ave., Cincinnati, Ohio
Filed Feb. 6, 1970, Ser. No. 9,334
Int. Cl. B01d *50/00*
U.S. Cl. 55—275 **10 Claims**



The dehydrator for gaseous fluids incorporates in its desiccant bed a quantity of color change dew point indicating material. Said indicating material may be distributed at random throughout the desiccant bed, or it may be incorporated as one or more layers or strata. When distributed at random, the color change dew point indicating material furnishes a progressively continuous indication of the moisture content of the desiccant bed, by means of a gradually advancing color line moving toward a terminal indication at which the condition of the desiccant is regarded as spent, or saturated with moisture. The color line is visible through transparent portions of the dehydrator.

3,705,481
SUGAR CANE TOPPER FOR V-CUTTER HARVESTER

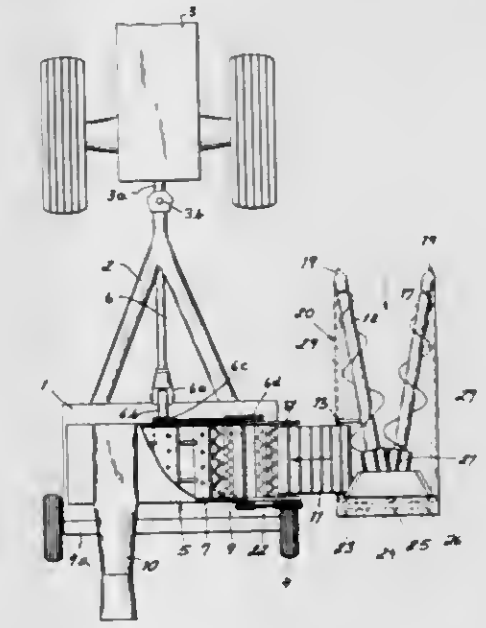
Harold A. Willett, Thibodaux, La., assignor to Cane Machinery & Engineering Company, Inc., Thibodaux, La.
Filed Dec. 28, 1970, Ser. No. 101,919
Int. Cl. A01d *45/10*
U.S. Cl. 56—13.9 **6 Claims**



This disclosure is directed to a topping device for use with a V-cutter type sugar cane harvester in which the topping main frame unit is pivoted at its lead end to the lead end of the V-cutter and is provided with cane gathering means which present the cane stalks to topping discs which are effectively raised and lowered by a cylinder and ram mechanism connected between the topping main frame and the frame of the V-cutter harvester at a point rearwardly of the pivotal connection between the topping frame and harvester.

3,705,482
FIELD HARVESTER FOR ROW CROPS

Josef Purrer, Gottmadingen, Germany, assignor to Maschinenfabrik Fahr AG, Gottmadingen, Germany
Filed Feb. 10, 1971, Ser. No. 114,329
Claims priority, application Germany, Feb. 12, 1970, P 20 06 232.2
Int. Cl. A01d *45/02*
U.S. Cl. 56—13.9 **11 Claims**

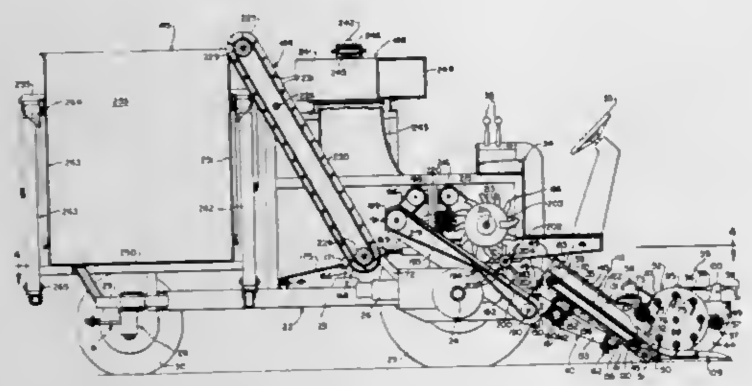


A field harvester for row crops, especially stalk crops such as corn, has a stalk-entrainment device formed by a pair of rearwardly converging augers or conveying worms which, at the rear of the entrainment device, are in superposed relationship to deposit stalks upon a conveyer with the butt end of the stalk forwardly. The stalks then move transversely beneath a feed drum to the chopper and blower blades. The cutter consists of a plurality of blades arranged on a disk rotated at the base of the throat of the stalk-guide device.

3,705,483
MULTI-ROW, MULTI-CROP HARVESTER

Virgil N. Jarrell, Viola, Del., and Arthur L. Towson, Lewiston, N.Y., assignors to Chisholm-Ryder Company, Inc., Niagara Falls, N.Y.

Filed Jan. 22, 1971, Ser. No. 108,944
Int. Cl. A01d *45/22*
U.S. Cl. 56—13.5 **24 Claims**

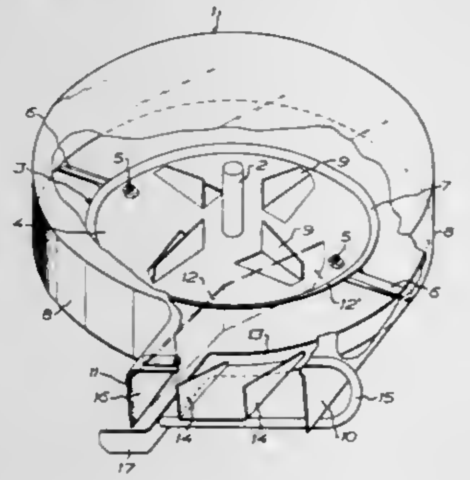


A machine for harvesting crop from densely planted crop-bearing plants of relatively low height arranged in closely spaced rows and suitable for harvesting different types of crops such as snap beans, lima beans, peas, dry beans and the like. The harvester is preferably self-propelled and driven over the bed of plants to harvest in a single pass a swath of the plants including a multiplicity of rows by stripping the foliage and crop from the plants but leaving the stems still rooted in the ground and then separating the stripped foliage from the crop, returning it to the swath harvested and collecting the separated crop.

3,705,484
LAWN-MOWERS WITH HORIZONTALLY ROTATING KNIVES

Stig Gunnar Hjelmquist, Box 6, S-57301 Tranas, 1, Sweden

Filed Oct. 19, 1971, Ser. No. 190,673
Claims priority, application Sweden, Oct. 21, 1970, 14160/70
Int. Cl. A01d *55/18*
U.S. Cl. 56—320.2 **3 Claims**

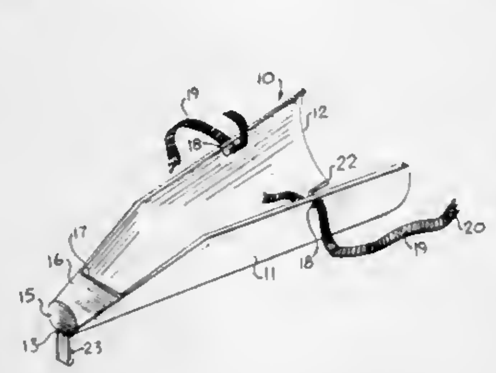


A lawn-mower with horizontally rotating knives has an ejection aperture formed in a casing enclosing the rotary knives. Screening means are arranged in the ejection aperture to prevent accidents. The knives of the lawn-mower function in the manner of fan blades so as to cause the uncut grass to stand on end and to lift the cut-off grass blades to a level above the path of the knives. The knife unit also includes another fan device which produces a flow of air directed towards the ejection aperture and carrying the cut-off grass outwards through this aperture. Further, screening means are disposed above the ejection aperture at a level with the path of motion of the knives, and the ejection of the grass has to take place through a portion of the aperture that lies above the screened portion of the ejection aperture.

3,705,485
DEVICE FOR USE IN PICKING BERRIES, AND THE LIKE

Charles H. Toomer, Elm Avenue, Berlin, N.J.

Filed July 21, 1971, Ser. No. 164,620
Int. Cl. A01g *19/00*
U.S. Cl. 56—330 **4 Claims**

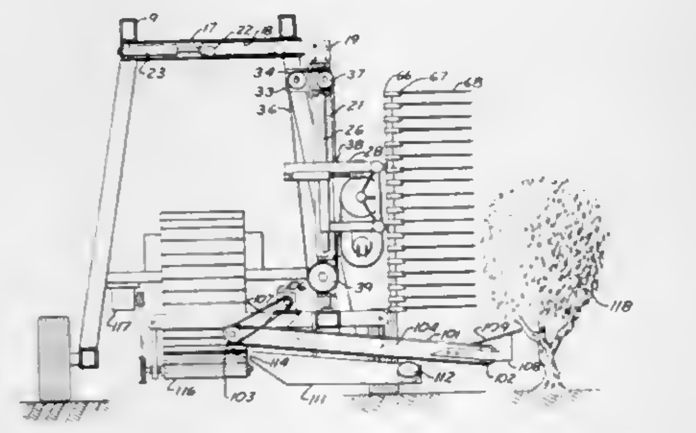


A portable trough for collecting berries, and the like, having one end closed for location against a user with the other end extending away from the user, suspension means extending from the trough for engagement about the user, and a receiver on the other trough end for receiving engagement with a plant being picked.

3,705,486
BUSH BERRY HARVESTER

Pictiaw Chen, and James J. Mehlschau, both of Yolo, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed June 15, 1971, Ser. No. 153,250
Int. Cl. A01g *19/04*
U.S. Cl. 56—330 **7 Claims**

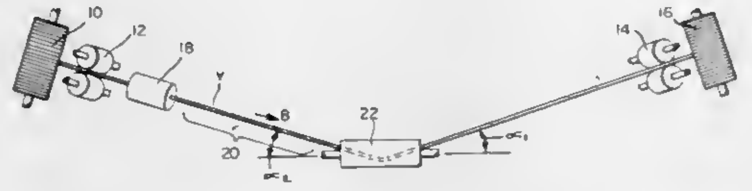


A bush berry harvester for berries growing on bushes in a row has a carriage movable along the row and carrying a pair of tine grids movable in unison up and down to a selected elevation and movable in unison transversely toward and away from the bushes and also oscillatable in opposite phase in a fore and aft direction at variable amplitude and frequency to dislodge berries onto a conveyor leading to a berry cooler on the carriage.

3,705,487
FALSE-TWISTING APPARATUS

George A. Carruthers, Haverbreaks, England, assignor to Turbo Machine Company, Lansdale, Pa.

Filed June 10, 1970, Ser. No. 45,111
Int. Cl. D02g *1/08*
U.S. Cl. 57—77.4 **20 Claims**

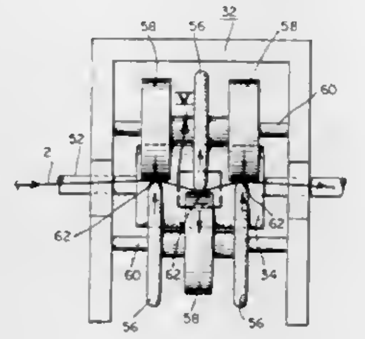


Apparatus wherein yarn is twisted by frictional engagement with a high friction rotating surface while it passes between such surface and a stationary or moving, low friction anvil surface forming a barrier with the first rotating surface. The yarn is tensioned toward the barrier on either side thereof to insure frictional engagement of the yarn with the high friction surface, while the high friction member is rotated in a direction such as to move the yarn away from the barrier. Water or some other lubricant may be used to minimize wear on the barrier forming surfaces. Further, the relative position of the first rotating surface and the mating anvil which may be counter or co-rotating with the high friction surface may be changed continuously or intermittently to minimize localized wear of these surfaces.

3,705,488
APPARATUS AND METHOD FOR PRODUCING A HIGH DEGREE OF TWIST IN YARN

William C. Sholly, Jr., Souderton, Pa., and George A. Carruthers, Lancaster, England, assignors to Turbo Machine Company, Lansdale, Pa.

Filed May 20, 1971, Ser. No. 145,326
Int. Cl. D02g *1/04;* **D01b** *7/92*
U.S. Cl. 57—77.4 **11 Claims**



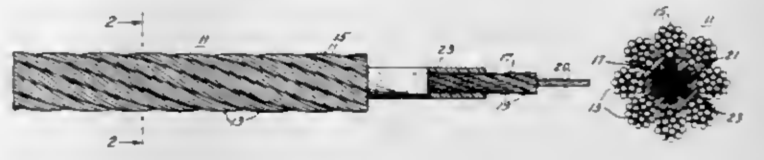
Yarn texture is imparted with a high degree of twist, and at a high speed, to a continuous multifilament yarn; a low friction anvil member is spaced closely from a mating movable friction member. They thus form a barrier through which the yarn to be twisted cannot pass. The yarn is urged toward the barrier and toward the moving friction surface. High twist levels are attained by not only contacting the yarn with the moving friction surface but by wrapping it partially around such surface.

3,705,489
WIRE ROPE WITH PERMANENTLY LUBRICATED CORE

Carl W. Smollinger, Williamsport, Pa., assignor to Bethlehem Steel Corporation

Filed Dec. 24, 1970, Ser. No. 101,235
Int. Cl. D07b *1/06, 1/16*
U.S. Cl. 57—149 **9 Claims**

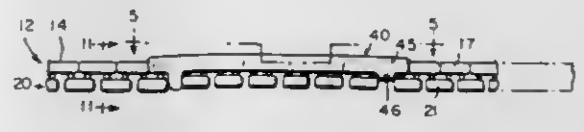
A wire rope having an independent wire rope core or wire strand core has a heavy lubrication permanently encapsulated within the core by a thick plastic sheath or jacket surrounding the core and spacing the outer strands of the rope from the component wires or strands of the core.



3,705,490
EXPANSIBLE BRACELET

Richard E. Ripley, Attleboro, Mass., assignor to Textron Inc., Providence, R.I.

Filed May 28, 1971, Ser. No. 147,868
Int. Cl. F16g *13/24*
U.S. Cl. 59—79 R **7 Claims**

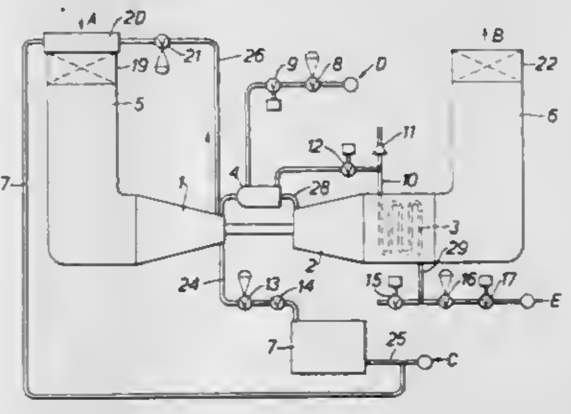


An expansible bracelet having two rows of overlapping staggered links, each link extending in a direction generally transverse to the length of the bracelet when viewed from the top including means for adjusting the length of the bracelet to fit the wrist of the wearer at the point of sale by either expanding or contracting the required number of links in a small section of the bracelet and retaining them in their expanded or contracted positions by an ornamental member which conceals them from view when the bracelet is being worn. The remaining unexpanded links of the bracelet permit the bracelet to be expanded when attached to a watch and slipped over the wearer's hand to his wrist.

3,705,491
JET ENGINE AIR COMPRESSOR

Richard W. Foster-Pegg, 101 Fourth Ave., Warren, Pa.

Filed June 30, 1970, Ser. No. 51,168
Int. Cl. F02c *7/00;* **F02g** *1/00;* **F02k** *1/02*
U.S. Cl. 60—39.55 **1 Claim**



A gas turbine jet engine is modified to act as an air compressor by removing the propulsion nozzle to increase the expansion ratio across the driving turbine and by injecting steam generated in the jet exhaust into the driving turbine to restore volume flow lost by removal of compressed air from the compressor.

3,705,492

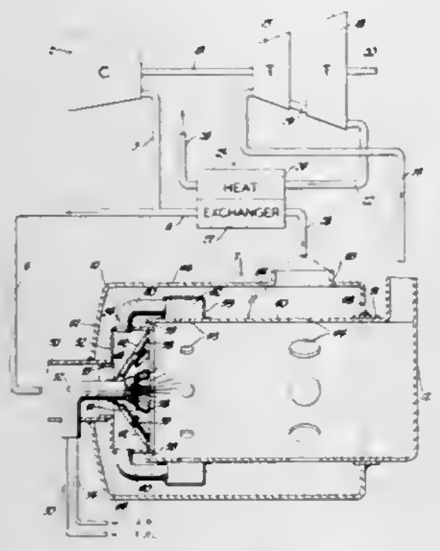
REGENERATIVE GAS TURBINE SYSTEM

Paul T. Vickers, Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 11, 1971, Ser. No. 105,469

Int. Cl. F02c *7/10*

U.S. Cl. 60—39.51 R **3 Claims**



A regenerative gas turbine engine with combustion apparatus including a combustion liner has the compressor connected to the combustion apparatus so as to supply primarily air unheated by the regenerator to the combustion zone of the liner and primarily air heated by the regenerator to the dilution zone of the liner, to reduce generation of oxides of nitrogen. The heated air also is used as film cooling air flowing along the inner surface of the combustion liner wall.

3,705,493

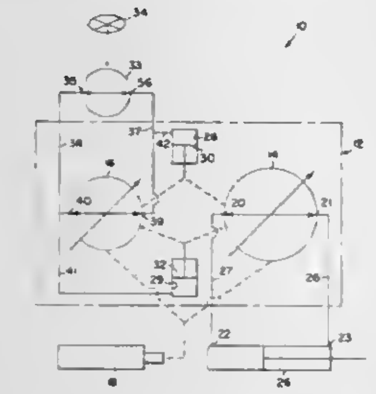
PUMP ASSEMBLY FOR POWER STEERING SYSTEM

Roger John Nelson, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed July 26, 1971, Ser. No. 166,202

Int. Cl. F15b *15/18*

U.S. Cl. 60—52.3 **8 Claims**



A hydraulic power steering system includes a main pump assembly which consists of two variable displacement reversible pumps of different sizes. These pumps are coupled to a common drive shaft so that they turn together and their displacements are controlled so that the output of the smaller is always a fixed proportion of the larger. A small fixed displacement hand pump is operated through means of the steering wheel and provides a flow to control the displacements of the two variable displacement pumps to place the latter in stroke. Output flow from the larger pump is connected to and provides the operating fluid for the steering motor. Output flow from the smaller pump is fed back to counteract the effects of the hand pump and return the two variable displacement pumps to their zero displacement positions once the turning of the steering wheel ceases. The amount of fluid pumped to the steering motor is thus proportional to the amount of fluid delivered by the hand pump.

3,705,494

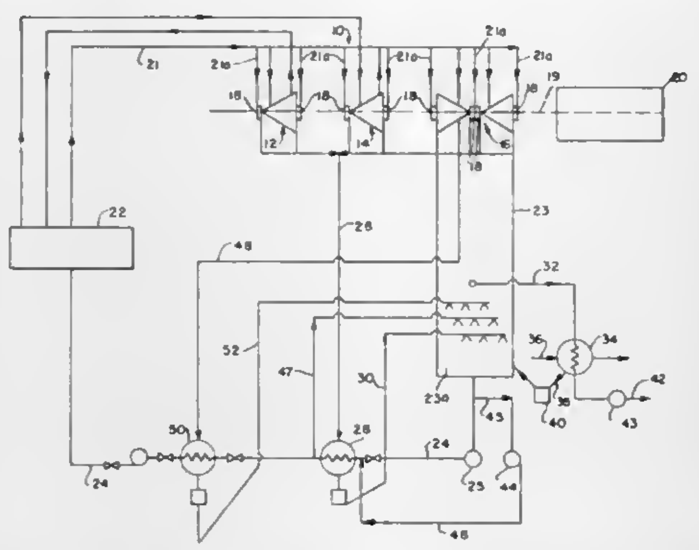
HOLDING SYSTEM FOR STEAM POWER CYCLE

William J. Bow, Morris Township, Morris County, and Richard J. Pollard, Kendall Park, both of N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed Jan. 4, 1971, Ser. No. 103,453

Int. Cl. F01n *7/00*; **F01k** *13/02*

U.S. Cl. 60—105 **12 Claims**



A system and method for maintaining a power plant at stand-by or holding status for indefinite or extended periods of time wherein a relatively small portion of steam is circulated through the power plant to maintain the low pressure portion of the power plant at an elevated temperature above, and a pressure below, atmospheric conditions. The addition of steam also heats, seals, and purges the low pressure portion of the plant of non-condensible vapors.

3,705,495

FUEL SYSTEMS AND OXIDIZERS

Leonard Greiner, Richmond, Va., and Welby G. Courtney, Dover, N.J., assignors to Texaco Experiment Incorporated, Richmond, Va.

Filed Jan. 21, 1963, Ser. No. 253,523

Int. Cl. C06d *5/08, 5/10*

U.S. Cl. 60—214 **13 Claims**

7. A method of producing thrust which comprises reacting in a combustion chamber an oxidizer comprising a liquid composition consisting essentially of from about 59 percent to about 77 percent by weight of perchloric acid, from 0 to about 15 percent by weight of HNO_3 and the remainder water, the amount of water being sufficient to form dihydrated perchloric acid with at least about 95 percent of the perchloric acid and a fuel selected from the group consisting of light metals, metal hydrides, and mixtures thereof.

3,705,496

REACTION PROPULSION ENGINE AND METHOD OF OPERATION

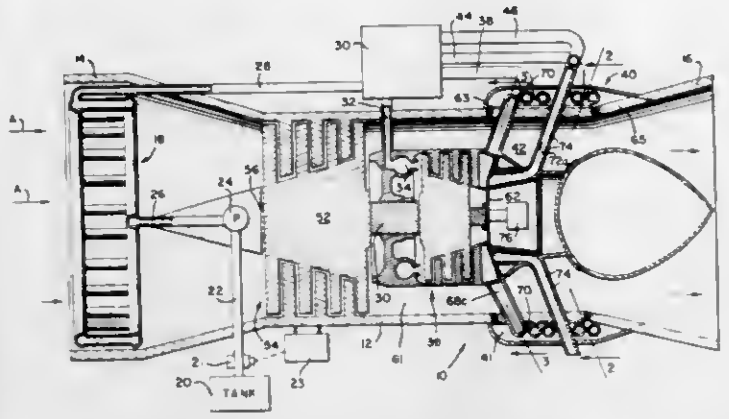
Robert L. Wolf, Chesterfield County, Va., and Rodney McGann, Northridge, Calif., assignors to Texaco Experiment Incorporated, Richmond, Va.

Filed Nov. 20, 1963, Ser. No. 324,957

Int. Cl. F02k *11/00*

U.S. Cl. 60—267 **4 Claims**

1. A reaction propulsion system including means providing a combustion chamber having at its rearward end an impulse expansion outlet nozzle, means providing a ram air intake, means directing air from the ram air intake to the forward end of the combustion chamber, a fuel storage chamber, indirect heat exchange means in heat exchange contact with the ram air in said air directing means, means directing fuel from said storage chamber through said heat exchange means, an air compressor providing a portion of the air directing means between the heat exchange means and the combustion chamber, a direct expansion turbine for driving said compressor, a regenerative heat exchanger positioned in an auxiliary combustion chamber, means for selectively directing at least a portion of the fuel passing through said heat exchange means to said regenerative heat exchanger, means directing at least a portion of the fuel from said heat exchange means and the fuel passing through the regenerative heat exchanger through the direct expansion turbine, and means for selectively combusting the fuel exhausting from the direct expansion turbine in the combustion chamber and in the auxiliary combustion chamber housing the regenerative heat exchanger.



3,705,497

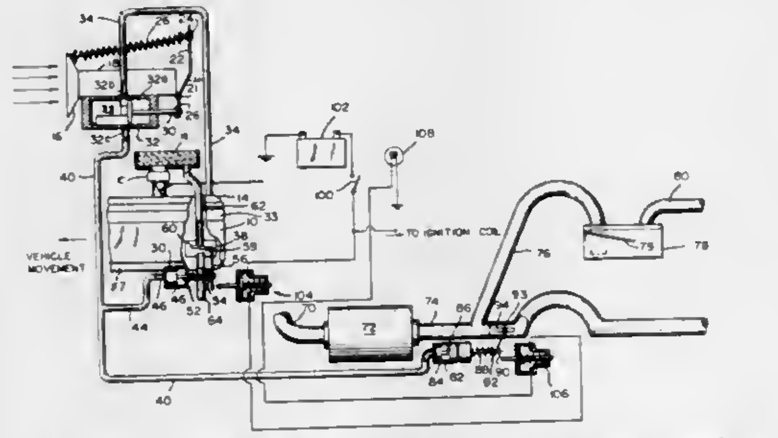
VEHICLE ENGINE EMISSIONS CONTROL SYSTEM

Jesse R. Hollins, 1 Chester Drive, Great Neck, N.Y.

Filed May 10, 1971, Ser. No. 141,546

Int. Cl. F02b *75/10*

U.S. Cl. 60—283 **14 Claims**



A system for directing the exhaust emissions of a vehicle internal combustion engine through a treatment means and fumes from the engine crankcase to the air intake system of the engine when the vehicle is moving below a predetermined speed, and for directing the above mentioned exhaust emissions and crankcase fumes to the atmosphere when the vehicle is moving at or above said predetermined speed.

3,705,498

METHOD AND APPARATUS FOR COOLING A CRYOGENIC STORAGE CONTAINER

James R. DeHaan, Boulder, Colo., assignor to Cryogenic Engineering Company, Denver, Colo.

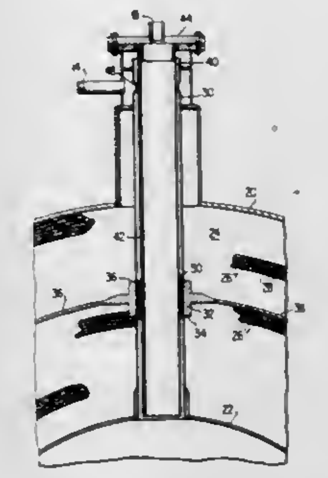
Filed Nov. 3, 1969, Ser. No. 873,313

Int. Cl. F17c *13/00*

U.S. Cl. 62—54 **32 Claims**

A method of conserving the refrigeration value of a dewar by increasing the thermal conductivity of a selected portion of an otherwise low thermal conductivity conduit and restricting the effective cross sectional area along at least as much as the conduit as the higher conductivity portion so as to increase the velocity of the boil-off gases and permit more of the refrigeration value of the boil-off gas to pass through the conduit's high conductivity portion from which the refrigeration is directed into the dewar's vacuum space.

A preferred structure for performing the above method includes a high thermal conductivity collar about the conduit and a high conductivity shield extending from the collar into and through the dewar's vacuum space. A second tube is placed within the conduit to form an annular space



therebetween. One end of the second tube is closed so that the boil-off gases are forced through the annular space which is filled with a fine fibrous relatively non-conductive packing material in an area that extends for a distance at least as long as the collar. In this manner, the boil-off gas velocity is increased as it passes through the packing material and results in an increase in the transfer of the boil-off gas' refrigeration value to the collar, shield, and vacuum space.

3,705,499

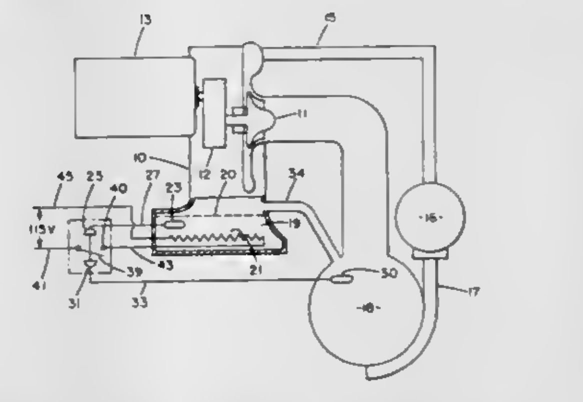
OIL DILUTION CONTROL

Gordon L. Mount, West Monroe, and James W. Endress, Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Sept. 23, 1971, Ser. No. 183,127

Int. Cl. F25b *43/02*

U.S. Cl. 62—84 **9 Claims**



The invention has to do with a method and control mechanism for continuously maintaining a satisfactory constant level of refrigerant concentration in the lubricating oil of a refrigeration compressor. The method consists of continuously measuring the refrigerant pressure and the oil temperature, adjusting the oil temperature in relation to the measured refrigerant pressure to maintain a substantially constant refrigerant concentration in the oil. A specific form of apparatus, particularly suitable for the practice of the method, may consist of a thermal responsive system (as a bulb, tube, and bellows) continuously measuring the oil temperature and converting the measured temperature into pressure, and a second system continuously producing a pressure commensurate to vapor pressure of the refrigerant in contact with the oil, the pressure created by the first system acting in opposition to the pressure created by the second system to produce a force differential, as measured by the systems, for operation of a differential pressure switch means to contact and disconnect an oil heater to a power supply to maintain the vapor pressure of the oil solution at a level to limit the absorption of refrigerant in the oil solution.

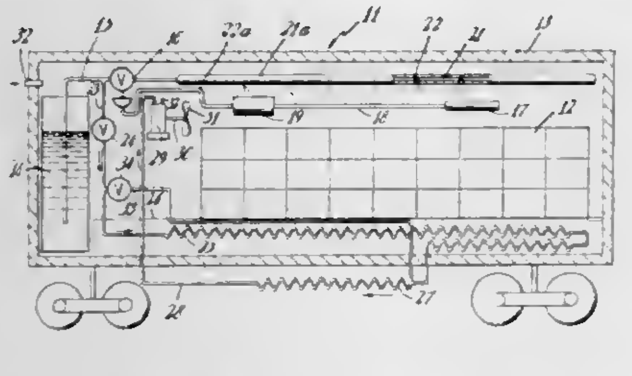
3,705,500
NITROGEN SPRAY REFRIGERATION SYSTEM FOR PERISHABLES

William Robert Jeble, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 776,331, Nov. 18, 1968, abandoned. This application Oct. 22, 1969, Ser. No. 871,797

Int. Cl. F25d *3/10*

U.S. Cl. 62—223 **6 Claims**



A system for more efficient refrigeration of perishable products in trucks and railcars is provided by spraying cold fluid into the product chamber at effective flow rate resulting from maximum flow rating between 30 and 110 lbs. per hour equivalent pure nitrogen per 10 foot average length of storage chambers having cross-sectional area between 40 and 110 ft^2, and through spaced small openings in a spray conduit of between 0.002 and 0.009 $inch^2$ per 10 foot average length.

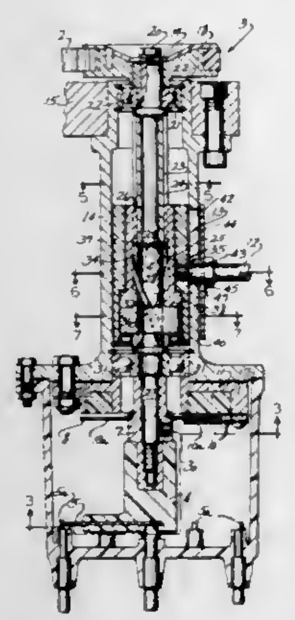
3,705,501
DISTRIBUTOR WITH ROTOR ADVANCE INPUT CONTROL

Floyd M. Minks, Route 1, Box 41, Kissimmee, Fla.

Filed July 8, 1971, Ser. No. 160,843

Int. Cl. F16d *5/00*

U.S. Cl. 64—25 **17 Claims**



A distributor includes a fixed tubular housing having a mounting flange and a contact cap secured to the flange and having a rotor shaft journaled in the one housing end. A rotor is secured to the shaft. An engine shaft is journaled in the housing's opposite end and coupled to the engine crankshaft. A sleeve extends over the shafts and includes a pair of diametrically opposite radial grooves mating with radial projections of the engine shaft and a pair of generally spiral grooves between the radial grooves mating with spiral projections on the rotor shaft. The sleeve is journaled in a non-rotating, axially movable tubular support member. Alternatively, the sleeve is coupled to the rotor shaft with a radial projection and slot. The engine shaft is a tubular member. The sleeve and engine shaft having mating and complementing cam edges. A throttle lever is connected to the support member axially with the throttle control to thereby rotate the rotor shaft relative to the engine shaft to advance and retard the timing.

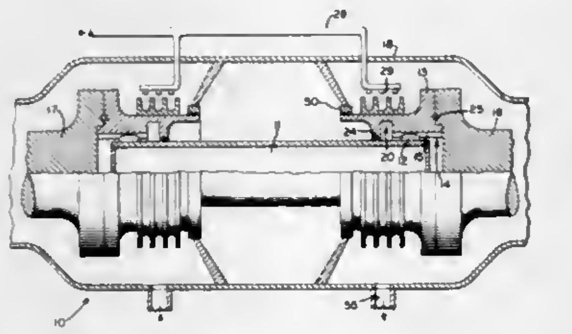
3,705,502
LIQUID COOLED SEAL LUBE COUPLING

George L. Padgett, Greenville, S.C., assignor to General Electric Company

Filed Feb. 26, 1971, Ser. No. 119,142

Int. Cl. F16d *3/84*

U.S. Cl. 64—32 R **7 Claims**



A liquid cooled, sealed lubrication gear type coupling for connecting a pair of rotating machine shafts. A sealed liquid lubricant reservoir is provided between inner and outer coupling members so as to lubricate interlocked gear teeth, while fluid coolant is distributed over the outer member to dissipate heat transferred from the inner member to the outer member.

3,705,503
APPARATUS FOR FORMING A SYSTEM OF WEFT THREADS FOR FURTHER PROCESSING IN TEXTILE MACHINES

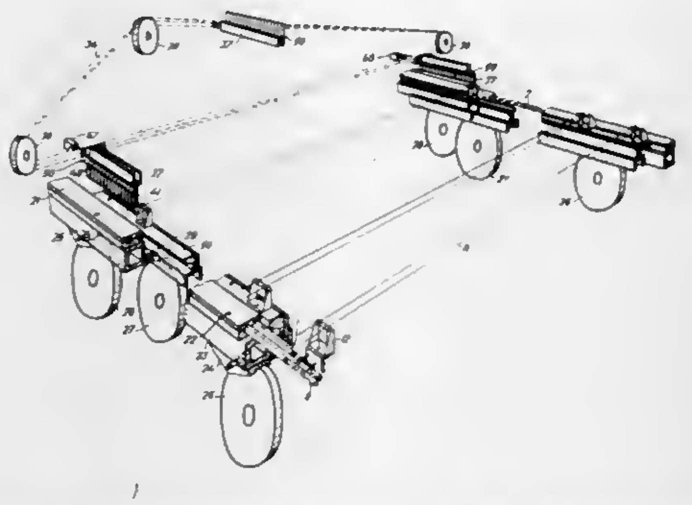
Josef Skopalik; Vladimir Svoboda, and Vaclav Opatril, all of Brno, Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi generalni reditelstvi, Liberec, Czechoslovakia

Filed June 4, 1971, Ser. No. 150,076

Claims priority, application Czechoslovakia, July 2, 1970, 4605/70

Int. Cl. D04b *23/06*

U.S. Cl. 66—84 R **10 Claims**



Apparatus for forming a system of weft threads for further processing in textile machines as e.g. stitch knitting machines, warp knitting machines and Raschel machines to the operating mechanisms of which there are fed mutually parallel weft threads. The apparatus includes two continuously and

uniformly moving weft thread conveyors which are vertically movable with respect to each other; a first one of such conveyors conveys the weft threads in a longitudinal direction to the operation point of the textile machine, and the second conveys the weft threads transversely from the thread supply onto the said first conveyor. The first longitudinal conveyor is provided with grippers with movable gripping jaws; the second transverse conveyor is provided with at least three transfer battens carrying transfer grippers which are provided with at least three stationary means which come into direct contact with the weft thread and at least one means mounted for movement with respect thereto.

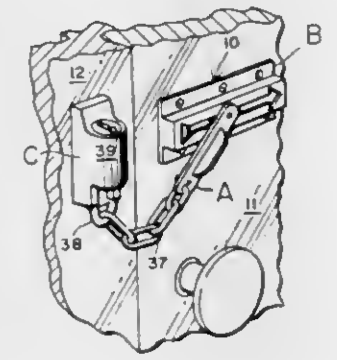
3,705,504
CHAIN DOOR LATCH DEVICE

Dewey F. Johnson, 8240 N.W. 1st Place, Miami, Fla.

Filed Sept. 7, 1971, Ser. No. 178,319

Int. Cl. E05c *17/36*

U.S. Cl. 70—93 **4 Claims**



A chain door latch device adapted for use for inwardly and outwardly swinging doors having a latch bracket mounted on either the door or the jamb and a chain fastening member mounted on the other of the door or jamb with the other end of the chain connected to a latch slide member. The latch bracket is provided with an elongated slot with an enlarged opening at each end of the slot. The latch slide member has mounted on its free end a matching enlarged member that is received by the enlarged openings in the latch bracket and permitting the sliding movement of the latch member along the length of the latch bracket. However, the latch bracket is provided with a resilient member at the enlarged opening nearest the chain fastening member to prevent removal of the latch slide member therefrom, the other enlarged opening being so positioned that the latch member must be swung through an arc in a direction away from the chain fastening member to be removed from the latch bracket.

3,705,505
LOCK LATCH ASSEMBLY FOR COUNTERBALANCED CARGO CARRYING VEHICLE DOORS

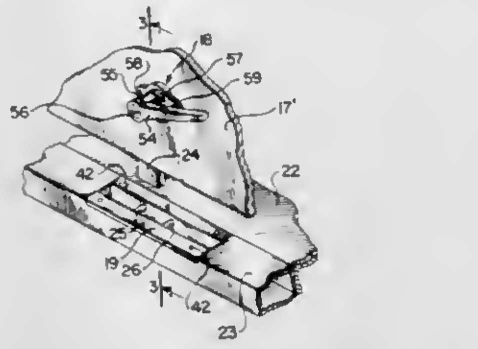
Charles D. Landow, Bronx, and Ettore Mutalipassi, Yonkers, both of N.Y., assignors to United Overhead Door Corp., Yonkers, N.Y.

Filed May 6, 1971, Ser. No. 140,663

Int. Cl. E05b *65/16;* **E05c** *3/26*

U.S. Cl. 70—99 **3 Claims**

A latch lock assembly is provided which is formed of two spaced plates with pivotal levers disposed therebetween and wherein the plates are provided with a depending projection of a width and spacing and depth and extending from the bottom edge of the door which will fit into a keeper having parts shaped to exactly contain the projection on the latch lock assembly when the door bearing the latch lock is lowered to a locking position. A hooked lever lies within the assembly and between the plates and depends into the plate projections for engagement with one of two space rods in the keeper. When this projection lies within the keeper in a locked position it exactly fills the keeper opening so as to retain the door against lateral play, fore and aft movement and vertical movement either down or up and thereby rigidly retains the door in its locked and lowered position. The hook lever that extends into the projection spring biased toward an open position and is lifted and latched by a projection on a bell crank lever as the door is seated with the latch projection in the keeper. A turn handle having a cylinder lock extends through the door and into the latch assembly and has a work arm that engages with the bell crank lever that can be turned when the cylinder lock is opened with a key so as to release the bell crank lever from the hook lever and allow thereby the door to be elevated and the projection out of the keeper.



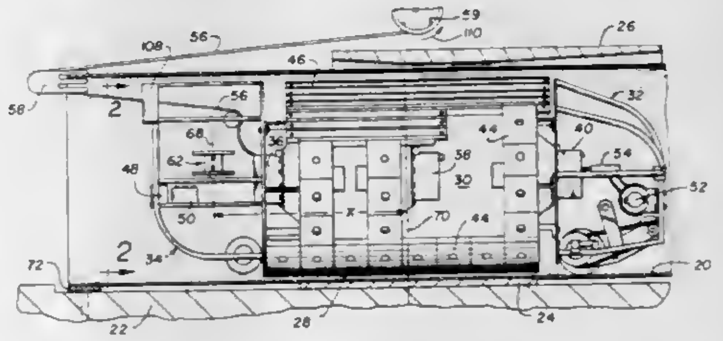
3,705,506
AUTOMATIC POSITIONING DEVICE

Edward A. Clavin, Houston; Donald H. McCullough, Cypress, and David R. McCullough, Houston, all of Tex., assignors to Cre-Crose International, Inc., Houston, Tex.

Filed March 31, 1971, Ser. No. 129,702

Int. Cl. B21d *9/00, 11/22*

U.S. Cl. 72—21 **20 Claims**



A method and apparatus for rapidly positioning a movable device longitudinally inside a tubular structure, such as a pipe, wherein a sensing means attached to said movable device functions to position said movable device responsive to a changing magnetic field generated by an establishing means positioned at a preselected location exterior to said pipe. When said movable device is required to be sequentially positioned longitudinally at a series of locations in one direction inside said pipe, the method and apparatus automatically repositions said movable device at each location in the desired sequence. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,705,507
LOCK CONTROLLED ELECTRIC SWITCH MECHANISMS

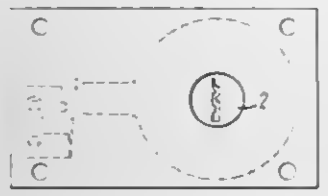
Kenneth Douglas Sanders, London; Geoffrey Sword, Botley, and Jack William Taylor, Bournemouth, all of England, assignors to Credit Keys Limited, Winchester, England

Filed May 14, 1971, Ser. No. 143,439

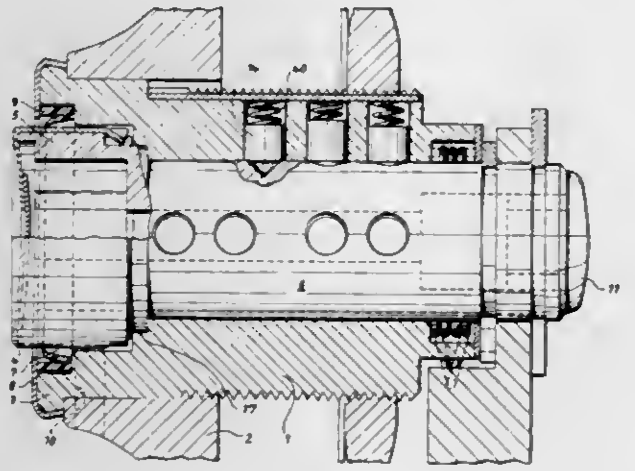
Int. Cl. E05b *29/00, 39/04*

U.S. Cl. 70—364 R **6 Claims**

An electric switch lock mechanism having a hollow housing with several electric switches and a number of switch actuating elements operated by cams actuated by a lock assembly rotatable in the housing, the lock assembly including several moveable wafer-like elements transversely moveable in the assembly biased some into engagement with abutments in the housing and the remainder into engagement with the cam elements, the wafer-like elements having slots in alignment axially of the assembly but of different lengths for engagement by a key of varying contour inserted therethrough axially of the assembly, the key when inserted moving the wafer-like elements to free them from the housing and enabling the key to rotate the assembly and actuate the switches through the cams and switch actuating elements.



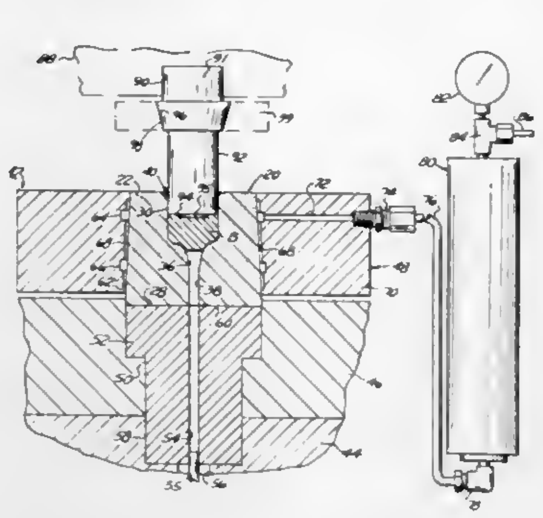
3,705,508
LOCKS
Walter Fritsch, Zell a. N.; Erick Hetziner, Esslingen a. N., and Karl Worner, Reichenbach/Fils, all of Germany, assignors to Pebra G.m.b.H. Paul-Braun, Esslingen, Germany
Filed March 9, 1970, Ser. No. 17,839
Claims priority, application Germany, March 14, 1969, G 69 10 308.8; March 14, 1969, G 69 10 307.7
Int. Cl. E05b *9/04, 27/08*
U.S. Cl. 70—373 **2 Claims**



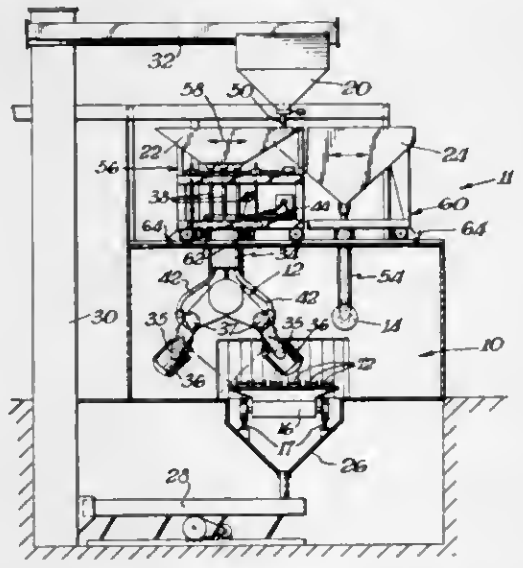
A lock comprising a cylinder having a bore, a plug rotatably received in the bore, the bore being of such configuration as to prevent lock freezing.

3,705,509
FLUID-CONDUCTING HOT-FORGING DIE AND METHOD OF MAKING THE SAME
John Heller, Northville, Mich., assignor to Federal-Mogul Corporation, Southfield, Mich.
Filed Nov. 12, 1969, Ser. No. 875,975
Int. Cl. B21b *45/02;* **B21c** *43/00;* **B21k** *5/20*
U.S. Cl. 72—45 **1 Claim**

A foraminous ordinary-duty hot-forging die is provided with minute fluid passageways therethrough for the conduction of a coolant, a lubricant or a protective atmosphere under high pressure. A porous hot-forging die is made by forming a briquette of coarse powdered tool metal or carbide, sintering the briquette, machining a die cavity or die bore therein, and heat-treating the thus-formed die for the required hardness and wear resistance.



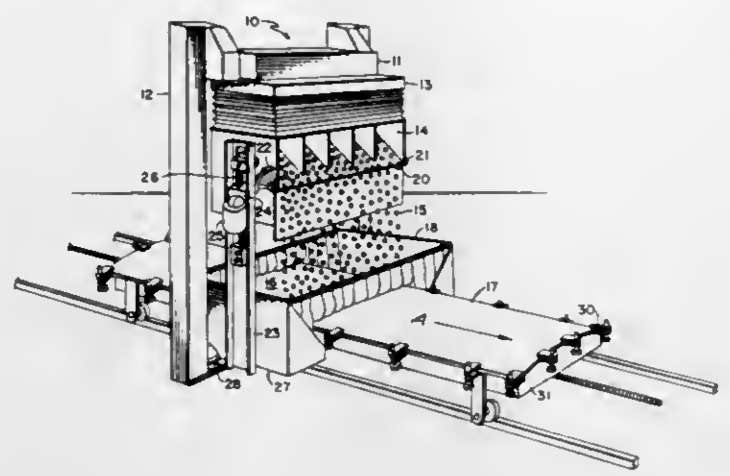
3,705,510
SHOT PEENING METHOD
Davis L. Baughman, Hagerstown, Md., assignor to The Carborundum Company, Niagara Falls, N.Y.
Filed June 30, 1970, Ser. No. 51,125
Int. Cl. C21d *7/06*
U.S. Cl. 72—53 **12 Claims**



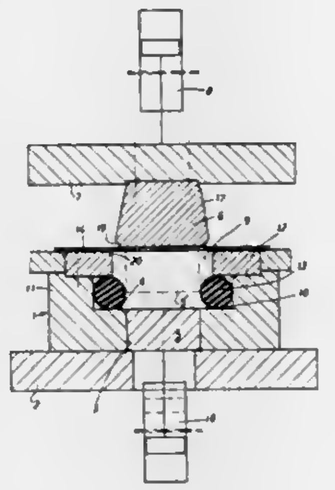
Metal sheets are peen formed by projecting peening shot from centrifugal shot throwing wheels against the sheet passing thereunder. The centrifugal shot throwing wheels are also used for saturation peening metal objects.

3,705,511
LOW PENETRATION BALL FORMING PROCESS
Wynand W. Brandel, Nashville, and Lawrence S. Klass, Donelson, both of Tenn., assignors to Avco Corporation, Nashville, Tenn.
Filed Oct. 17, 1969, Ser. No. 867,132
Int. Cl. B21j *5/00*
U.S. Cl. 72—53 **3 Claims**

A controlled metal deformation process for shaping, forming or contouring metal sheet, plate, and wrought shapes such as extrusions comprising flowing a quantity of metal balls (generally greater in size and mass by several orders of magnitude than standard shot consisting of an aggregate of sizes used in conventional shot peening processes) over the surface to be deformed. The novel process includes impacting the surfaces with metal balls at relatively low velocities, such as by using the force of gravity and resulting in low penetration of ball into metal surface, while the part being formed is in a prestressed condition and moving through the metal ball delivery stream.

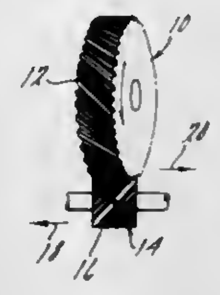


3,705,512
BENDING TOOL FOR BENDING DEFORMABLE WORKPIECES, SUCH AS METAL SHEETS AND THE LIKE
Karl Koschatzky, Nurnberg, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft Zweigniederlassung Nurnberg, Nurnberg, Germany
Filed Jan. 27, 1971, Ser. No. 110,099
Claims priority, application Germany, Jan. 28, 1970, P 20 03 614.0
Int. Cl. B21d *22/10*
U.S. Cl. 72—57 **5 Claims**



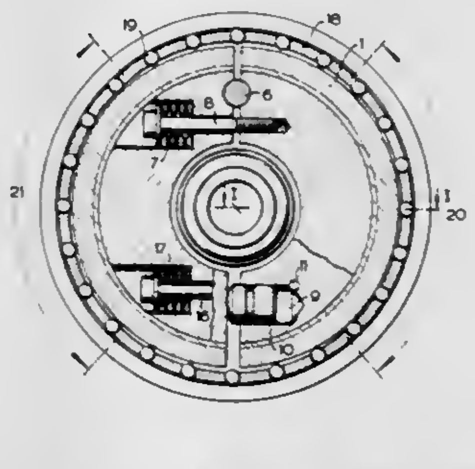
A device for bending deformable workpieces, especially metal sheets, in which in the path of movement of the male die below a holding jaw on opposite sides of said die there is provided an elastic counter bearing each respectively located in recess means adjacent the mold bottom through which extend a reciprocable piston operable both as counterpressure plate during the shaping action of said die and as an ejector at the end of said shaping action, said elastic bearing means extending into the path of movement of said die prior to its shaping operation and being elastically displaceable by said die during its shaping operation into said recess means adjacent the mold bottom.

3,705,513
ROLLING HIGH HELIX PINIONS
David W. Daniel, Birmingham, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.
Filed Nov. 19, 1970, Ser. No. 90,946
Int. Cl. B21h *5/00*
U.S. Cl. 72—102 **7 Claims**



Rolling pinions having a high helix angle using a helical roll with the teeth of the roll inclined at a helix angle such that axial thrust on the pinion due to inclination of the teeth is substantially counterbalanced by axial thrust due to crossed axes sliding.

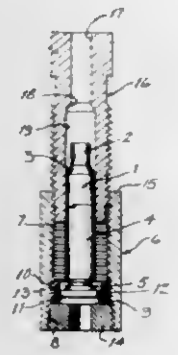
3,705,514
PRESSURE ROLLER DEVICE
Bernhard Kunze, Erkelenz, Germany, assignor to Wilhelm Hegenscheidt Kommanditgesellschaft, Erkelenz, Germany
Filed July 7, 1971, Ser. No. 160,301
Int. Cl. B21d *3/02*
U.S. Cl. 72—120 **10 Claims**



A device for smoothing the inner surface surrounding a bore has a core which can be rotated about an axis and a ring which surrounds the core and is fast therewith. The ring is composed of two or more circumferentially adjacent sections which are mounted so that they can be radially displaced relative to one another and the axis of rotation of the core. The radial thickness of these sections is less in the region of the juncture than intermediate these regions. Roller elements of cylindrical configuration are carried by the outer periphery of the ring and, when the device is inserted into a bore, will contact the inner surface surrounding the same and smooth it during rotation.

3,705,515
FULL LENGTH CARTRIDGE CASE RE-SIZING
Richard J. Lee, RR. No. 2, Hartford, Wis.
Filed Dec. 28, 1970, Ser. No. 101,981
Int. Cl. B21d *51/54*
U.S. Cl. 72—367 **4 Claims**

A spent gun cartridge case is re-sized for its full length by placing it on a threaded support and then threadably joining

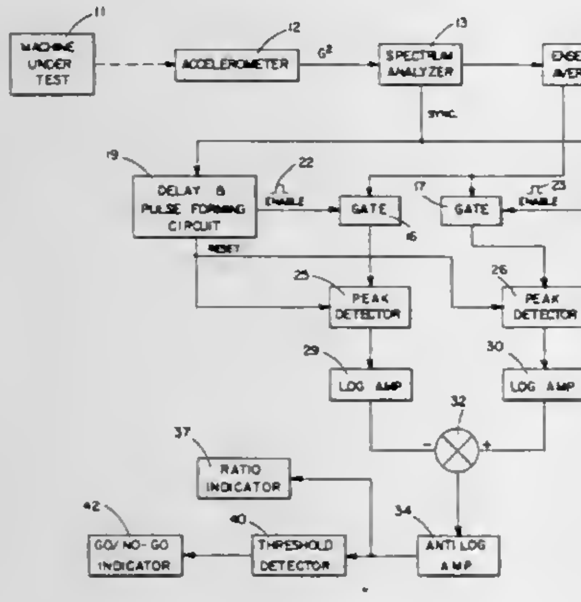


the support-case assembly with a die. The case is freely supported on a thrust bearing so that the case rotates with the die as the members are threaded together. Alternately, the case and die are startingly joined and the resultant assembly threaded onto the support.

3,705,516
METHOD AND APPARATUS FOR TESTING THE CONDITION OF A MACHINE

James John Reis, Torrance, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Sept. 30, 1971, Ser. No. 185,193
Int. Cl. G01b *1/04*; **G01m** *13/02*
U.S. Cl. 73—71.4 **11 Claims**

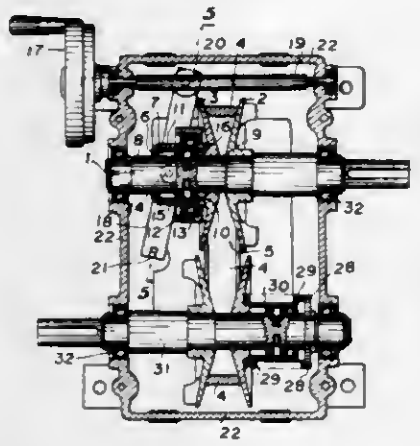


The vibrational components over a frequency spectrum of interest developed by a machine are transformed into electrical signals by means of a transducer such as an accelerometer, and these electrical signals in turn are processed by means of a spectrum analyzer to provide a power spectral density plot thereof. The peak amplitude of the signals in a pair of preselected frequency bands is then detected and the ratio between these two signals determined. This ratio is then compared against a value representing an acceptable ratio experimentally or theoretically derived to determine whether the measured ratio is within acceptable tolerances for the machine. The bands utilized are preferably a first band within a high frequency vibrational range, and a second band lower in frequency than this first band with the signals in these bands being of medium amplitude relative to all of the signals developed in the spectral analysis.

3,705,517
ADJUSTABLE BELT-AND-PULLEY TRANSMISSION

Ichiro Yamanaka, Osaka, and Akihide Okumura, Amagaskai, both of Japan, assignors to Niboo Spindle Seizo Kabushiki Kaisha, Amagasaki-shi, Hyogo-ken, Japan

Filed Sept. 20, 1971, Ser. No. 181,919
Claims priority, application Japan, Sept. 22, 1970, 45/83130
Int. Cl. F16h *55/22*
U.S. Cl. 74—230.17 A **6 Claims**



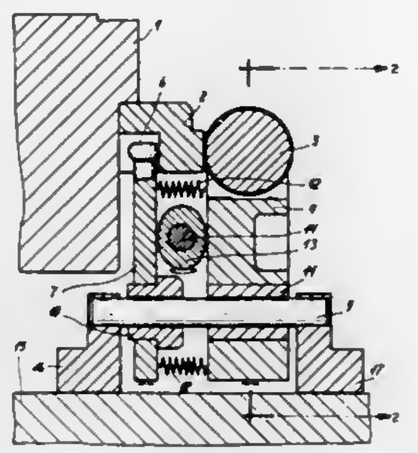
An adjustable belt-and-pulley transmission wherein a rotary shaft carries a pulley composed of a side wall which is fixed to the shaft and an adjustable side wall which is axially movable along the shaft while being constrained to rotate therewith. These pulley side walls have inner tapered surfaces forming parts of cones whose apexes coincide with the axis of the shaft so that a belt engaging these surfaces can have its radial distance from the shaft regulated in accordance with the axial distance of the adjustable pulley side wall from the fixed side wall thereof. The adjustable pulley side wall has an elongated collar fixed thereto and surrounding the shaft with clearance, this collar being formed with an elongated slot which extends longitudinally of the shaft. Between the collar and the shaft is a longitudinally slit wear-resistant, self-lubricating, resilient sleeve which prevents direct contact between the collar and the shaft and which because of the slit is capable of automatically expanding and contracting around the shaft and within the collar in response to temperature changes. A motion-transmitting structure is fixed to the shaft and extends through the sleeve into the slot of the collar for providing transmission between the adjustable pulley wall and the shaft, and this motion-transmitting structure has within the slot of the collar a covering material which is wear-resistant and resilient for directly engaging one or the other of the side surfaces of the slot of the collar so as to prevent wear and reduce friction at the point of engagement between the motion-transmitting structure and the adjustable pulley wall. An elongated cover covers the slot and covers the motion-transmitting structure, and this cover is surrounded by a bearing structure which is carried by the collar and which serves to retain the cover at the slot, an adjusting structure being connected to the bearing for acting through the latter on the adjustable pulley side wall for shifting the latter axially with respect to the shaft.

3,705,518
DRIVE FOR ROTATABLE PARTS

Alfons Ernst, and Werner Jung, both of Traunrent, Germany, assignors to Firma Dr. Johannes Heidenhain, Traunreut, Germany

Filed Nov. 16, 1970, Ser. No. 89,926
Claims priority, application Germany, Nov. 21, 1969, P 19 58 393.8; Nov. 27, 1969, P 19 59 517.6
Int. Cl. F16h *57/00*
U.S. Cl. 74—410 **19 Claims**

A mechanical, play free drive for rotatable parts in particular in precision devices, which comprises a driven gear provided on the rotatable parts. A drive means drives the driven gear. A support element is in radial direction opposite to the driving means, and the driven gear is tong-like embraced by

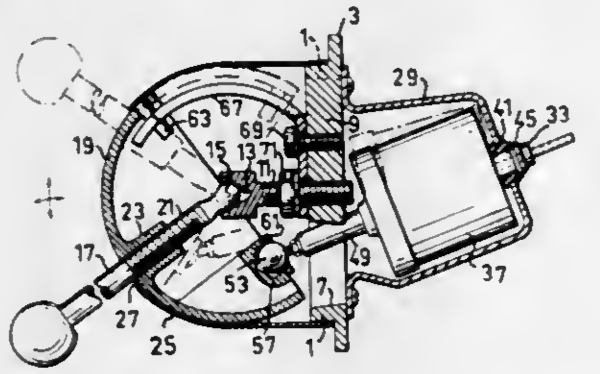


the drive means and the support element, for the most possible movement transmission free from forces.

3,705,519
SINGLE-LEVER MECHANISM

Bertil Roland Sjoo, Bromma, Sweden, assignor to Hesselman Bil-Aero AB, Hagersten, Sweden

Filed Dec. 21, 1970, Ser. No. 100,272
Claims priority, application Sweden, Dec. 23, 1969, 17893/69
Int. Cl. G05g *9/04*
U.S. Cl. 74—471 XY **11 Claims**



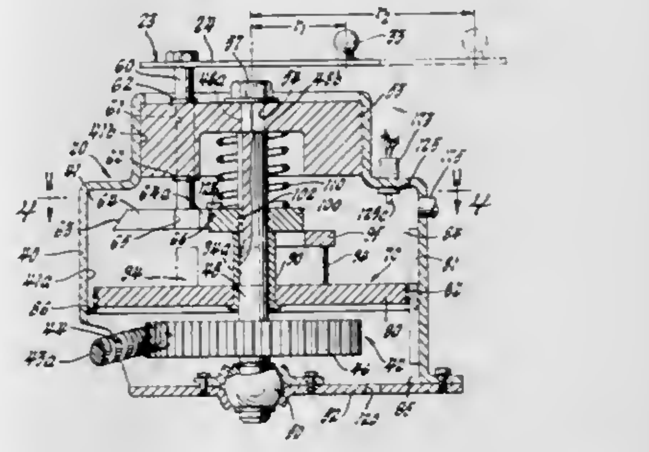
A single operating lever control device for selectively operating two trim tabs for a motor boat individually or simultaneously in the same or opposite directions. The operating lever is provided with an inverted semi-spherical bowl movable in a semi-spherical housing. The inner end of the lever is pivoted in a socket bearing at the sphere center point. The bowl edge is provided with bearings for the ends of piston rods of pneumatic cylinders connected with trim tab operating means. The bowl is prevented from rotating but may be pivoted in any direction, thereby permitting free choice of correlation between the piston rod movements and thus the trim tab settings.

3,705,520
DEPRESSED PARK WINDSHIELD WIPER SYSTEM

Keith H. Carpenter, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 21, 1971, Ser. No. 191,385
Int. Cl. B60s *1/24*
U.S. Cl. 74—600 **3 Claims**

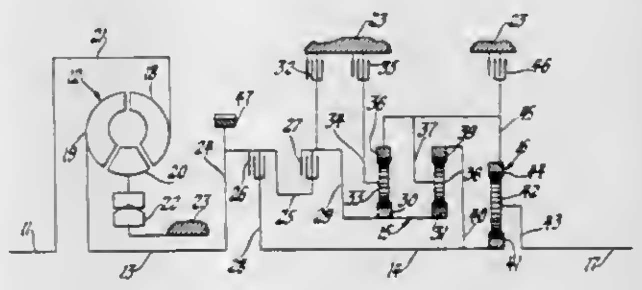
In a preferred form, this disclosure relates to an actuating mechanism for oscillating a pair of windshield wipers across the windshield between inboard and outboard positions during running operation and for moving the wipers to a depressed park position when running operation is being terminated. The actuating mechanism comprises a housing means, an annular drive member rotatably supported by the housing means, a drive shaft rotatably supported by the housing means for rotation about its axis and drivingly connected with the drive member and a drive means operatively connected with the drive shaft for rotating the same. The actuating mechanism further comprises a crank assembly including a crank arm which is adapted to be connected with the wipers and a crank shaft eccentrically and rotatably supported by the drive member. The actuating mechanism additionally includes a shiftable means slidably supported on the drive shaft and the housing means and which is spring biased toward a first position in which it engages the crank assembly to lock the same against rotation relative to the drive shaft so that the crank assembly rotates with the drive member about the axis of the drive shaft during running operation of the wipers and which is shiftable by fluid pressure toward a second position in which it disengages the crank assembly and rotates the crank assembly in a direction opposite the direction of rotation of the drive shaft to increase the throw of the crank arm to move the wipers from their inboard position towards their park position.



3,705,521
DUAL PATH POWER TRANSMISSION

Marion D. Smith, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 20, 1968, Ser. No. 789,648
Int. Cl. F16h *57/10*
U.S. Cl. 74—759 **12 Claims**



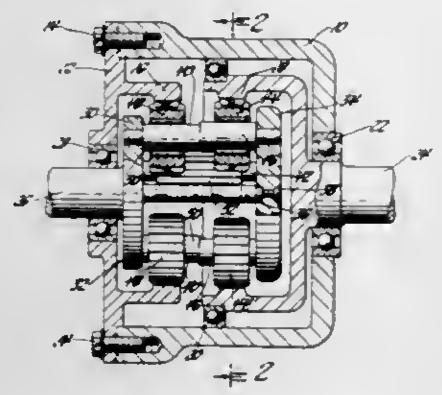
Disclosed herein is a power transmission having two planetary gear groups, one of which is selectively connectable between the torque converter and the output shaft to provide a single power path and the other, a three speed unit, is selectively connectable between the torque converter and the first planetary group to provide a plurality of dual power paths when operated in conjunction with the first planetary group. The two planetary groups may be operated together to provide two reverse drive ratios. A third planetary group, located between the first planetary group and the transmission output, when operated in conjunction with the first planetary group, provides an additional reverse ratio.

3,705,522
SPEED CHANGE MECHANISM

Fremont T. Ogawa, Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 30, 1971, Ser. No. 158,169
Int. Cl. F16h *1/28*

U.S. Cl. 74—803 **3 Claims**



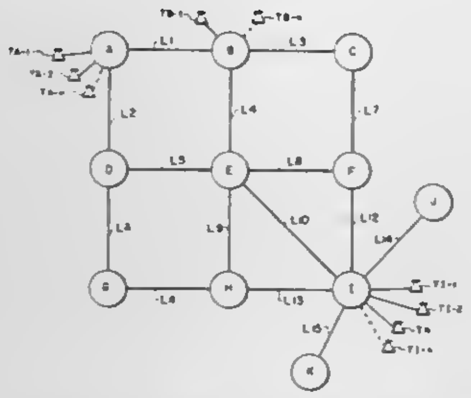
A speed change mechanism for providing a high gear ratio between the input and output members in which all of the gear members have a standard gear tooth form. A carrier member is drivingly connected to one of the members and rotatably supports a pair of pinion gears eccentrically mounted relative to each other on the carrier. One ring gear is secured to a stationary housing and meshes with one of the pinions and a second ring gear drivingly connected to the other member and meshes with the other pinion. A third pinion gear which is an idler member in the system meshes with both of the other pinions through dual tangencies at the pitch diameters of the pinion gears.

3,705,523
HYBRID ROUTING TECHNIQUE FOR SWITCHING COMMUNICATION NETWORK

Frank B. Aloulsa, Neptune, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Sept. 21, 1970, Ser. No. 73,919
Int. Cl. H04q *3/56*

U.S. Cl. 179—18 EA **28 Claims**



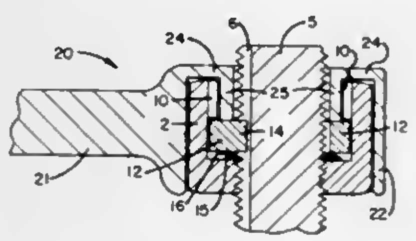
A hybrid routing technique for an analog or digital switching communication network containing several switching centers for contacting a called subscriber at a destination switching center whose location in the network need not be known to the calling subscriber and for providing a deterministic route back from the destination switching center to the originating switching center. The entire system is substantially simultaneously flooded once in parallel radial fashion with a flood signal of simple format containing information representing the calling switching center, the called subscriber and the time or origination of the call; local subscriber directories at each of the switching centers of the network are examined substantially simultaneously to determine which of the switching centers is the destination switching center. The selection of a route between the called and the calling subscribers is done independently of the locating of the called subscriber and allows effective selection of routes, based on an abundance of information available at the switching centers concerning the current status of the network and regardless of transmission delays along the routes.

3,705,524
LOCK NUT ASSEMBLY AND BOLT AND WRENCH FOR USE THEREWITH

Eugene C. Greenwood, 468 Prospect Street, Newport Beach, Calif.

Division of Ser. No. 783,311, Dec. 12, 1968, Pat. No. 3,581,609. This application Feb. 8, 1971, Ser. No. 113,120
Int. Cl. B25b *13/06*

U.S. Cl. 81—121 R **6 Claims**



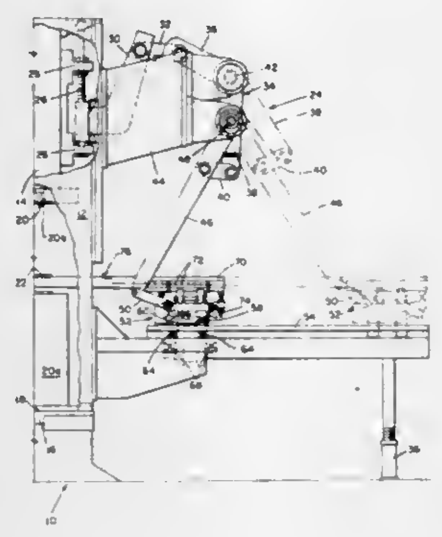
A specialized wrench adapted for use with a lock nut assembly in which a lock ring is axially movable within a central recess in a nut, the wrench comprising a handle and a head portion having a nut-receiving socket therein of conventional configuration which is adapted to receive and engage the outer surface of the nut and a generally cylindrical ring rigidly supported within the nut receiving socket, coaxially therewith, the ring adapted to engage and force the lock ring axially into the central recess in the nut.

3,705,525
DIE UNLOADER

Richard C. Gilmour, Yeadon; Vincent A. Kaltz, Willow Grove, both of Pa., and Adolph W. Lemberger, Cinnaminson, N.J., assignors to The Budd Company, Philadelphia, Pa.

Filed Oct. 15, 1970, Ser. No. 80,854
Int. Cl. B26d *7/18*

U.S. Cl. 83—112 **5 Claims**



A ram driven, mechanically synchronized die unloader for extending into a blanking press under the upper die of a positive knockout die for receiving and removing the stamped blank from the die.

3,705,526
ROTARY DIE CUTTING BLANKS

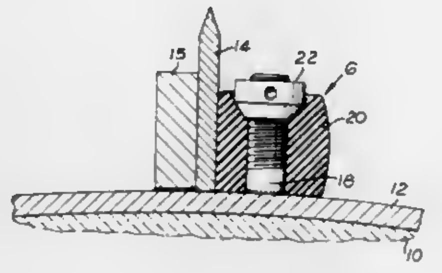
Thomas Desmond Bishop, Solihull, England, assignor to The Deritend Engineering Company Limited, Birmingham, England

Filed Oct. 26, 1970, Ser. No. 83,858

Claims priority, application Great Britain, Nov. 7, 1969, 54,569/69

Int. Cl. B31b *1/20;* **B26d** *7/26*

U.S. Cl. 83—698 **5 Claims**



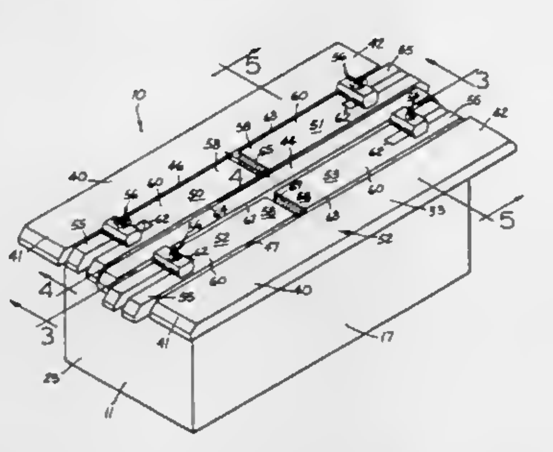
A die for rotary die-cutting of cardboard and similar materials which is of the type comprising a sheet metal forme to lie on the surface of the roller of the die-cutting machine, and with cutting rule supported on the forme by a number of studs, the security of the rule being improved by providing at least one of the studs with a rubber or plastic pad which is deformed on the stud so as to expand the pad radially of the stud and thus grip the rule.

3,705,527
MULTITONE WOODEN DRUM

Stephen G. Burnham, 4312 E. Princeton, Spokane, Wash.

Filed March 20, 1972, Ser. No. 235,986
Int. Cl. G10d *13/08, 13/02*

U.S. Cl. 84—403 **7 Claims**



A multitone drum is described having a wooden head and a plurality of solid wooden bars. Each bar is rigidly supported at one end with the other end extending freely in cantilever fashion out over a resonant cavity of the drum.

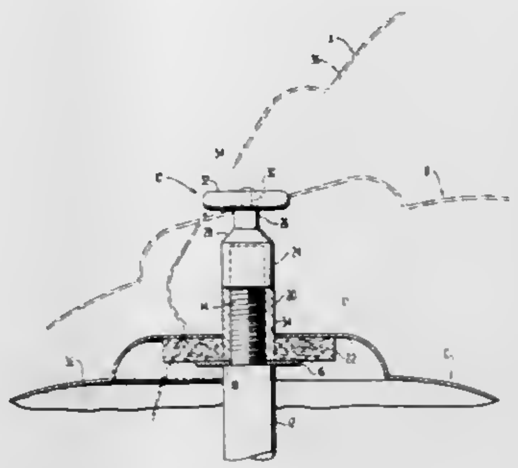
3,705,528
CYMBAL RETAINER

Charles P. Cordes, 27 Kenneth Place, Clark, N.J.

Filed March 8, 1972, Ser. No. 232,813
Int. Cl. G10d *13/02*

U.S. Cl. 84—421 **4 Claims**

A small cylindrical member is provided with a threaded internal bore for engagement on the end of a standard cymbal rod. The end of the cylindrical member is reduced to form a rod and an oblong keeper bar is rigidly secured to the end of the rod. The dimensions of the keeper bar are so related to the standard cymbal hole that the cymbal may be placed on and taken off the cymbal rod by appropriately angling and moving the cymbal relative to the pin while normally retaining the cymbal on the rod.

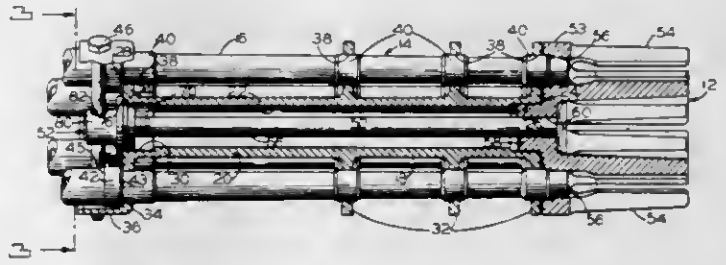


3,705,529
FLASH SUPPRESSOR ASSEMBLY FOR GATLING-TYPE MACHINE GUNS

Keith S. Williams, Davenport, Iowa, assignor to The United States of America as represented by the Secretary of the Army

Filed Sept. 25, 1970, Ser. No. 75,514
Int. Cl. F41d *11/00*

U.S. Cl. 89—14 B **7 Claims**



A Gatling-type machine gun with a rotating barrel cluster is provided with a barrel clamp to secure the barrels against displacement effected by centrifugal forces and a unitary flash suppressor assembly comprising a plate with integral flash suppressors equal to the number of the barrels extending from the plate in registry therewith. The flash suppressor assembly is interlocked with the barrel clamp and the barrel cluster to prevent relative rotational displacement and to permit longitudinal displacement thereof relative to the flash suppressor assembly responsive to thermal expansion.

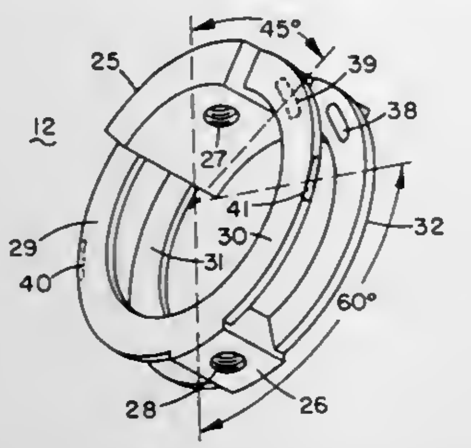
3,705,530
FORCE HUB SENSOR FOR CONTROL WHEEL STEERING

Kenneth H. White, Marion, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed Dec. 14, 1970, Ser. No. 97,556
Int. Cl. G01l *5/22*

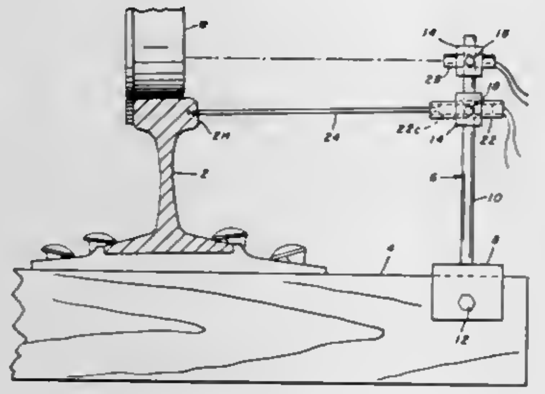
U.S. Cl. 73—136 C **17 Claims**

A two-axis force sensor with minimal space requirements is constructed of concentric sleeve members between which a single ring-like elastic member provides a spring restrained coupling as to both relative rotation and axial translation between the sleeve members. Force readout means may comprise strain gauges attached to the coupling member per se or other transducer means responsive to relative motion between sleeves from rest position.



3,705,531
METHOD AND APPARATUS FOR DETERMINING THE OPERATING PERFORMANCE OF WHEELED VEHICLES ON A TRACK

Joseph M. Wandrisco, Lower Burrell, Pa., assignor to United States Steel Corporation
Filed July 6, 1971, Ser. No. 159,897
Int. Cl. G01l *5/20*
U.S. Cl. 73—146 **10 Claims**

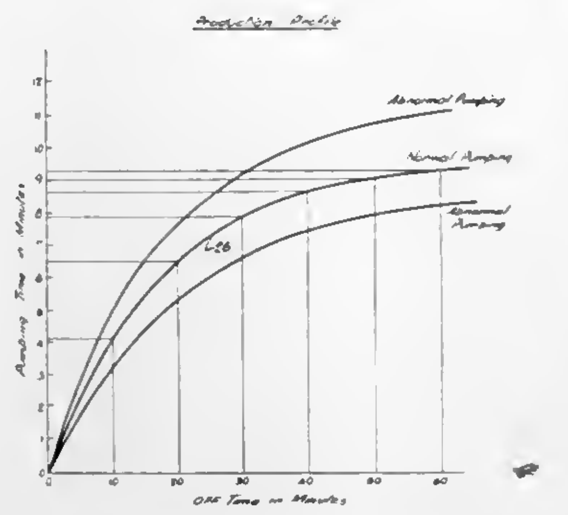


Apparatus for measuring the lateral movement of the rails of curved tracks as locomotives or railroad cars pass thereover includes a support positioned adjacent each rail. A linear differential transformer carried by the support has its axially movable core connected to the adjacent rail by means of a non-magnetic rod. Movement of the core changes the output of the transformer and this output is connected to a recorder which provides a chart of the movement. A wheeled vehicle known to be in first class shape is first passed over the rail to provide a first chart which will be substantially identical for all vehicles of the same type which are in first class shape. When other similar vehicles whose condition is not known passes over the curved rail and its chart is obtained at the same location a comparison of the two charts will indicate whether or not the wheels, axles, or other truck components of the car are in first class condition or not.

3,705,532
METHODS FOR CONTROLLING PUMPING WELLS

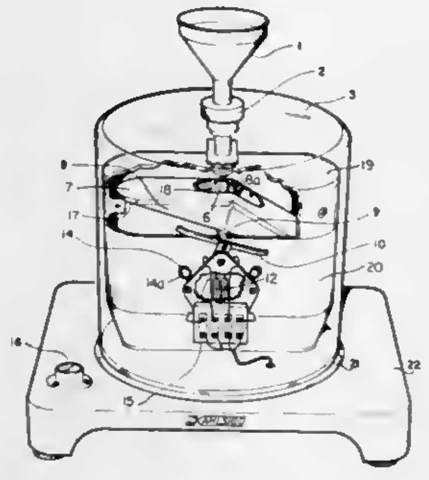
Laurence M. Hubby, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y.
Division of Ser. No. 692,877, Dec. 22, 1967, Pat. No. 3,610,779. This application May 21, 1970, Ser. No. 48,596
Int. Cl. E21b *47/00*
U.S. Cl. 73—155 **6 Claims**

A method and system for pumping-well control including determination of a production profile for the well. The profile consists of a function that defines the normal producing conditions when the well fluid is pumped out of the well at a greater rate than it is produced therein. Optimum producing conditions may then be determined and set. In addition, the magnitude of the load on the pump motor is monitored and fed out for remote indication and/or control.



3,705,533
PRECIPITATION SENSOR

Gerald J. Kahl, La Mesa, Calif., and Guido N. Guidelli Guidi, Bologna, Italy, assignors to Kahl Scientific Instrument Corporation, Cajon, Calif. and Societa Italiana Apparecchi Precisione S.p.A., Bologna, Italy, part interest to each
Filed June 23, 1970, Ser. No. 49,033
Int. Cl. G01w *1/14*
U.S. Cl. 73—171 **12 Claims**

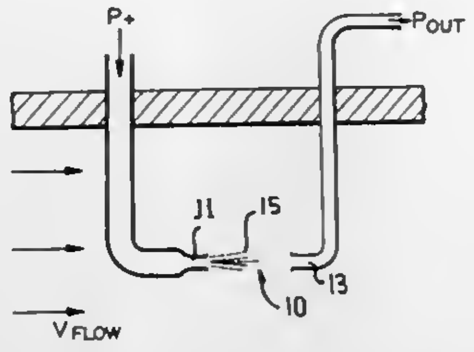


A precipitation sensor having two buckets secured to each other for tilting movement between two end positions, is provided with a precipitation collecting and distributing means which collects precipitation during tilting of the buckets and has a normally closed valve operated by the buckets to open when the same are in the end positions so that the collected precipitation is alternately discharged into the buckets. Evaporation retarding covers with small inlet cutouts close the tops of the buckets, adjustable elastic abutments stop the buckets without bouncing back, and magnetic switch means generate a counting pulse for each tilting movement.

3,705,534
FLUIDIC FLOW SENSING METHOD AND APPARATUS

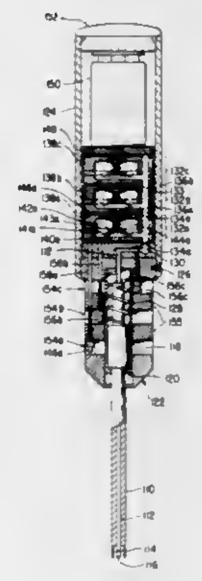
Robert F. Turek, Silver Spring, Md., assignor to Bowles Fluidics Corporation, Silver Spring, Md.
Continuation-in-part of Ser. No. 817,717, April 21, 1969, abandoned. This application May 12, 1970, Ser. No. 36,627
Int. Cl. G01f *1/00*
U.S. Cl. 73—189 **38 Claims**

Fluidic flow sensing techniques are disclosed which permit sensitive flow measurements over a wider range of flow rates than was heretofore possible. In one embodiment a jet of working fluid, directed parallel to the sensed flow, is modulated by viscous interaction with the sensed flow, thereby changing the downstream dynamic pressure of the jet as a function of the sensed flow. In a second embodiment a jet of working fluid is directed angularly with respect to the sensed flow, producing jet deflection which is monitored as a differential pressure across a pair of downstream receivers. A negative feedback circuit, including a high gain amplifier fed by the differential pressure, controls the jet supply pressure to maintain a differential pressure null across the receivers, thereby rendering the jet supply pressure a function of the sensed flow.



3,705,535
FLUIDIC ON-LINE SYSTEM TESTER

Kenneth W. Cohen, and Thomas E. Martin, both of Chesterland, Ohio, assignors to Bailey Meter Company
Filed Oct. 26, 1970, Ser. No. 83,776
Int. Cl. G01l *7/08*
U.S. Cl. 73—420 **8 Claims**



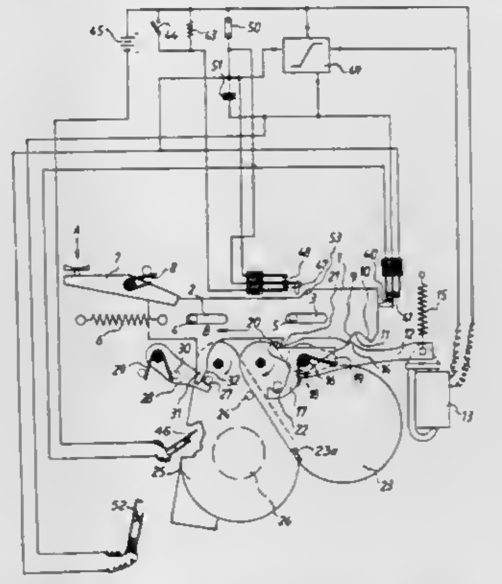
A pressure testing device for on-line testing of a fluidic element in a system where a self-sealing test valve is mounted in the system, and the pressure therein is sensed by a test probe which makes a secondary seal with the valve before breaking the valve's self-seal. This secondary seal is maintained until partial extraction of the probe allows the jack to reseal itself. The secondary seal is broken only upon complete extraction of the probe. The probe capacitance is negligible with respect to the system capacitance in order to prevent sudden pressure drops from occurring. A sensor, amplifier, readout and power supply is built into the probe which is hand held and self-contained.

ERRATUM

For Class 83—478 see:
Patent No. 3,705,611

3,705,536
CAMERA WITH EXPOSURE CONTROL USING A SINGLE MAGNET

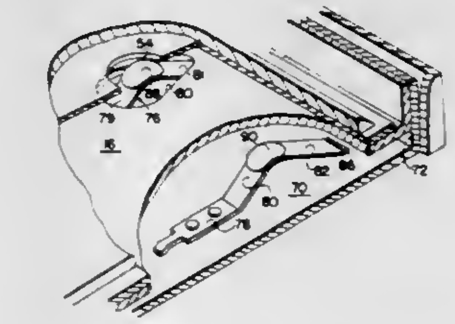
Peter Lermann, Narring, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed June 11, 1971, Ser. No. 152,267
Claims priority, application Germany, June 16, 1970, P 20 29 784.1
Int. Cl. G03b *7/08, 9/58*
U.S. Cl. 95—10 CT **16 Claims**



Activation of a release button starts movement of a control slider along a predetermined path. The start of the slider motion activates a timing circuit furnishing a signal after a fixed time interval, and energizes the magnet. The slider motion is stopped mechanically and resumes only after deenergization of the magnet at the end of the fixed time interval. The magnet is reenergized, the opening blade is pivoted to its exposure position, and an exposure timing circuit activated. After proper exposure, the magnet is deenergized, allowing the shutter closing blade to terminate the exposure.

3,705,537
APPARATUS FOR INTERFACING PHOTOGRAPHIC CAMERA AND FILM CARTRIDGE

Richard Paglia, Carlisle, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed April 21, 1971, Ser. No. 136,071
Int. Cl. G03h *19/02, 19/10*
U.S. Cl. 95—11 R **11 Claims**



Apparatus for interfacing a photographic camera and film cartridge. More particularly, the illustrated film cartridge contains a stack of film units of the "self-developing" type and a flat battery for energizing electrically powered components in a camera which receives the cartridge. A pair of apertures of novel configuration in the cartridge bottom wall expose terminals on the battery. The apertures and a pair of novel electrical contacts on a camera back adapted to mate with the apertures provide improved cartridge guidance and assure a good electrical union of the contacts with the battery terminals.

3,705,538
PHOTOGRAPHIC APPARATUS FOR USE WITH IMPELLER-ACTUATED SOURCES OF ARTIFICIAL LIGHT

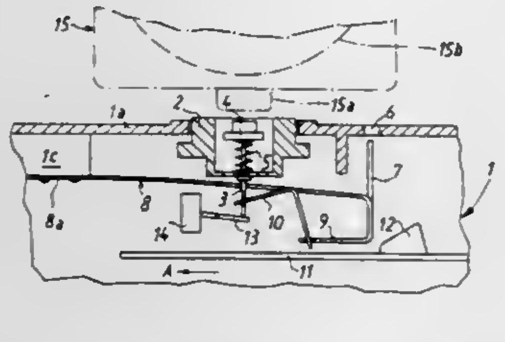
Johann Putscher, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed May 26, 1971, Ser. No. 146,965

Claims priority, application Germany, May 29, 1970, P 20 26 341.6

Int. Cl. G03b *15/04, 15/03*

U.S. Cl. 95—11.5 R **9 Claims**



A still camera with an indexible socket for flashcubes of the type having cartridges which must be struck in order to fire the respective lamps. The cartridge for that lamp which faces the subject can be struck by the pin of an elastic impeller which is mounted in the housing and tends to maintain its pin in a retracted position. The base of the properly inserted flashcube depresses a shaft to stress an L-shaped leaf spring which is coupled to the shaft and to the impeller. A release element is movable with reference to the camera body to engage the impeller and to thereby move the spring from a first stable position through and beyond a neutral position so that the spring snaps over to assume a second stable position and to thereby propel the pin against the cartridge. The shaft can adjust the shutter in response to insertion of the base into the socket to select an exposure time which is best suited for the making of exposures with artificial illumination of the subject.

3,705,539
PHOTOGRAPHIC APPARATUS WITH DETACHABLE SOURCE OF ARTIFICIAL LIGHT

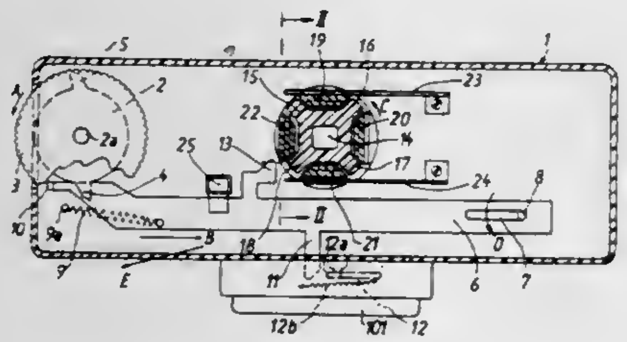
Karl Wagner, Ottobrunn; Klaus Nicolai, Grunwald; Gerhard Schuchardt, and Johann Putscher, both of Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed June 10, 1971, Ser. No. 151,646

Claims priority, application Germany, June 12, 1970, P 20 29 140.1; June 12, 1970, P 20 29 139.8

Int. Cl. G03h *15/04, 15/03*

U.S. Cl. 95—11.5 R **40 Claims**



The body of a still camera has a fixedly mounted socket for reception of the foot of a flashcube which is rotatable with reference to the socket in order to place successive lamps into an optimum position for illumination of the subject. The flashcube can be rotated by way of its foot or by way of its casing and the socket is provided with a detent structure which can yieldably hold the flashcube in a selected position. The means for rotating the flashcube constitutes the film transporting and/or the shutter actuating mechanism of the camera.

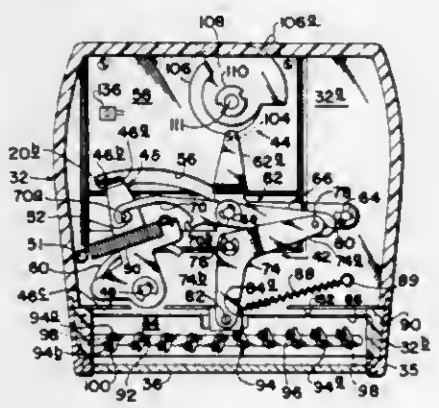
3,705,540
ELECTRONIC FLASH UNIT

John M. Reed, Lexington; John M. Reynard, Framingham, and Peter A. Scibilia, Franklin, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 745,813, July 18, 1968, abandoned. This application June 29, 1970, Ser. No. 56,079

Int. Cl. G03b *9/70, 15/02*

U.S. Cl. 95—11.5 R **32 Claims**



A photographic flash unit having a plurality of pivotable louvers mounted at the open face of the unit housing. The unit is provided with a mechanism for adjusting the position of the louvers to control the amount of light emitted by the unit during flash operation, and a mounting member for detachably connecting the flash unit to a camera. The unit also has a manually-operable trim device for producing an overall shift in the adjusting mechanism and subsequently in the degree of light output of the flash unit. The camera has a distance setting element which cooperates with the adjusting mechanism of the flash unit to vary the light output of the flash unit as a function of the distance of the subject from the camera. The manually-operable trim device permits the operator of the camera to produce an overall shift in the degree of light output of the flash unit at any given setting of the distance setting element of the camera.

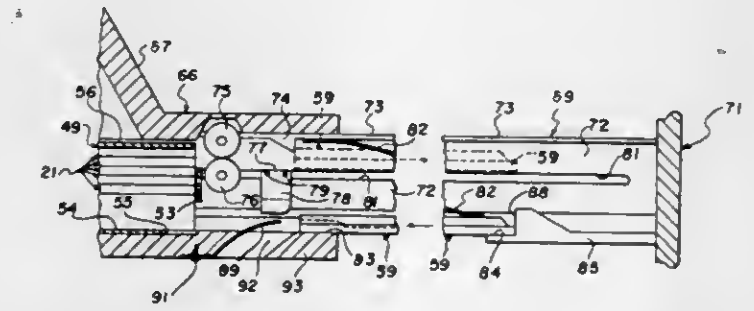
3,705,541
FILM UNIT AND APPARATUS FOR USE THEREWITH

Guilford Edwin Kindig, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 2, 1971, Ser. No. 159,322

Int. Cl. G03b *17/57*

U.S. Cl. 95—13 **14 Claims**



A self-processing film unit including an image-recording element separably coupled to a rigid frame; is usable in photographic apparatus having means for separating the element from the frame. Grooves in the frame underlie the image-recording element for receiving and guiding stripper fingers of the apparatus as the fingers are moved in a longitudinal direction relative to the element. After penetrating between the element and the frame, relative movement in a direction generally perpendicular to the longitudinal direction is effected between the fingers and the frame to accentuate the separating action of the fingers.

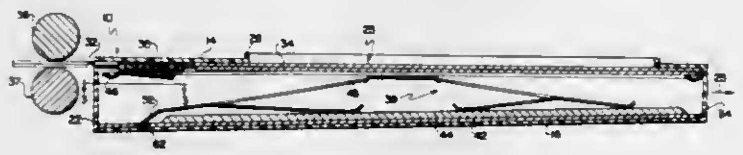
3,705,542
PHOTOGRAPHIC FILM CARTRIDGE

Nicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed April 21, 1971, Ser. No. 136,029

Int. Cl. G03b *19/10*

U.S. Cl. 95—19 **11 Claims**



This disclosure depicts film cartridges for storing a plurality of film units in stacked relationship for successive exposure in photographic cameras of the "self-developing" type. The cartridges disclosed each include a spring platen for urging a plurality of film units stacked thereon toward an exposure window in a top wall of the cartridge. A number of embodiments of devices for retaining and accurately positioning the spring platen are disclosed.

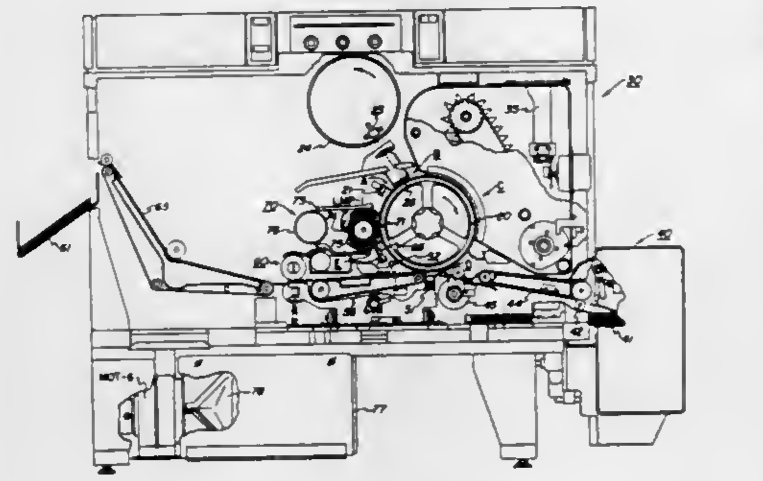
3,705,543
OPTICAL RECORDER

James D. Rees, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 28, 1970, Ser. No. 101,701

Int. Cl. B41b *15/06, 17/34*

U.S. Cl. 95—4.5 R **10 Claims**



Non-impact printing or recording apparatus adapted for use with a digital computer. The apparatus is characterized by the employment of an optical character generator and timing system therefor capable of printing information on a moving photoresponsive medium. The apparatus is further characterized by the provision of a field mask disposed intermediate a lens system and the photosensitive medium which field mask prevents projection of more than one character from a column of characters.

3,705,544
METHOD OF PROCESSING PHOTOGRAPHIC MATERIAL

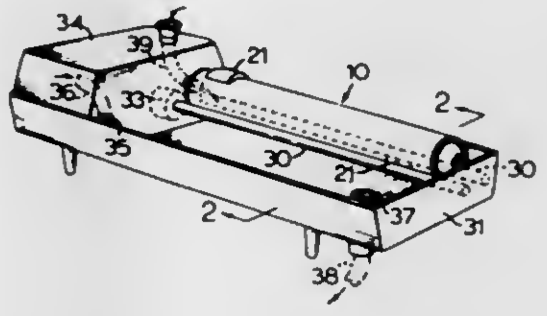
Simon Ratowsky, Willowdale, Ontario, Canada, assignor to Ontario Development Corporation

Continuation-in-part of Ser. No. 848,042, Aug. 6, 1969. This application Nov. 5, 1971, Ser. No. 196,075

Claims priority, application Great Britain, Aug. 10, 1968, 38,333/68; March 11, 1969, 12,655/69

Int. Cl. G03d *3/08*

U.S. Cl. 95—93 **7 Claims**



A method of processing photographic material of the sheet or roll type including the steps of mounting the photographic material arcuately in a cylindrical carrier which is horizontally disposed with respect to the axis of arcuation, introducing a predetermined quantity of processing liquid into the lower portion of the cylindrical carrier, rotating the carrier abouts its longitudinal axis, and simultaneously oscillating the carrier (a) in a non-horizontal plane passing through its longitudinal axis, and (b) about a fulcrum centrally located on the longitudinal axis, to produce a continuous wave form in the liquid traveling back and forth along the carrier.

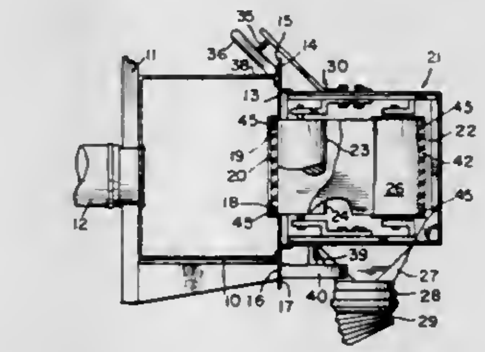
3,705,545
RELEASABLE SECUREMENT MEANS FOR SEALING WEB

Robert C. Overmyer, Indianapolis, and Adolph J. Nordman, Wabash, both of Ind., assignors to Hawley Manufacturing Corporation, Indianapolis, Ind.

Filed Sept. 17, 1971, Ser. No. 181,516

Int. Cl. F23j *11/02*

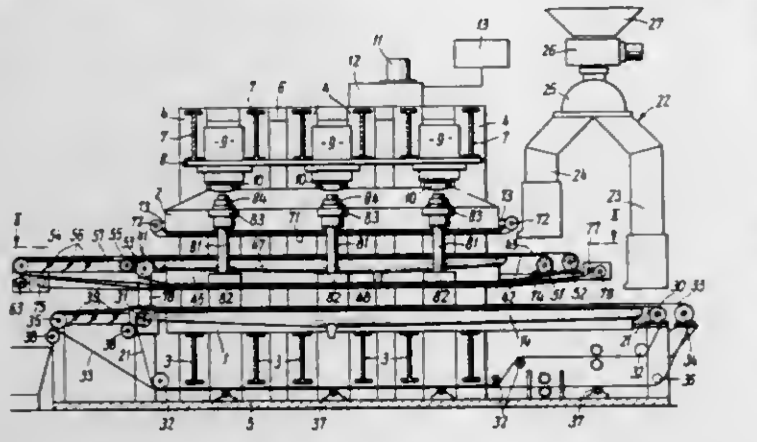
U.S. Cl. 98—115 VM **6 Claims**



Magnetic or hook-and-loop tape system for releasably securing the sealing web to the apertured header wall in a "TRAV-L-VENT" type of ventilating system.

3,705,546
FRUIT PRESS

Otto Gunkel, Badgasse 34, Heilbronn, Germany
Filed Feb. 24, 1971, Ser. No. 118,352
Claims priority, application Germany, Feb. 25, 1970, P 20 08 738.1
Int. Cl. B30b *9/24*
U.S. Cl. 100—118 **11 Claims**

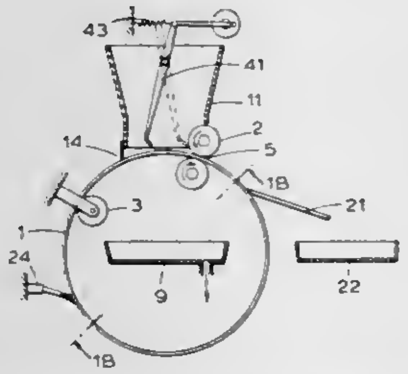


A press for pressing juices from fruit mash and the like, in which the mash is delivered to a filter cloth that is moved into the press between a press punch and the bed member and beneath which filter cloth is a grate band between the bars of which the expressed juice flows to a collecting trough.

The press, furthermore, has at least one table member suspended from the press punch and which table member also carries a grate band and a filter cloth. A charging device supplies fruit mash to both of the filter cloths to be conveyed into pressing condition so that in one pressing operation at least two layers of fruit mash are pressed. The grate bands and filter cloths are intermittently driven and cleaning devices are provided for the cleaning thereof following each pressing cycle. Each table member has a cover plate on the bottom beneath the return reach of the respective grate band and filter cloth and a cover cloth is provided for the lower face of the cover plate.

3,705,547
FILTRATION APPARATUS

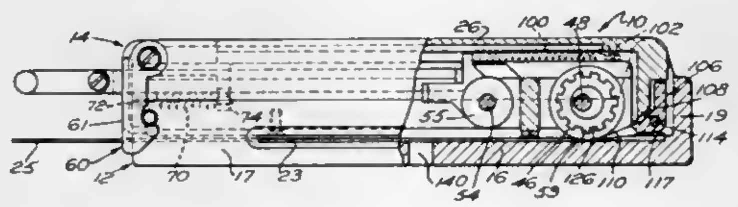
James Harold Laurie, Old Hall Farm, Carleton Rode, Norwich, Norfolk, and Raymond Alfred Cole, Feildings Heywood-Diss, Norfolk, both of England
Filed Dec. 21, 1970, Ser. No. 102,402
Int. Cl. B30b *9/20*
U.S. Cl. 100—121 **12 Claims**



The invention is concerned with the disposal of effluent material, e.g. on agricultural land which is difficult to handle. The feature of the invention is an apparatus which can handle solid liquid slurries by squeezing the slurry through a nip between a rotatable apertured shell and squeeze rolls having deformable outer surfaces which are positioned above and beneath the apertured shell and in contact therewith. The shell is supported for rotation and is rotated by the squeeze rolls which are driven in sufficiently firm contact with the shell to achieve this effect and to assist in the passage of effluent material through the nip. A further feature of using deformable squeeze rolls is that the lower roll extends into the apertures in the shells so as to keep them substantially clear of solid material. The effluent is normally fed to the top surface of the shell immediately before the nip and filter liquor passing through the shell is collected by appropriate means. Liquid with a very small amount of solid material is handled by using two pairs of squeeze rolls on one shell and feeding to the shell before the nip of the first rolls a fibrous material which forms a mat on the shell surface between the two nips. The mainly liquid effluent is then fed onto this mat between the two sets of squeeze rolls.

3,705,548
ROLLER ADJUSTMENT FOR IMPRINTING DEVICE

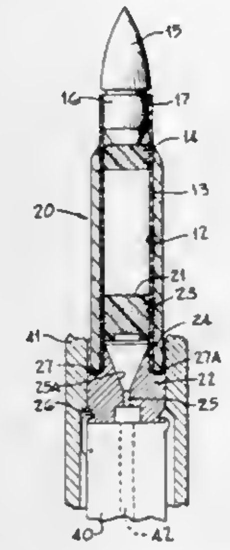
John E. Waterman, Chepachet, R.I., assignor to The Entwistle Company, Providence, R.I.
Filed April 27, 1970, Ser. No. 31,907
Int. Cl. B41l *3/56*
U.S. Cl. 101—269 **7 Claims**



A portable imprinting device for transferring indicia from an embossed printing plate to a paper form, the device having a roller carriage assembly that includes means for adjusting the position of the imprinting roller relative to the paper form in order to effect a proper imprinting action on the paper form.

3,705,549
AMMUNITION

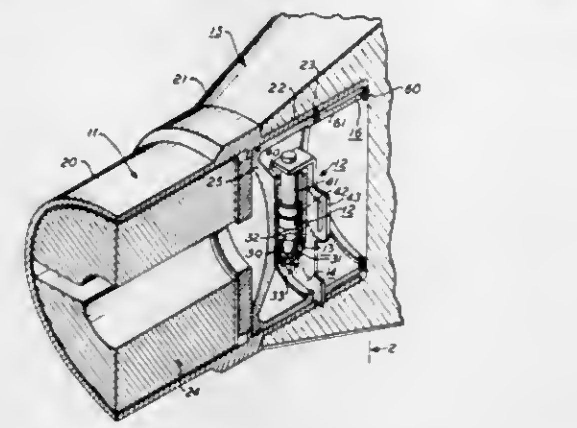
Joseph B. Quinlan, Philadelphia, Pa., and John J. Scanlon, Jr., Monroe, Conn., assignors to The United States of America as represented by the Secretary of the Army
Continuation-in-part of Ser. No. 749,642, Aug. 2, 1968, abandoned. This application Nov. 25, 1970, Ser. No. 92,758
Int. Cl. F42b *9/16*
U.S. Cl. 102—40 **6 Claims**



Caseless and semi-caseless rounds of ammunition produced at very high production rates in which a molded cylinder of propellant charge has a maximum of impact strength. A support tube of combustible material lines the cylinder inner surface and its forward end receives a projectile that may seat against a bullet support plug, the plug and projectile being secured to the tube inner surface by a film of combustible adhesive. Similar adhesive secures the tube to the molded cylinder, and a primer disc or stub obturator to the tube.

3,705,550
SOLID ROCKET THRUST TERMINATION DEVICE

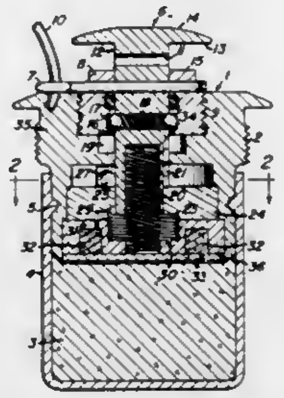
James A. Loog, Wharton, N.J., assignor to The United States of America as represented by the Secretary of the Army
Filed Nov. 2, 1970, Ser. No. 85,933
Int. Cl. F42b *15/10;* **A47l** *3/04*
U.S. Cl. 102—49.5 **4 Claims**



A thrust termination device for terminating solid rocket propellant thrust at a pre-selected point in the rocket trajectory responsive to a signal from an onboard sensing device, to actuate and move a restrainer element out of its blocking position in a resilient and tensioned split ring which thereupon concentrically collapses and compacts to free the rocket motor forward head portion for movement in a thus predictable path, and to enable the extinguishing of the projectile propellant and the termination of rocket thrust, to enable precise range pre-selection between the points of maximum attainable range and the minimum launch-associated range of the rocket.

3,705,551
PUSH BUTTON MUNITION

Aaron S. Berlin, Wilmington, Del., and Vincent C. Little, Fallston, Md., assignors to The United States of America as represented by the Secretary of the Army
Filed Oct. 2, 1970, Ser. No. 77,462
Int. Cl. F42b *27/00*
U.S. Cl. 102—64 **5 Claims**

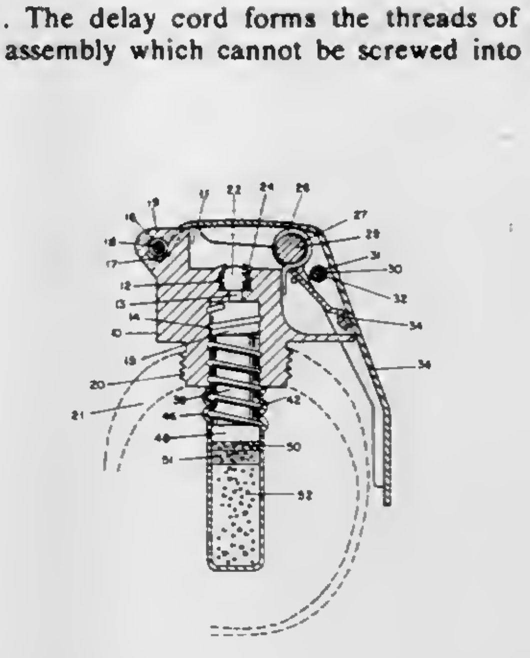


An improved munition which uses an improved fuze and method of detonation of a payload at a target site; the improvement being the utilization of a technique whereby a push button is depressed to release an initiator means which rotates radially to a striker means to bring about detonation.

3,705,552
PYROTECHNIC COILED DELAY CORD ASSEMBLY FOR HAND GRENADE FUZE

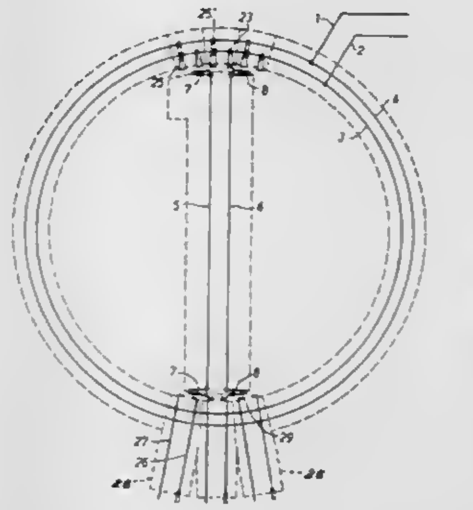
Russell E. Lerman, Morris, N.J., assignor to The United States of America as represented by the Secretary of the Army
Filed Feb. 8, 1971, Ser. No. 113,416
Int. Cl. F42b *27/00;* **F42c** *9/10*
U.S. Cl. 102—64 **3 Claims**

An improved hand grenade fuze that has an out-of-line metal sheathed pyrotechnic delay cord helically wound about a mandrel. The delay cord forms the threads of a delay-detonator assembly which cannot be screwed into the fuze head unless the delay cord is present thereby insuring the presence of the delay element.



3,705,553
TURNTABLE FOR ELECTRIC TOY AND MODEL RAILROAD INSTALLATIONS

Max Ernst, Lohengrinstrasse 14, 85 Nurnberg, Germany
Filed Oct. 5, 1970, Ser. No. 77,888
Claims priority, application Germany, Oct. 3, 1969, P 19 49 974.2
Int. Cl. B60s *13/02*
U.S. Cl. 104—35 **10 Claims**

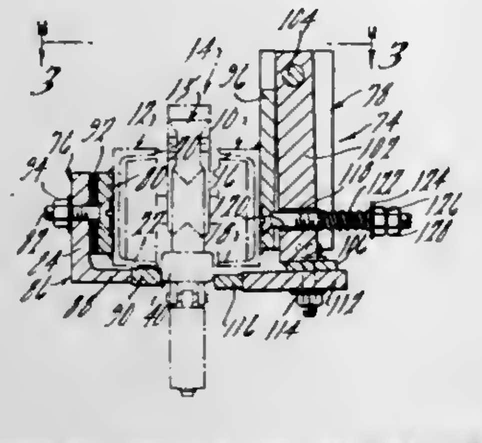


A turntable for electric toy and model railroads having a rotatable bridge body and a supporting body therefor, in which the marginal portion of the bridge body has contact members inserted therein which form counter contacts for spring contacts on said bridge body and are electrically connectable to annular current feeding lines on the supporting body.

3,705,554
TROLLEY RETARDER FOR POWER AND FREE CONVEYORS

Stephen M. Aksamit, Melvindale, Mich., assignor to Standard Alliance Industries, Inc., Chicago, Ill.
Filed Aug. 26, 1970, Ser. No. 67,063
Int. Cl. B61h *13/00;* **B61k** *7/00*
U.S. Cl. 104—250 **5 Claims**

A trolley retarder for power and free conveyor systems comprising separate brake devices mounted on opposite sides of the conveyor track and adapted to engage and to frictionally retard movement of work carrying trolleys along the track.



3,705,555

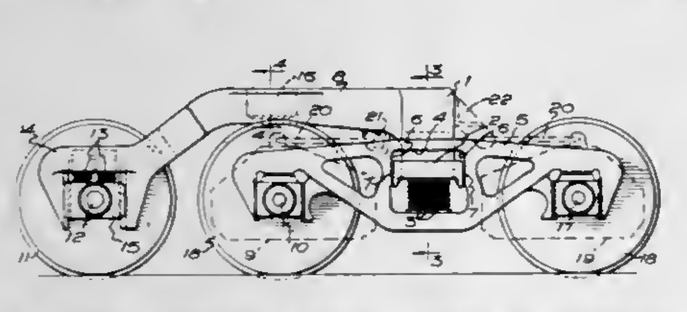
ARTICULATABLE RAILWAY BOGIES

Eric John Wilson; Alan Henry Briggs, and Eric Timmons, all of Sheffield, England, assignors to English Steel Corporation Limited

Filed Dec. 22, 1970, Ser. No. 100,756

Int. Cl. B61f *3/06, 5/06, 5/32*

U.S. Cl. 105—196 **6 Claims**



A railway bogie with a bolster has an arm extending rigidly from the middle of the bolster to a pony axle in advance of the leading axle, whereby any movement of the pony axle as its wheels move into a curve is transmitted to act on the bogie and urge it towards a position in which the bolster is aligned radially with respect to the curve, this being the position in which both the leading and trailing axles are nearest to being aligned radially with respect to the curve.

3,705,556

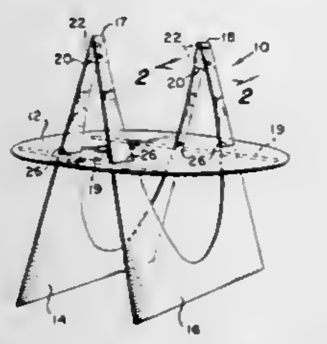
TABLE CONSTRUCTION

Brian Kelly, 59 Plymouth Street, No. 3, Cambridge, Mass.

Filed July 21, 1970, Ser. No. 56,895

Int. Cl. A47b *13/02*

U.S. Cl. 108—144 **12 Claims**



A rigid, easily assembled table having few parts, and a method for fabricating such a table, preferably from a single sheet of material, are disclosed. The table comprises a flat top member and a plurality of support members extending obliquely through the top member, said support members being secured together at their apices above the surface of the top member. An additional feature allows the top member of the table to be vertically adjusted without dissembling the component parts.

3,705,557

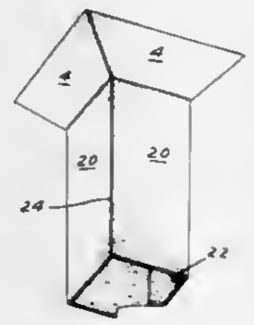
KNOCK-DOWN TABLE OF PAPERBOARD SHEET MATERIAL

Richard V. Budington, Somers, Conn., assignor to Longview Fiber Company

Filed Aug. 20, 1971, Ser. No. 173,432

Int. Cl. A47b *13/02*

U.S. Cl. 108—150 **9 Claims**



A knock-down table of stiff foldable paperboard sheet stock and the like having a single-piece platform section folded into the shape of an inverted obelisk and open at the bottom, and a single-piece pedestal section folded in tubular form and inserted into said bottom. Notched flap members foldably joined to the side panels of the platform section extend internally thereof and are slidably engaged by notched corner portions of the pedestal tube to support and releasably hold said folded shape of the platform section.

3,705,558

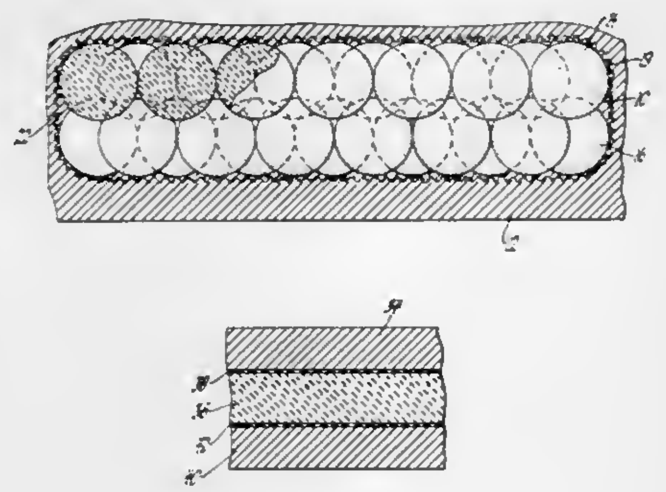
ARMOR

John A. McDougal, Madison Heights, and Karl Schwartzwalder, Holly, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed April 24, 1963, Ser. No. 275,402

Int. Cl. F41h *5/04*

U.S. Cl. 109—84 **8 Claims**



1. A lightweight armor plate comprising a mass of sintered hard substantially spherical ceramic balls disposed in contacting pyramidal relationship whereby each ball is in contact substantially with at least three other balls, and means for rigidly supporting said balls in said pyramidal relationship.

3,705,559

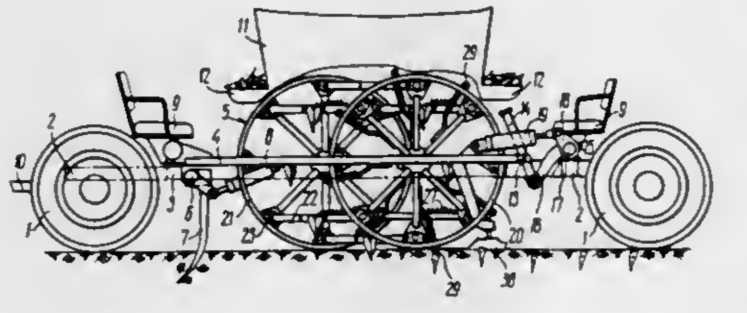
ROOT CROP PLANTER

Ivan Fedorovich Okorokov; Gorgy Porfirievich Bogdanov; Konstantin Alexandrovich Sorokin; Anatoly Fedorovich Onischenko; Pavel Efimovich Ziborov, and Samuil Nisonovich Perstnev, all of Kharkov, U.S.S.R., assignors to Ukrainsky Nauchno-Issledovatelsky Institut Selskokhozyaistvennogo Mashinostroenia Prospekt Gayarina, Kharkov, U.S.S.R.

Continuation-in-part of Ser. No. 776,166, Nov. 15, 1968, abandoned. This application May 14, 1971, Ser. No. 143,455

Int. Cl. A01c *11/00*

U.S. Cl. 111—3 **3 Claims**



The planter comprises planting units consisting of two support wheels longitudinally and transversely offset with respect to each other, so that one of the wheels is located aside, and displaced to the rear, of the other wheel, with regard to the direction of movement of the planter. The wheels are connected to each other by horizontal links which are hingedly secured to the wheel rims so, that the distance between the centers of the hinges along the rim equals one eighth of the length of the wheel rim circumference. The horizontal links are made with a two-step deflection, one step of which forms with the rim of the front support wheel a gap for the passage of the adjacent horizontal link, while the other step forms with the planting devices a gap for the passage of the root knockouts, as two adjacent horizontal links are located in one horizontal plane.

3,705,560

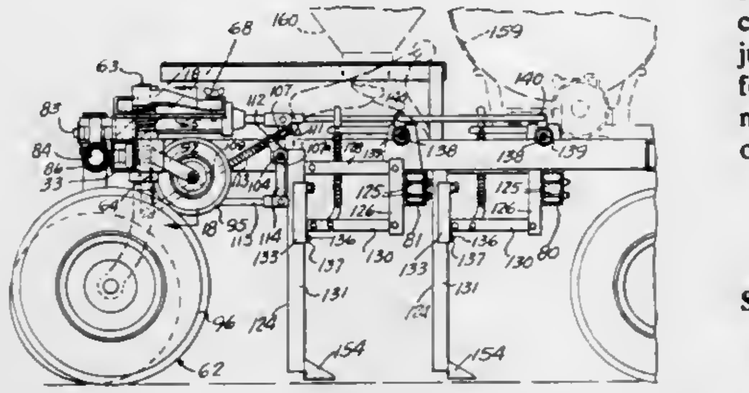
SECTIONAL ARTICULATED AGRICULTURAL APPARATUS

Douglas E. Lappin, Logan, Kans.

Continuation-in-part of Ser. No. 14,973, Feb. 27, 1970, abandoned. This application Sept. 24, 1971, Ser. No. 183,476

Int. Cl. A01c *5/00*

U.S. Cl. 111—85 **17 Claims**



A seed planting apparatus consisting of a first section with one or more similar sections attached thereto. Each section has furrowing means, seed dropping means and press wheels. Optionally, tanks for holding water or liquid fertilizer are mounted on each section with pipes running to the rear of each furrowing means. Each section is supported on aster wheels at its front corners and centrally of its rear edge to form a generally triangular suspension. The wheels supporting the rear of the first section can be swiveled from a position for travel in one direction to a position for travel at 90° thereto with the wheels being releasably locked in each of the two positions.

In the field, all sections in side by side relation are towed from a hitch on the first section. In transport position, all sections are towed in an end to end relationship by a hitch attached to the end of the side sections. In transport position, all of the caster wheels swivel freely except the rear set on the first section. In the field position, all of the rear wheels are releasably locked to keep them from swiveling about their caster axis while all of the forward wheels are permitted to swivel.

3,705,561

CYCLIC SEWING MACHINE

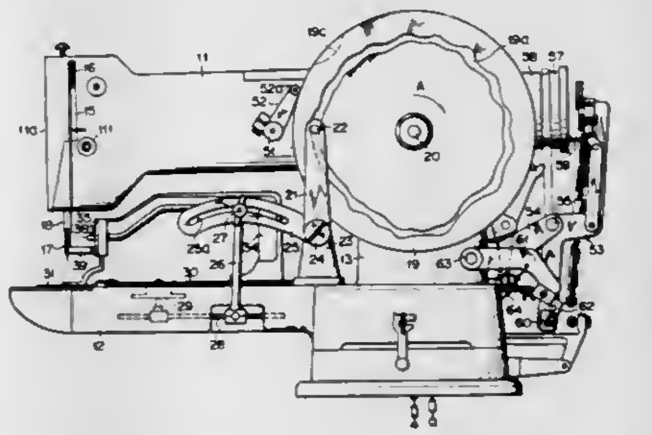
Katuaki Sakawa, Chiryu, and Tetuo Kozawa, Aichi-ken, both of Japan, assignors to Brother Kogyo Kabushiki Kaish, Nagoya-shi, Japan

Filed July 6, 1971, Ser. No. 160,195

Claims priority, application Japan, July 6, 1970, 45/58857

Int. Cl. D05b *3/04*

U.S. Cl. 112—67 **8 Claims**



A cyclic sewing machine comprising a first cam disk for actuating a motion control mechanism to control the start and stop of a sewing machine and a thread cutting mechanism at the end of a cycle corresponding to a prescribed number of stitches; and a second cam disk for imparting the feed movement to the work clamp mechanism with a number of stitches equal to an integral multiple of said prescribed number of stitches, wherein the motion control mechanism and thread cutting mechanism are brought to an inoperative state until just before the second pattern cam disk imparts a one cycle feed movement to the work clamp mechanism, thereby permitting the very easy change of a number of stitches used in one cycle.

3,705,562

ROTARY SHUTTLE FOR SEWING MACHINES

Susumu Hanya, and Takashi Amano, both of Tokyo, Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

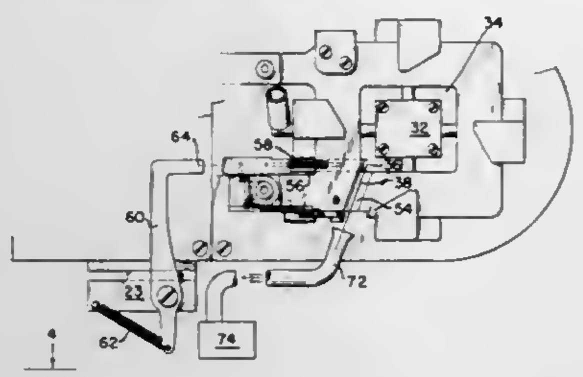
Filed April 27, 1971, Ser. No. 137,764

Claims priority, application Japan, April 28, 1970, 45/35952

Int. Cl. D05b *57/10*

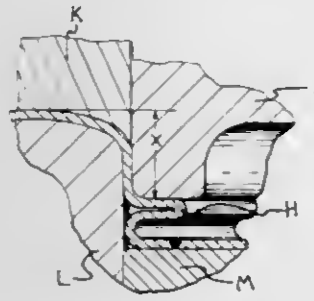
U.S. Cl. 112—232 **9 Claims**

A rotary shuttle for a sewing machine is made of two plates which are press-formed to have dished wall portions and part-circular flanges circumferentially abutting each other, and being brazed or welded together. The plates are cut out to form a recess for the passage of a sewing needle, and a hook for catching a thread.



3,705,563
METHOD OF FORMING CONVENIENCE CLOSURE FOR CONTAINER BODY

William F. Elser, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Division of Ser. No. 808,022, March 17, 1969, abandoned.
This application July 21, 1970, Ser. No. 56,940
Int. Cl. B21d *51/00*
U.S. Cl. 113—121 C **1 Claim**

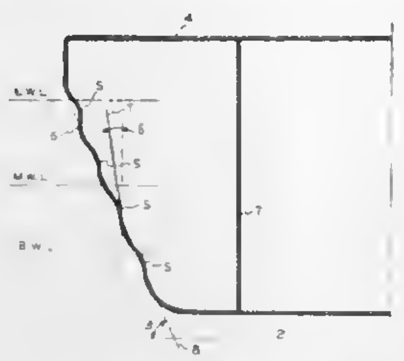


This application discloses a metallic convenience closure of the full panel tear out type for a container body, in which the closure upstanding side wall which perimetrically surrounds the central closure panel is provided with an inwardly extending protective bead. This bead is spaced above and extends generally parallel to the closure central panel. The score line which circumscribes the removable portion of the closure panel is located entirely radially outwardly of the bead, and therefore the sharp edge which is formed along such score line when the removable portion is removed is in non-cutting relationship with the hand of a person manually emptying the contents of the associated container. The closure is provided with a removal tab, the nose of which is located in the space between the closure panel and the protective bead. The protective bead also serves to radially stiffen the associated container, and a closure with such bead may be used to particular advantage with a semi-rigid container body, e.g., a composite, laminated container body deriving its strength principally from one or more cylindrically wound fiberboard plys or laminations.

3,705,564
SHIP HULL FOR ICE-BREAKING SHIP

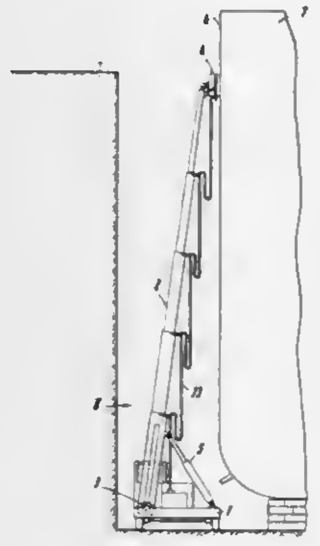
Jens Wilhelmsen, Fredrikstad, Norway, assignor to A/S Fredriksstad mek, Verksted, Fredrikstad, Norway
Filed Feb. 11, 1971, Ser. No. 114,611
Claims priority, application Norway, Feb. 13, 1970, 515/70
Int. Cl. B63b *35/08*
U.S. Cl. 114—41 **3 Claims**

A ship hull for ice-breaking ship of the kind where the opposite sides of the ship hull skin is given a particular curvature in order to increase the ability of the hull to break ice formations. The ship hull sides are given a wave-shaped curvature, such that the waves slope in direction backwards relative to the horizontal plane at an angle in the range from 0° to 25°. The ship sides are cantilevered outwards in a per se known fashion. In a preferred embodiment the steepest configuration of the wave surface has an angle in direction outwards relative to the vertical axis which is not less than 5°, preferably is not exceeding 20°.



3,705,565
ARRANGEMENT FOR TREATING UPRIGHT SURFACES

Paul Hammelmann, Zum Sundern 17, 474 Oelde-Westphalia, Germany
Filed Oct. 7, 1970, Ser. No. 78,673
Claims priority, application Germany, Oct. 10, 1969, P 19 51 107.0
Int. Cl. B60s *3/02*
U.S. Cl. 114—222 **15 Claims**



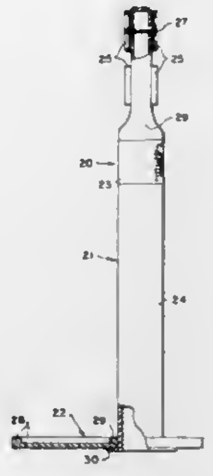
A vehicle is movable along the upright outer surface of a ship's wall in a horizontal path. A mast on the vehicle extends upwardly along the surface and has an upper end portion, the mast being extensible and retractable. An evacuable container is provided on the upper end portion of the mast displaceable at least with reference to and along the surface and having an open side facing and adapted for fluid-tight contact with a registering portion of the surface. Nozzle means is arranged within the container and operative for dispensing a treating medium through the open side onto the registering portion of the surface.

3,705,566
SELF-RIGHTING ROAD DELINEATOR

John W. Duckett, Tiburon; Edward A. Brooks, Novato, and Clarke Reynolds, Tiburon, all of Calif., assignors to American Molded Products, Ltd., Sausalito, Calif.
Filed Sept. 2, 1970, Ser. No. 69,008
Int. Cl. E01f *9/10*
U.S. Cl. 116—63 P **18 Claims**

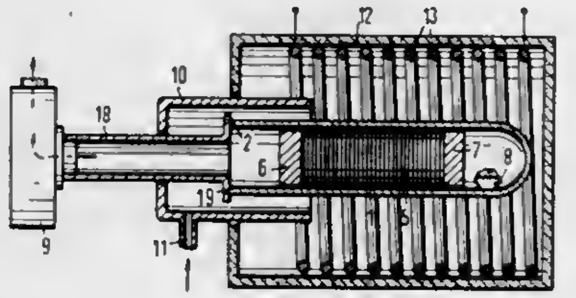
A road delineator or marker comprises a vertically disposed delineating member, such as a post or cone, attached to a horizontally disposed elastomeric base. The delineator is constructed to have a very low center of gravity and to permit a substantial portion of the base to remain in contact with the

ground to constantly maintain the delineator's pivot axis and center of gravity substantially within the confines of the base. In addition to such positioning of the delineator's pivot axis and center of gravity, means for automatically self-righting the delineator comprises a suitably composed and constructed base which exhibits predetermined degrees of elasticity and flexibility.



3,705,567
DEVICE FOR INDIFFUSSING DOPANTS INTO SEMICONDUCTOR WAFERS

Reimer Emeis, Ebermannstadt, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed Jan. 22, 1971, Ser. No. 108,700
Claims priority, application Germany, July 6, 1970, P 23 33 44.5
Int. Cl. C23c *13/12*
U.S. Cl. 118—49 **7 Claims**

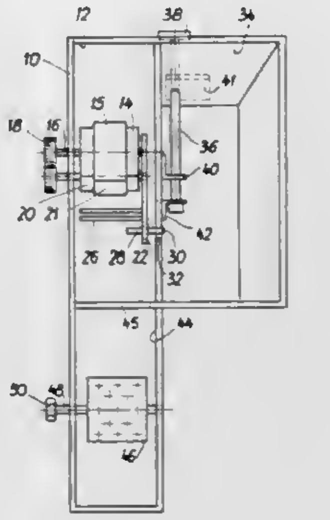


A silicon ampule is provided at its open end with a planar ground section, to which is pressed with the aid of a vacuum pump, a quartz tube provided with a planar ground section. Porosity caused through various thermal expansion coefficients, or thermal stresses does not occur, therefor. The silicon tube is carried only by the quartz tube and does not contact with any other material. To prevent the possible penetration of foreign substances, the planar ground section is rinsed from the outside with a protective gas. According to another embodiment, a lid provided with a planar ground section is placed upon the vertically positioned tube, after the tube was rinsed with protective gas.

3,705,568
APPARATUS FOR APPLYING BRONZE POWDER TO A CONTINUOUSLY MOVING PAPER WEB

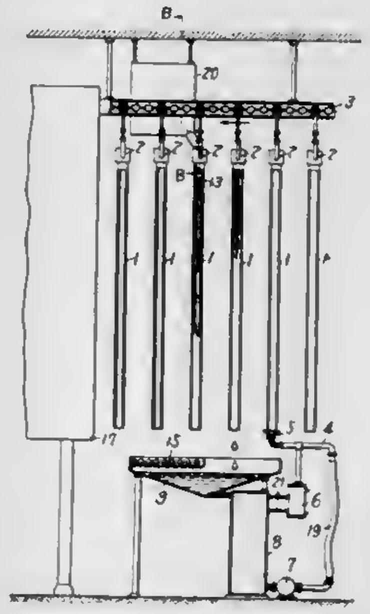
Heinz Freiwald, Bunningstedt, and Karl-Heniz Eggert, Ahrensburg, both of Germany, assignors to B.A.T.-Cigaretten-Fabriken GmbH, Hamburg, Germany
Filed April 14, 1970, Ser. No. 28,435
Int. Cl. B05c *1/08, 11/02*
U.S. Cl. 118—57 **3 Claims**

For applying bronze powder to parts of a continuously moving paper strip particularly a cigarette paper strip, which are provided with an imprint in adhesive, a roller with a novel surface is utilized, a second roller with a specially formed surface being used thereafter as a means for removing surplus bronze powder from the paper strip.



3,705,569
APPARATUS FOR PAINTING THE INNER SURFACE OF PIPES

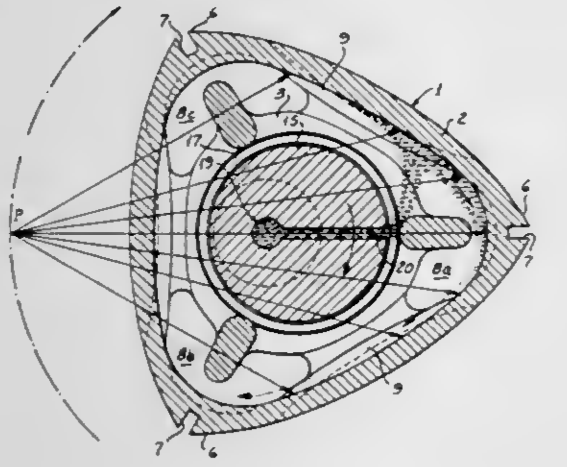
Kimiaki Kasano, Amagasaki, and Ichiro Kaya, Sakai, both of Japan, assignors to Kansai Paint Company Limited, Hyogo-ken, Japan
Division of Ser. No. 835,705, June 23, 1969, Pat. No. 3,657,000. This application Nov. 3, 1971, Ser. No. 195,510
Claims priority, application Japan, July 2, 1968, 43/46399
Int. Cl. B05c *7/00, 11/02*
U.S. Cl. 118—105 **1 Claim**



A method and apparatus for interior painting of a pipe, particularly of small diameter, is characterized by filling of a pipe with both ends open with paint, hanging the pipe vertical and passing a ball of a diameter smaller than the inside diameter of the pipe from the upper end of the pipe to fall down by its gravity through the pipe and strip off excessive paint so as to form a film of uniform thickness of paint of the inner surface of the pipe.

3,705,570
ROTARY COMBUSTION ENGINE WITH LIQUID-COOLED ROTOR

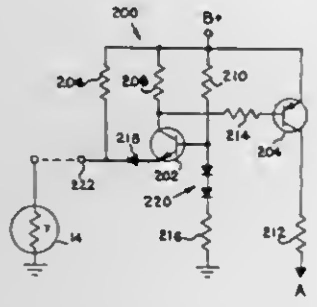
Max Ruf, Obereisesheim, Germany, assignor to Audi NSU Auto Union Aktiengesellschaft und Wankel GmbH Lindau, Bodensee, Germany
Filed Oct. 27, 1971, Ser. No. 193,115
Claims priority, application Germany, Nov. 23, 1970, P 20 57 479.2
Int. Cl. F02b *55/04;* **F01c** *21/06*
U.S. Cl. 123—8.45 **4 Claims**



An internal rotary combustion engine of the trochoidal type, in which centrifugal forces in the shaft and rotor are utilized to pump and channel lubricating and cooling oil through a hollow rotor, and in which the internal cavity of the rotor is shaped and contoured to assist in pumping and to govern the direction of throughput.

3,705,571
HOT START AUXILIARY CIRCUIT FOR ELECTRONIC FUEL CONTROL SYSTEM

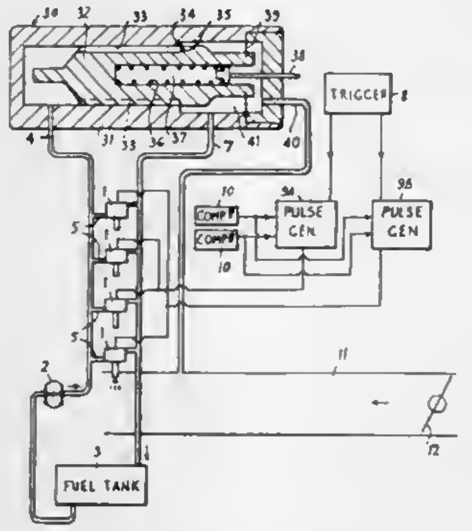
John W. Horn, and Todd L. Rachel, both of Elmira, N.Y., assignors to The Bendix Corporation
Filed March 17, 1971, Ser. No. 125,097
Int. Cl. F02n *11/08*
U.S. Cl. 123—32 EA **11 Claims**



An auxiliary circuit for an electronic fuel control system to facilitate hot starting of the associated engine is disclosed herein. The circuit is responsive to engine temperature above a selected level and is operative to lengthen fuel injection control pulses by an amount calculated by the circuitry to be necessary to purge the injectors and the fuel supply conduits of any vapors forming as a result of excessive engine compartment temperatures. The circuit comprises a first means to generate a signal indicative of the temperature condition and a second means to translate this signal into an appropriate voltage for application to the main computing portion of the electronic fuel control system.

3,705,572
FUEL INJECTION SYSTEMS FOR INTERNAL COMBUSTION ENGINES

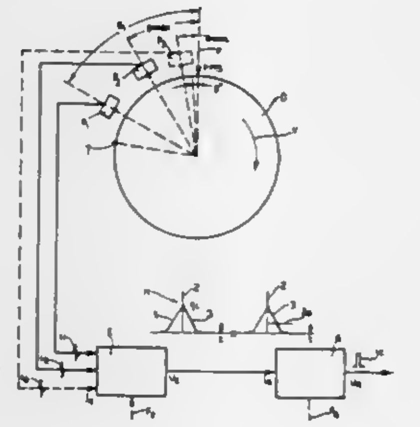
George Vincent Bloomfield, Coventry, England, assignor to Brico Engineering Limited, Warwickshire, England
Division of Ser. No. 811,914, April 1, 1969, Pat. No. 3,596,640. This application Nov. 10, 1970, Ser. No. 88,416
Claims priority, application Great Britain, April 5, 1968, 16,641/68
Int. Cl. F02m *51/00*
U.S. Cl. 123—139 AW **6 Claims**



Fuel from a fuel pressure source is injected by fuel injection valves into the induction passage of an engine and means are provided to vary the pressure of the fuel pressure source in accordance with the engine induction passage pressure, in the sense of reducing the fuel pressure when the induction passage pressure is reduced and vice versa.

3,705,573
ELECTRONIC TIMING SYSTEM FOR INTERNAL COMBUSTION ENGINE

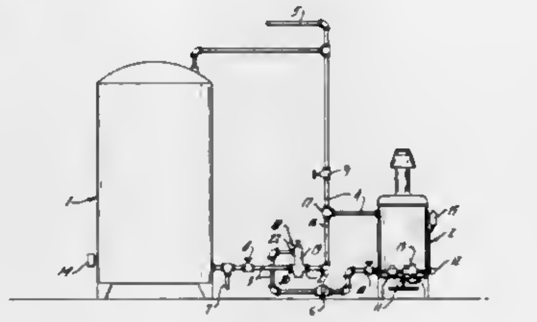
Mario Palazzetti, and Bruno Cavallarin, both of Turin, Italy, assignors to Fiat Societa per Azioni, Turin, Italy
Filed Dec. 18, 1970, Ser. No. 99,379
Claims priority, application Italy, Dec. 31, 1969, 54585 A/69
Int. Cl. F02p *5/04, 5/08*
U.S. Cl. 123—146.5 A **7 Claims**



An electronic timing system for an internal combustion engine provides an angle of advance which increases linearly with the engine speed up to a maximum angle of advance, at which it remains despite any increase in engine speed.

3,705,574
WATER HEATING AND STORAGE SYSTEM WITH MIXING VALVE

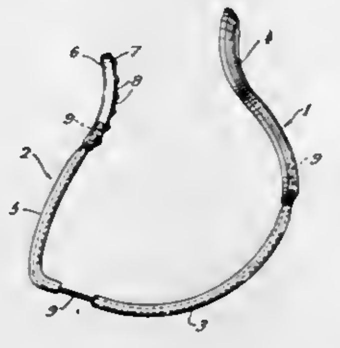
Angelo N. Doncan, Bourbonnais, Ill., assignor to A. O. Smith Corporation, Milwaukee, Wis.
Filed July 9, 1971, Ser. No. 161,084
Int. Cl. F24d *3/02*
U.S. Cl. 126—362 **4 Claims**



The invention relates to a water heating system in which a single water heater is utilized in combination with a storage tank and pump to provide hot water for various uses. The invention is particularly directed to the use of a thermostatic mixing valve set at a predetermined temperature and located at a juncture between a recirculating conduit from the water heater and the conduit for the flow of water from the storage tank or a source of fresh water supply to the water heater so that water which has already been heated by the water heater may be mixed with the colder water supplied to the water heater to be heated.

3,705,575
INCONTINENCE DEVICE FOR FEMALE USE

Lynn Euryl Edwards, 18, Quadrant Grove, Kentish Town, London N.W. 5, England
Filed Sept. 22, 1970, Ser. No. 74,350
Claims priority, application Great Britain, Sept. 26, 1969, 47,541/69; June 5, 1970, 27,195/70
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R **7 Claims**

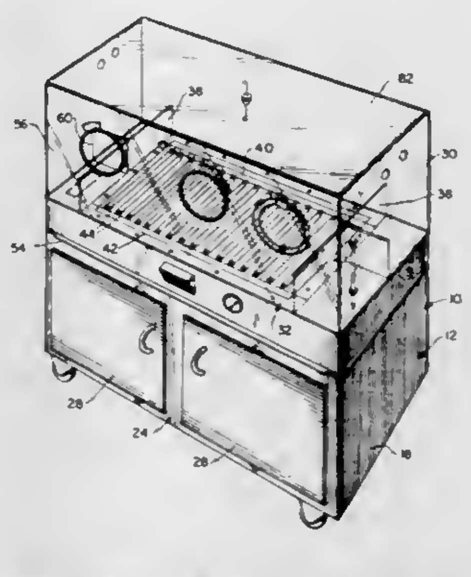


An incontinence device for female use comprises a member adapted to apply pressure to the urethra, preferably from inside the vagina, so as to prevent the flow of urine therefrom. The device may include means for stimulating the muscle action of the tissue controlling the urethra so as to improve the natural urine retention of the wearer of the device.

3,705,576
INCUBATORS FOR INFANTS

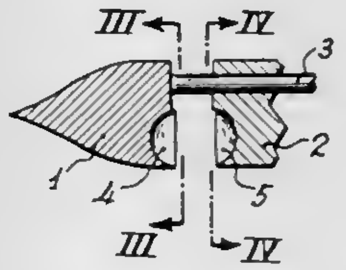
Wilfred Roth, Burlington, Vt., assignor to Research Corporation, New York, N.Y.
Filed Sept. 25, 1970, Ser. No. 75,571
Int. Cl. A61m *16/02;* **A61n** *5/01*
U.S. Cl. 128—1 B **10 Claims**

An incubator has a reflecting plastic sheet overlying the transparent plastic dome of an infant sheltering chamber which has a clear plastic bottom that defines a partition wall for an underneath irradiation chamber that is environmentally isolated from the rest of the incubator and in which a bank of fluorescent lamps is operatively disposed so as to irradiate the infant sheltering chamber from below with the irradiation chamber being continually flushed with fresh air to dissipate heat from the lamps and eliminate explosion hazards.



3,705,577
BIOPSY NEEDLE WITH ECCENTRICALLY-MOUNTED CUTTING TIP

Rafael B. Sierra, P.O. Box 3084, Lantana, Fla.
Filed Dec. 22, 1969, Ser. No. 886,853
Claims priority, application Spain, Oct. 2, 1969, 152231
Int. Cl. A61b *10/00, 17/32*
U.S. Cl. 128—2 B **8 Claims**

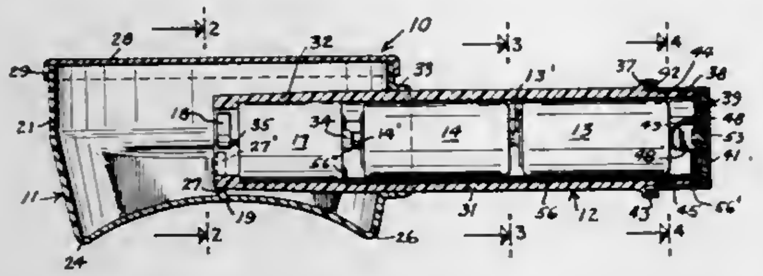


An improved surgical biopsy needle is adapted to facilitate precise and accurate control of the depth of penetration thereof, particularly when taking a biopsy of a patient's pleura. The needle includes a specially designed tip, movable in relation to the main body of the pleura and then twisted to a position such that slight withdrawal of the tip will cause it to bear against the inner surface of the pleural to locate the tip against the pleura. Cutting elements are formed on the adjacent surfaces of the tip and the main body of the needle to thereafter cut a small sample of the pleura and enable its withdrawal together with the needle.

3,705,578
WATERPROOF BATTERY OPERATED VIBRATOR

Lester M. Cutler, Roslyn Heights, and Paul Friedman, Old Westbury, both of N.Y., assignors to Vibra-Baths Home Products, Inc.
Filed July 15, 1971, Ser. No. 162,976
Int. Cl. A61h *1/00*
U.S. Cl. 128—36 **7 Claims**

A vibrator having an enlarged hollow head and a handle extended through an opening into the enlarged head for engagement with an extension extending inwardly from one of the vibrating surface portions so as to impart vibratory movement thereto. The handle contains batteries, electric motor and an eccentric fly weight that will overly the inward extension of the body engaging portion and the handle sleeve extends between a flanged opening in the side wall of the enlarged head and the extension so that vibratory movement will be imparted to the side of the enlarged head and to the opposite body engaging portion thereof.



3,705,579
MASSAGE DEVICE

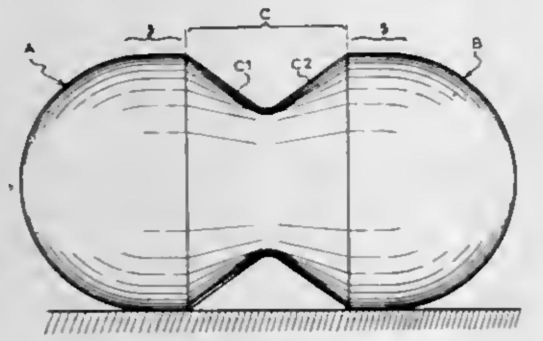
Jean-Louis Morini, 39, rue La Fontaine; Pierre Rigal, 91, rue Taitbout, and Jean Leduc, 7, rue Daguere, all of Seine, France

Filed March 2, 1971, Ser. No. 120,216

Claims priority, application France, March 10, 1970, 7008598

Int. Cl. A61b *15/00*

U.S. Cl. 128—57 **4 Claims**



A massage device permitting the user to massage his own back; it is constituted by a kind of bobbin having a narrowed central portion and, symmetrically on each side of said portion, two bodies of revolution the surface of each of which is a quadric, the application of the self-massaging device being effected by the user himself who interposes it between his back and a flat surface, the user moving his back parallel to the flat surface in such manner as to cause the device to roll on itself while being maintained against the said surface.

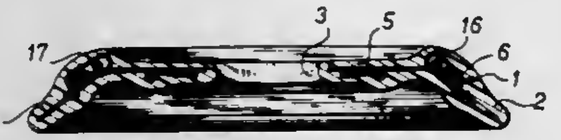
3,705,580
DEVICE FOR MEDICAL USE

Oscar Gauthier, 7560 Milan Blvd., Ville de Brossard, Quebec, Canada

Filed July 19, 1971, Ser. No. 163,780

Int. Cl. A61f *5/00*

U.S. Cl. 128—79 **10 Claims**



A device operating as a tourniquet for assisting erection of the penis and used as a contraceptive by stopping semen discharge. The device can also be modified to be used as an artificial anus. The device comprises an armature made of steel wire and a covering for said armature preferably made of sponge rubber. The armature comprises a base ring to which are pivotally connected a plurality of U-shaped members disposed side by side, overlapping and pivotable between closed and open position. In the closed position, the U-shaped members radially inwardly extend from the base ring substantially in the plane of the latter. In the open position, the U-shaped members form a tube-like member on one side of the ring. Spring means consisting of V-shaped resilient wires are each connected with a pair of adjacent U-shaped members and urge the same towards each other, so as to urge the U-shaped members into closed position. When used as an artificial anus, the sponge rubber covering completely closes the opening through the ring but pressure exerted from one side opens the device against the action of the spring members. When used as a tourniquet, the device is further provided with a second ring, of smaller diameter than the base ring and coaxial therewith; said second ring engages the U-shaped members to cause simultaneous opening movement of the same when the second ring is moved through the base ring under action of lever-like operator members which are pivoted on the base ring.

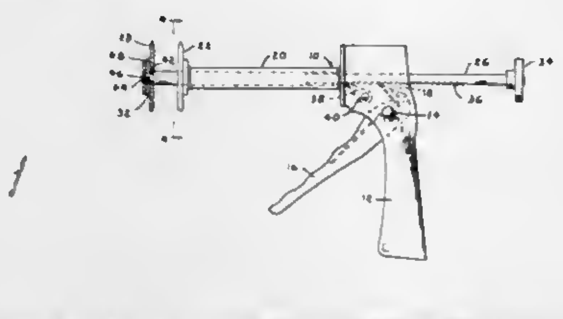
3,705,581
CAST SPREADING DEVICE

Leon A. Drake, 3220 Old Hobart Road, Lake County, Ind.

Filed Dec. 17, 1970, Ser. No. 98,980

Int. Cl. A61f *5/04*

U.S. Cl. 128—83 **6 Claims**



A cast spreading device for spreading the severed wall of a cast comprising a handle having a finger pivoted lever which actuates a longitudinally movable shaft through a barrel. The distal end of the barrel has fixed thereon a bit. The distal end of the shaft passing through the barrel carries a second bit which operates to move away from the bit on the barrel as the shaft is advanced through the barrel. This operation functions to spread the cast apart when the bits are embedded in the cut of the cast.

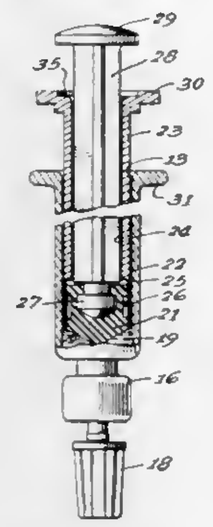
3,705,582
BREECH LOADED SYRINGE AND METHOD OF BREECH LOADING SAME

Marvin D. Stumpf, 9301 Clarion Drive, St. Louis, Mo., and Elmer A. Koenig, 1702 Ben Davis Lane, Kirkwood, Mo.

Filed Sept. 23, 1969, Ser. No. 860,223

Int. Cl. A61m *5/00*

U.S. Cl. 128—218 P **8 Claims**



A syringe wherein a piston is moved axially through a tubular barrel to deliver liquid medicament and the like outwardly through a needle connected through an inner end of the barrel. A control is provided for selectively deforming the piston to permit the barrel to be preloaded with the liquid medicament through the breech end thereof with the piston being brought into engagement with the liquid while a fluid bypass passage is provided around the piston to the breech end of the barrel, thereby to vent air outwardly from the space between the piston and the liquid medicament during the insertion of the piston.

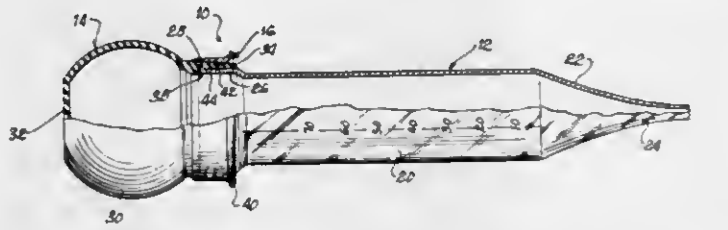
3,705,583
SYRINGE ASSEMBLY

Hans J. Rentsch, Deerfield, Ill., assignor to Medline Industries, Inc.

Filed Sept. 17, 1970, Ser. No. 73,006

Int. Cl. A61m *1/00*

U.S. Cl. 128—232 **1 Claim**



A syringe assembly including a barrel and an externally mounted squeeze bulb. The squeeze bulb provides a mounting sleeve surrounding the barrel adjacent the wide mouthed end of the barrel. A lock ring compressively biases the mounting sleeve into sealing engagement with the barrel to resist withdrawal of the bulb from the barrel.

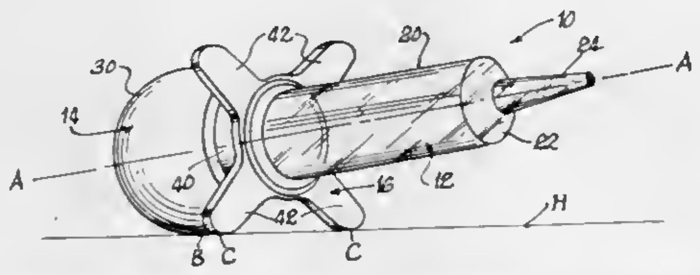
3,705,584
STABILIZED SYRINGE ASSEMBLY

Leonard T. Fript, Evanston, Ill., assignor to Medline Industries, Inc.

Filed Sept. 17, 1970, Ser. No. 73,007

Int. Cl. A61m *1/00*

U.S. Cl. 128—232 **8 Claims**



A stabilized squeeze bulb syringe assembly including a plurality of stabilizing arms projecting outwardly from the assembly to provide, with the bulb, a tripoint support for the assembly on a horizontal surface. The nozzle of the syringe barrel is thereby maintained in an upwardly inclined direction. The stabilizing arms serve also as finger grips to assist in squeezing the bulb when the contents of the syringe assembly are to be discharged.

3,705,585
PREFORMED SURGICAL SPONGE

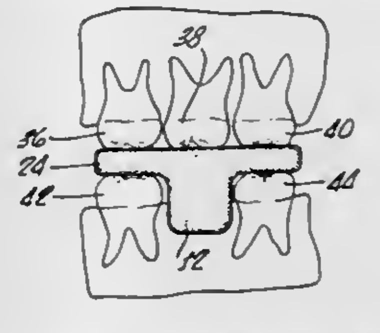
Dennis W. Saffro, 10158 Hollow Glen Circle, Los Angeles, Calif.

Continuation-in-part of Ser. No. 874,448, Nov. 6, 1969, abandoned. This application July 15, 1971, Ser. No. 162,927

Int. Cl. A61f *7/12, 13/00;* **A61b** *17/12*

U.S. Cl. 128—303.1 **12 Claims**

A preformed surgical sponge particularly for use after oral surgery involving extraction of a tooth is preformed to specifically fit over and around the gum area containing a cavity from which a tooth has been extracted. The sponge body is formed with a tapering trough that receives and compresses the gum. A pair of longitudinally extending flange portions on the body are adapted to overlie adjoining teeth and to be clamped between such teeth and opposed teeth to retain the preformed sponge in position. In another embodiment the sponge body is made of a preformed folded strip.



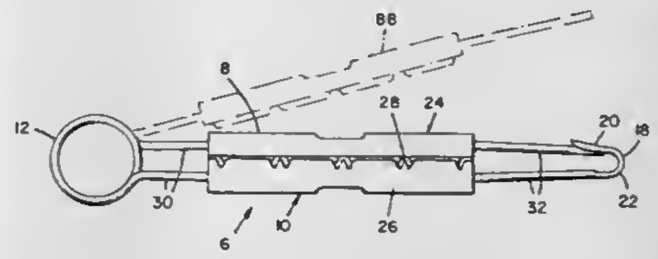
3,705,586
UMBILICAL CORD CLAMP

John B. Sarracino, 4309 Forest wood Drive, San Jose, Calif.

Filed March 4, 1971, Ser. No. 120,948

Int. Cl. A61b *17/08*

U.S. Cl. 128—346 **12 Claims**



An umbilical cord clamp for closing the cord stump on a newborn infant. The clamp has a pair of opposing clamping members biased into an open, inclined position by a spring interconnecting first ends of the members and is closed by locking second, free ends of the members together. The members define a first set of interengaging channels and coacting protrusions which are perpendicular to the stump and a second set of coacting channels and protrusions which are transverse to the first set. Sections of the cord are biased into the first and second channels to thereby fold the cord in transverse directions and prevent the clamp from slipping along or transversely to the cord stump.

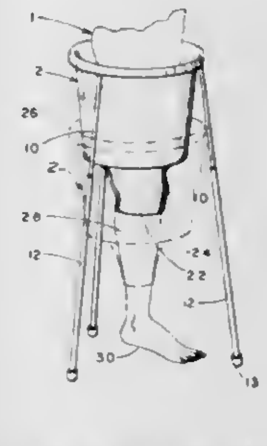
3,705,587
CRYMOTHERAPY APPARATUS FOR LIMBS

Billy A. Page, 1304 Grant Street, Wichita Falls, Tex.

Filed Dec. 22, 1970, Ser. No. 100,667

Int. Cl. A61f *7/00*

U.S. Cl. 128—402 **11 Claims**



A reservoir for receiving a liquid or liquid and ice to enable the mixture in the reservoir to be maintained at a desired temperature, as low as 32°F. or 0°C., to enable a limb, such as a foot, the mid-calf, knee, the lower thigh or the upper thigh of the leg to be treated with localized therapy by application of a liquid or liquid and ice of the desired temperature being applied to the injured portion of the limb, thereby preventing frostbite and at the same time enabling internal hemorrhaging of the affected area, to be stopped within a few minutes.

The device may also be used for treatment of hands, forearms and the elbow regions. It is preferable to have the reservoir made of an elastomer material, of sufficient capacity, so the temperature may be held at the desired degree, over a period of time, due to the volume of the liquid or the liquid and ice within the reservoir. A tapered elastomer neck extends below the reservoir to surround a limb in fluid tight relation, to prevent the escape of liquid. The elasticity of this neck is such that it will stretch and fit certain portions of the limbs in liquid tight relation without causing the "cording" of the limb that would deter blood circulation. The treatment device is mounted on an adjustable tripod to enable it to be used at any desired height. The device is frustro-conical in shape and several may be stored in telescoped relation.

3,705,588
CHEMICALLY MODIFIED FILM COVERING FOR APERTURED SMOKING PRODUCT WRAPPER

Ronald A. Tamol, and Leo F. Meyer, both of Richmond, Va., assignors to Philip Morris Incorporated, New York, N.Y.
Filed July 6, 1971, Ser. No. 160,059
Int. Cl. A24d *1/02;* **D21b** *5/16*
U.S. Cl. 131—15 B **5 Claims**

The disclosure relates to a film covering for a smoking product wrapper, such as a cigarette wrapper. The wrapper is either porous, or is deliberately perforated with vents or apertures. These openings or vents are covered with a polymeric film made of a polyalkalene oxide, polyvinyl alcohol or copolymer thereof containing butadiene or isoprene units as well as natural gums and resins that has been submitted to a degradation operation. The degradation is chemically produced utilizing an oxidizer/free-radical generator. The degradation facilitates and expedites the removal of film over the apertures by smoke components so that air is permitted to dilute the smoke during the later stages of smoking.

3,705,589
TOBACCO SUBSTITUTE SMOKING MIXTURE

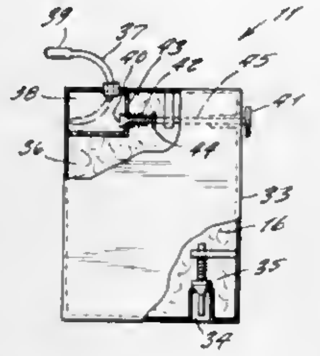
James Forrester Morman, Troon, Scotland, assignor to Imperial Chemical Industries Limited, London, England
Filed April 22, 1970, Ser. No. 31,014
Claims priority, application Great Britain, May 1, 1969, 22,270/69
Int. Cl. A24b *15/00;* **A24d** *01/18;* **A24b** *13/00*
U.S. Cl. 131—17 **9 Claims**

Smoking mixture for cigarettes, cigars, pipes and the like comprising a solid black condensate of a compound of the formula $R^1\,COCH_2\text{-}CH_2COR^2$ wherein R^1 and R^2, which may be the same or different, are H, alkyl, hydroxyalkyl or formyl. The condensate is mainly an aldol condensation product resulting from reaction between the carbonyl groups and the methylene groups of the monomer.

The solid condensate is preferably prepared in sheet form by mixing the condensate with a binding agent. Suitable additives such as carbohydrate material, inert porous fillers, flavorants, glow producers and tobacco may be admixed with the condensate to produce the final smoking product. The preferred condensates are succinaldehyde, acetonyl acetone and compounds of the formula $H\cdot CO\cdot CH_2CO\cdot CO\cdot H$,$H\cdot CO\cdot CH_2CH_2CO\cdot CH_2OH$ and $H\cdot CO\cdot CO\cdot CH_2CH_2CO\cdot CH_2OH$.

3,705,590
COMPRESSED CIGARETTE SMOKE

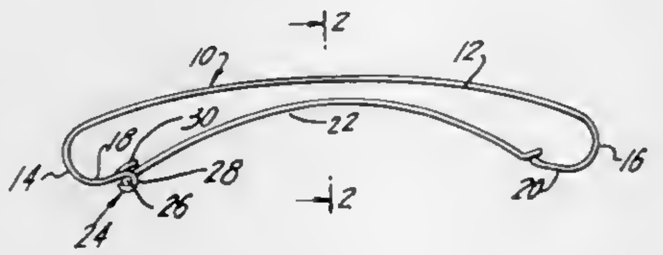
John W. Rains, Star Route Morrow Acres, Guntersville, Ala.
Filed Dec. 23, 1970, Ser. No. 101,017
Int. Cl. A24f *47/00*
U.S. Cl. 131—170 A **1 Claim**



A tobacco smoking means for use in substitution of cigarettes, the device comprising a case of the size of a pack of cigarettes and which contains compressed tobacco smoke, the case including a retractable stem for placement in a person's mouth for drawing in the smoke, and the case including a one-way valve to permit recharging the case with fresh smoke after the smoke has become used up, and the present invention including an apparatus for manufacturing the compressed tobacco smoke.

3,705,591
HINGED BARRETTES

Murray Jennis, Laurelton, N.Y., assignor to H. Goodman & Sons, Inc., Kearny, N.J.
Filed June 4, 1971, Ser. No. 150,038
Int. Cl. A45d *8/24*
U.S. Cl. 132—48 R **7 Claims**

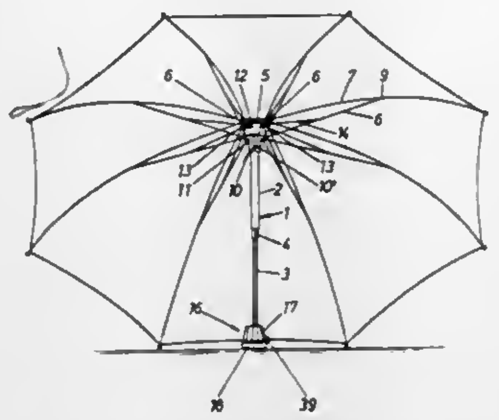


A barrette includes a main member and a tongue having one of its ends hinged to the main member and its opposite end latched. A stationary tab extension of a hinge part of the main member obstructs movement of the tongue into its latched position. The tab and the resilience of the parts develop spring bias that presses the latch end of the tongue against a latch part of the main member when the tongue is latched, and swings the tongue away from the main member when the tongue is unlatched.

3,705,592
UMBRELLA HANDLE

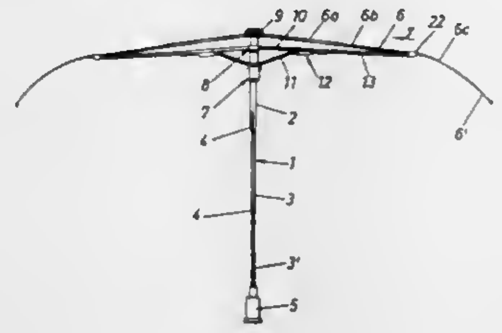
Heinz Weber, Rheinland, Germany, assignor to Telesco Brophey Limited, East Montreal, Quebec, Canada
Filed Jan. 25, 1971, Ser. No. 109,160
Claims priority, application Germany, Jan. 24, 1970, P 20 03 178.1
Int. Cl. A45b *9/02, 25/00*
U.S. Cl. 135—20 R **5 Claims**

An umbrella handle having a cap portion in which is mounted a plurality of pins adapted to enter slits provided in the body portion of the handle. A central stud is provided which enters the end of the handle stick and a transverse pin transverses the stick, the body and the handle stud.



3,705,593
UMBRELLA

Heinz Weber, Rhineland, Germany, assignor to Telesco Brophey Limited, East Montreal, Canada
Filed Feb. 5, 1971, Ser. No. 112,916
Claims priority, application Germany, Feb. 5, 1970, P 20 05 149.4
Int. Cl. A45b *19/08*
U.S. Cl. 135—20 **2 Claims**

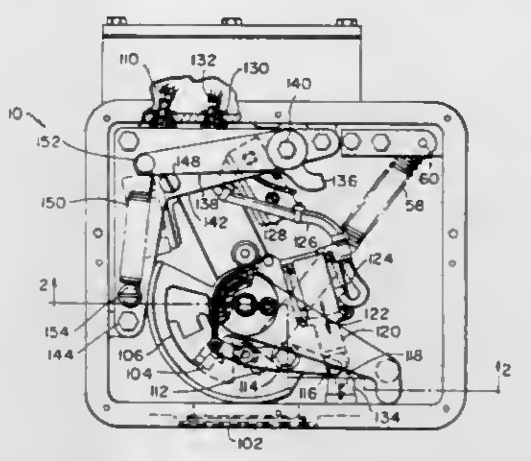


A three-stage umbrella of the telescopic type in which all of the support members for the dome ribs nest one into the other to form a compact umbrella of small outer dimensions when folded and an auxiliary link forms one side of the quadrilateral supporting structure which is bent so as to provide a resilience when the dome ribs are open causing the link to be under tension and also giving the support structure and dome ribs an initial pivoting movement when it is required to open the umbrella from a closed compact position.

3,705,594
SAFETY SHUTOFF VALVE STRUCTURE AND METHOD

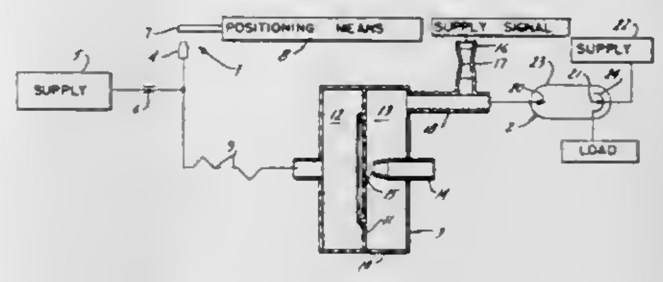
Donald D. Placek, University Heights, Ohio, assignor to The North American Manufacturing Company, Cleveland, Ohio
Filed July 1, 1971, Ser. No. 158,720
Int. Cl. F16k *31/44*
U.S. Cl. 137—1 **10 Claims**

Safety shutoff valve structure and method, wherein the valve is a ball valve sealed by an annular flexible seal urged into engagement with the valve by a garter spring whereby on opening the valve substantially no pressure drop is developed across the valve, and wherein a compression spring is provided for urging the valve stem in one direction to close the valve, a lever and detent means therefor are connected to the valve stem by a solenoid actuated spring clutch responsive to a predetermined condition whereby on rotating the valve stem to place the valve in an open position, the valve is maintained in the open position until occurrence of the predetermined condition. The spring clutch is operated with a uniform force not dependent on the valve opening torque or compression spring strength and the spring clutch is engaged with a force greater than the actuating force on moving the valve to an open position.



3,705,595
FLUIDIC AMPLIFIER OR MODULATOR WITH HIGH IMPEDANCE SIGNAL SOURCE MEANS

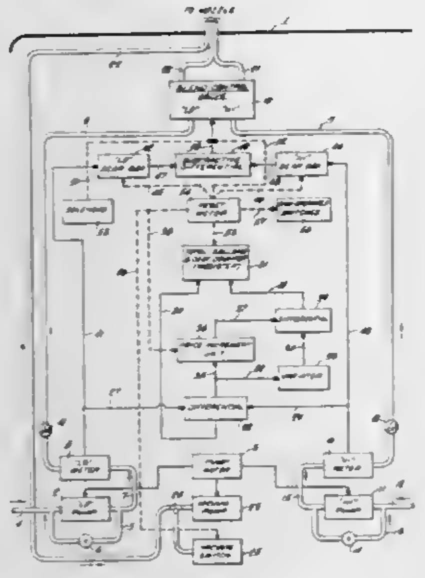
Richard N. Laakaniemi, Milwaukee; Frank A. Kuczkowki, Glendale; Louis D. Atkinson, New Berlin; Paul W. Kuhar, Milwaukee; Thomas J. Lechner, Jr., Brookfield, and Urban A. Weber, Menomonee Falls, all of Wis., assignors to Johnson Service Company, Milwaukee, Wis.
Filed Jan. 25, 1971, Ser. No. 109,435
Int. Cl. F15c *1/20, 3/04*
U.S. Cl. 137—81.5 **22 Claims**



A fluid repeater connects a high impedance sensor to the nozzle of a fluidic modulator such that the nozzle is coupled to the respectively low output impedance of the repeater instead of the high sensor output impedance. The repeater is of the leak type or a fluidic cathode follower shown in U.S. Pat. No. 3,499,458. A fluid controller includes a plurality of high impedance signal sources and lines individually connected through repeaters to an impact summing modulator as a summing point connected to a diaphragm amplifier. The output of the repeaters can be connected directly to the opposed summing signal nozzles of an impact modulator, to a transverse deflection control nozzle; singly or in combination with a non-deflecting opposing modulating difference signal. A feedback restrictor connects the output of the diaphragm amplifier to the modulator. The repeaters in the circuit essentially eliminate all loading and attenuating of the high impedance sensors and permit a substantial simplification in the fluidic circuitry. Suitable "Ratio" and calibrating restrictors connect a regulated pressure supplying to the summing impact modulator. This provides a greatly improved controlling receiver of simplified, modular construction. An integrator may be readily formed by connecting a capacitor, coupling resistor and positive feedback restrictor to the input side of the controlling receiver.

3,705,596
MOTOR FUEL DISPENSING APPARATUS

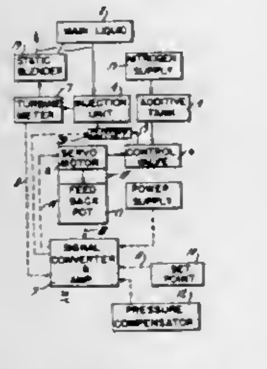
Einar T. Young, Newtown, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
Division of Ser. No. 850,901, Aug. 18, 1969, Pat. No. 3,587,337. This application Oct. 30, 1970, Ser. No. 85,612
Int. Cl. F16k *19/00*
U.S. Cl. 137—100 **4 Claims**



An apparatus for dispensing a selected grade of motor fuel (each grade having a different octane rating) has an array of operating pushbuttons a selected one of which may be actuated (the selection being made according to the grade of fuel desired) to start the dispensing operation. Upon the actuation of a pushbutton, certain instrumentalities in the apparatus are energized or released to (among other things) select gearing in the apparatus appropriate to the grade selected, reset the counter or register to zero, set a control valve to a predetermined position, and start up the pump to cause the dispensing of fuel to begin. All of these functions are performed automatically, i.e., without any further human intervention, once the pushbutton has been actuated. Upon the termination of the actual dispensing, electrical instrumentalities are automatically activated to carry out certain resetting operations, prior to the next dispensing operation. The dispensing apparatus is particularly suitable for a self-service type of operation.

3,705,597
CONTINUOUS CONTROL FOR INTRODUCING MATERIAL INTO A FLOWING LIQUID

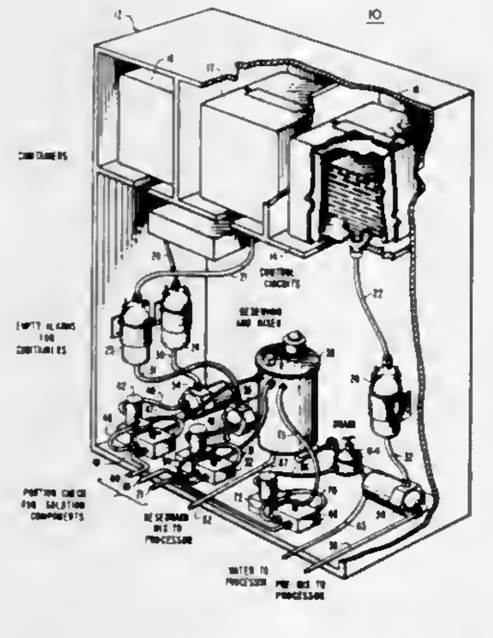
Ronald O. Krause, Waukesha, and Peter D. Bayne, Shorewood, both of Wis., assignors to Nutrico, Inc., Milwaukee, Wis.
Filed Feb. 26, 1971, Ser. No. 119,087
Int. Cl. F16k *19/00*
U.S. Cl. 137—101.21 **10 Claims**



A turbine meter is supported within a housing and produces signal pulses proportional to flow. An injector valve to the input side of the meter is connected to a pressurized additive tank through a linear valve. The valve includes a tapered shaft axially positioned in a flow orifice. A converter converts the pulses to an analog signal. A set point generator establishes a scaled signal which is connected with a line pressure compensating signal and the analog signal to an amplifier to produce an analog error signal driving a servomotor to position the linear valve shaft and a feedback potentiometer. A slotted connection to the valve shaft permits relative axial shaft adjustment for accurate setting relative to the potentiometer. The feedback signal is summed with the error signal to correspondingly position the valve. The servomotor unit and the control valve are secured within the housing with the additive tank to be releasably secured to the top wall. A minimum flow valve is connected in the additive flow line to selectively stop flow of additive.

3,705,598
AUTOMATIC CHEMICAL MIXER

Manuel C. Ray, Palos Verdes Peninsula, Calif., assignor to National Research and Chemical Company
Filed Dec. 4, 1970, Ser. No. 95,108
Int. Cl. F16k *19/00*
U.S. Cl. 137—101.25 **7 Claims**



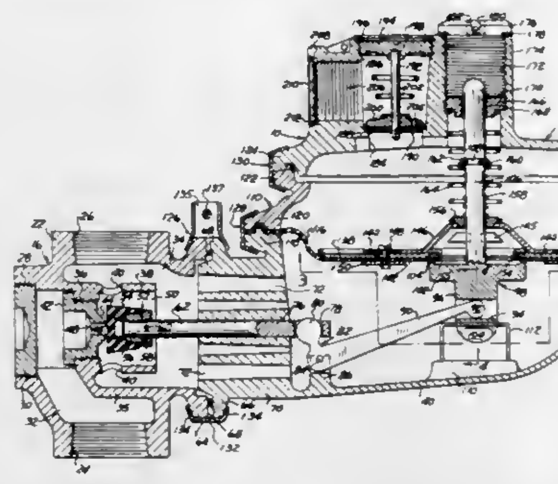
A demand responsive system for automatically mixing and replenishing liquid chemicals subject to degradation when mixed, including collapsible storage vessels for the unmixed chemicals, a small reservoir for storing and mixing chemicals, pump means to transfer chemicals from the separate storage vessels to the reservoir at rates higher than the demand rates, valve means within the reservoir for maintaining the reservoir level within selected limits, and means for connecting the reservoir with a chemical user. For photographic film processors, for example, the system functions on demand to periodically replenish a mixture of A and B type working solutions, while also supplying fixer and water if desired. This system supplies adequate amounts of the mixture on demand with a minimum of deterioration by premixing only an amount which may be needed for immediate use. The system is completely automatic and needs no operator control.

3,705,599
UNIVERSALLY-MOUNTABLE GAS SERVICE REGULATOR

Marvin L. Sheward, R.R. No. 1, Frankton, Ind.
Continuation-in-part of Ser. No. 762,199, Sept. 16, 1968, abandoned. This application July 29, 1970, Ser. No. 59,106
Int. Cl. G05d *11/00;* **F16k** *31/12*
U.S. Cl. 137—116.5 **1 Claim**

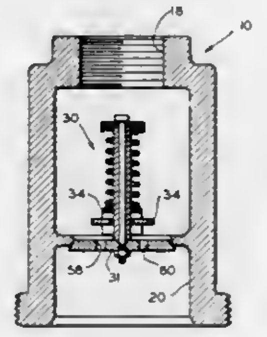
This gas service regulator is mountable to place the vent in any desired position by providing a multi-component casing and by making the upper and intermediate components of the casing adjustably rotatable relatively to one another and to the lower casing component by means of split channel clamping

rings of wedge-shaped cross-section which also eliminate the need for the bolt holes and bolts customarily used. The internal relief valve mechanism can be removed from the upper and intermediate casing components without disassembling the remainder of the remainder of the regulator. A stop bracket limits the range of motion of the lower diaphragm plate. The external breather valve disc contains a vent hole. The regulator valve member is made in two parts which are yieldably held together by being permanently magnetized so as to enable their separation and withdrawal through an access opening normally closed by a threaded plug.



3,705,600
COMBINATION RELIEF AND CHECK VALVE

John Peter Heggen, Lisbon, N. Dak., assignor to Clark Equipment Company
Filed Nov. 23, 1970, Ser. No. 91,737
Int. Cl. F16k *17/26, 45/00*
U.S. Cl. 137—493.2 **4 Claims**

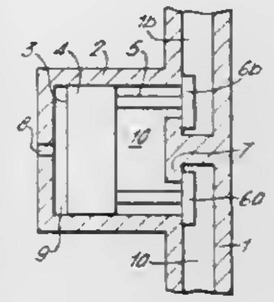


A valve having a valve body with a bore disposed therethrough providing a valve chamber in communication with an inlet passage and an outlet passage. A valve element having a valve head and attached valve stem is axially reciprocable within the bore and is spring biased toward a closed position to restrict the flow of fluid through the valve in one direction until a selected positive pressure differential is exerted across the valve. The valve head has at least one opening therethrough and a valve plate is movable along the stem between a position adjacent the head and covering the opening therein and a position apart from the head to thereby permit the flow of fluid through the opening when a negative pressure differential is exerted across the valve.

3,705,601
VALVE ARRANGEMENT FOR SUCTION TUBES

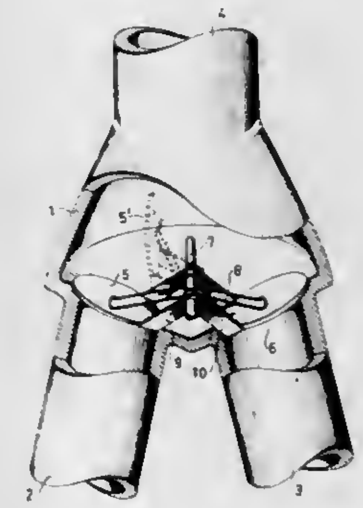
Kjell Oystein Arisland, Vekterveien 41, Oslo, 6, Norway
Filed April 6, 1971, Ser. No. 131,794
Claims priority, application Norway, April 6, 1970, 1254/70
Int. Cl. F16k *17/26*
U.S. Cl. 137—493 **7 Claims**

Valve arrangements for suction tubes, characterized by at least two pistons which are mutually mechanically connected and so designed that the one piston always is subject to pressure variations in the one end of the suction tube and the other piston always is subject to pressure variations in the other end of the suction tube. An underpressure in either one of the tube parts results in the effective piston surface which is exposed to the underpressure causing the valve to open.



3,705,602
SPRING BIASED CHECK VALVE FOR PIPE BRANCHES

Lars-Erik Reinbold Nordin, Taby, and Lars William Anshelm Mollerfors, Sundbyberg, both of Sweden, assignors to Stenberg-Flygt AB, Solna, Sweden
Filed Dec. 31, 1969, Ser. No. 889,496
Claims priority, application Sweden, Jan. 10, 1969, 319/69
Int. Cl. F16k *15/03*
U.S. Cl. 137—512 **6 Claims**

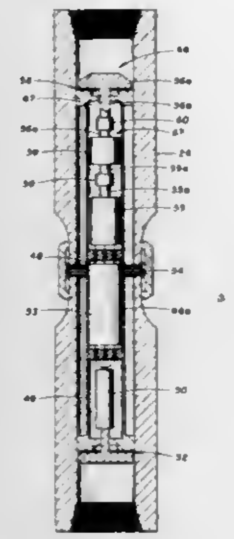


Non-return valve for positioning in a pipe socket and having a flap member rotatable around a shaft. The shaft is arranged in a plane at a given distance from the plane of the flap, whereby the flap in an open position is passed circumfluently by the medium flowing through the valve.

3,705,603
DRIVE TRAIN FOR LOGGING-WHILE-DRILLING TOOL

Daniel E. Hawk, Duncanville, Tex., assignor to Mobil Oil Corporation, New York City, N.Y.
Filed June 16, 1971, Ser. No. 153,653
Int. Cl. F16k *31/44;* **G01v** *1/40*
U.S. Cl. 137—624.14 **7 Claims**

An improved drive train for coupling a motor to a signal generating, rotary type valve in a logging-while-drilling tool. The drive train includes a double planetary, speed reducing transmission, the input shaft of which is coupled to the motor by an automatically releasable clutch to prevent damage in the event the valve becomes jammed. The output shaft of the transmission is coupled to the rotor of the valve by means of a



flexible coupling which reduces the reversing peak torque loads created by operation of the valve.

3,705,604

DEVICE FOR BENDING METALLIC TUBES AND IN BENT METALLIC TUBES

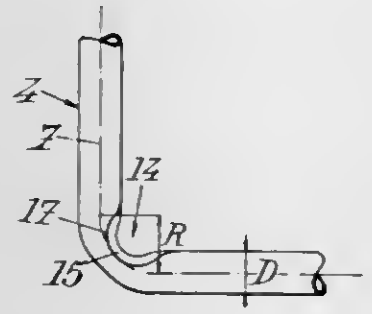
Georges Christin, Marnes La Coquette, France, assignor to Etablissements Bertrand Faure, Puteaux, France

Filed Feb. 11, 1970, Ser. No. 10,395

Claims priority, application France, Feb. 11, 1969, 6903189

Int. Cl. F15d *1/02*

U.S. Cl. 138—178 **5 Claims**



The device enables metallic tubes to be bent round acute curves. Two coplanar grooved rollers support the tube and a tool is forced downward on the intermediate section of the tube, so bending the tube and deforming its cross-section. The active surface of the tool has a median groove and two ribs bounding the groove, extending longitudinally of the tube. The bent tube thus has a concave portion including a median rib and two longitudinal shoulders.

3,705,605

FABRIC FORMING DEVICE FOR WEAVING LOOMS

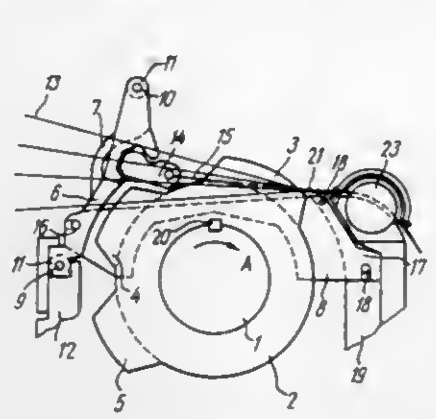
Dmitry Vladimirovich Titov, Moscow, U.S.S.R., assignor to Vsesojuzny Nauchno-Issledovatelsky Institut Textilnogo Legkogo Maskinostroenia, Moscow, U.S.S.R.

Filed Dec. 15, 1970, Ser. No. 98,299

Int. Cl. D03d *47/26, 49/60*

U.S. Cl. 139—12 **2 Claims**

A device for forming fabric in weaving looms, and is based on the principle of beating weft thread by the reed to the fabric fell. In this device the reed is made in the form of disks with teeth mounted on a drive shaft with a possibility of some translational movement therealong, and positioned angularly offset relative to each other so, that their teeth form a screw-type surface. The teeth on each disk are grouped within an arc



section of this disk, and rise in height in a direction opposite to that of the disk rotation, so that the first short tooth approach the weft thread to the fabric fell, and the last long one beat it.

3,705,606

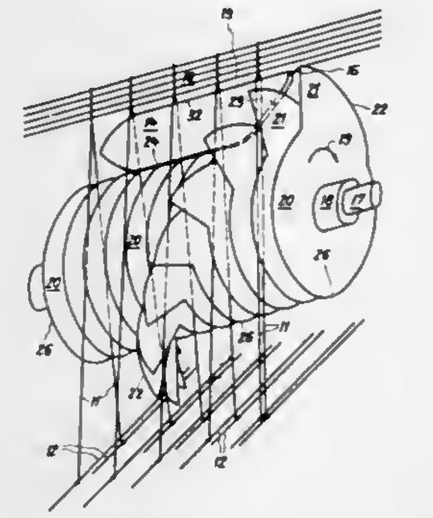
ROTATING DISK ARRANGEMENT ON A WAVE-TYPE LOOM

Peter Stuckl, Tann-Ruti, Zurich, Switzerland, assignor to Ruti Machinery Words Ltd., formerly Caspar Honegger, Ruti, Zurich, Switzerland

Filed Dec. 3, 1969, Ser. No. 881,747

Int. Cl. D03d *41/00, 49/60*

U.S. Cl. 139—12 **12 Claims**



A rotating disk arrangement on a wave-type loom wherein a plurality of shuttles, each having a drive edge and a guide edge, move simultaneously and successively along a path and serve to insert the weft threads in changing sheds formed during the weaving operation, the arrangement comprising a plurality of rotating disks arranged on an axis of rotation side by side and rotated codirectionally by a small amount along the axis of rotation according to their sequence, the rotating disks serving both for the beating up of the inserted weft threads and for propelling the shuttles along said path. Each disk comprises a drive portion which during rotation propels the shuttles by pushing against the drive edges of the shuttles, and a guide portion against which the guide edges of the shuttles rest to hold the shuttles against rotation from the drive forces applied by said drive portions.

3,705,607

LOOM ATTACHMENTS FOR MAKING FRINGES

James W. Tollison, Greenwood, and Joe Kelley, Donalds, both of S.C., assignors to Riegel Textiel Corporation, Ware Shoals, S.C.

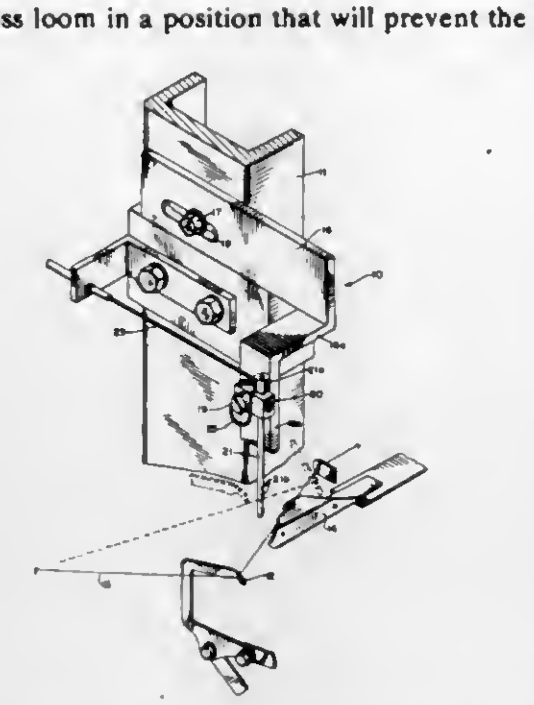
Filed July 13, 1970, Ser. No. 54,552

Int. Cl. D03d *47/34*

U.S. Cl. 139—116 **1 Claim**

There is disclosed an apparatus for holding the filling yarn

of a shuttleless loom in a position that will prevent the filling



carrier from inserting filling in the warp shed while the warp is advanced a sufficient distance to form a fringe.

3,705,608

METHOD FOR TRANSPORTING A WEFT THREAD THROUGH A WEAVING SHED AND A LOOM FOR PERFORMING SAID METHOD

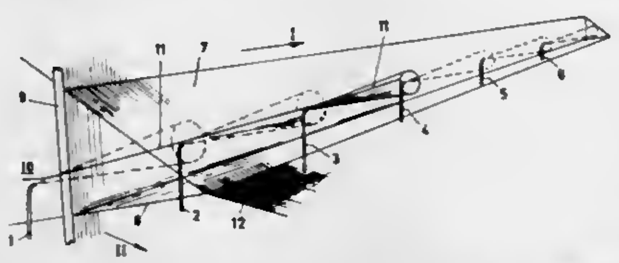
Geert Jan Vermeulen, Beethovenlaan 34,, Deurne, Netherlands

Filed Oct. 22, 1970, Ser. No. 83,177

Claims priority, application Netherlands, Oct. 22, 1969, 6915972

Int. Cl. D03d *47/30*

U.S. Cl. 139—127 P **8 Claims**



A method and apparatus for transporting a weft thread through a weaving shed, by discharging a plurality of aligned jets of transport fluid at points spaced along the shed, the jets being energized successively, in time with the advancement of the leading end of the weft thread, to cause the jets to entrain the leading end of the weft thread progressively and thereby draw the weft thread through the shed.

3,705,609

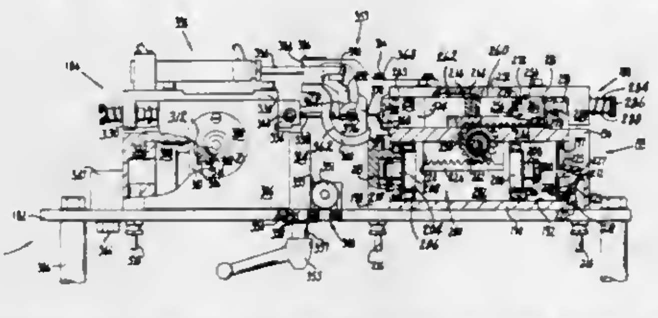
MANUFACTURE OF SPRINGS

George A. Matts, and Robert C. Quarmby, both of Leicester, England, assignors to USM Corporation, Boston, Mass.

Filed Sept. 1, 1970, Ser. No. 68,677

Int. Cl. B21f *35/02*

U.S. Cl. 140—103 **6 Claims**



The invention relates to improvements in machines and methods for forming attached loops in generally longitudinal orientation at or from end portions of coil springs. A coil spring to be provided with a loop as indicated is supported by support means of a machine with an end portion of the spring to be looped, projecting therefrom. The projecting portion is operated on by a plurality of coordinated tools to bend the portion away from the remainder of the spring and impart a permanent set to a portion of the wire of the spring whereby a loop of the desired orientation is permanently provided on the spring. The improvement involves a plurality of fluid pressure operated motors and connecting means for actuating the tools in cooperative manner.

3,705,610

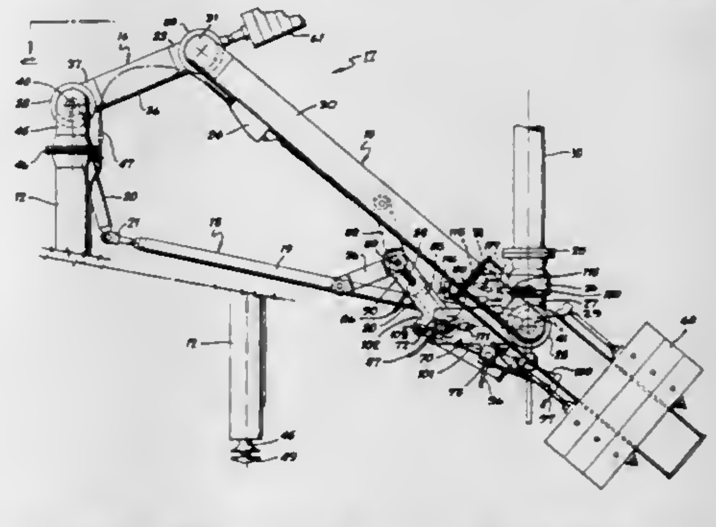
TANK CAR LOADING UNIT

Andre Baudras, Sens, France, assignor to Societe Technique et Commercial d'Installations Industrielles "Luceat", Sens, France

Filed Sept. 23, 1970, Ser. No. 74,724

Int. Cl. B65g *67/00*

U.S. Cl. 141—387 **16 Claims**



An adjustable filling spout structure for loading liquids wherein the spout is supported by an apparatus of lazy tong configuration incorporating a pair of jointed conduit and bar arms. The conduit arm is connected at its inboard end through a 90° elbow and a first horizontal swivel to a second 90° elbow which is connected to a fixed, upright supply conduit through a vertical swivel, and at its outboard end through 90° elbows and a second horizontal swivel to a downwardly depending spout. The spout can be moved in a vertical plane as the supporting structure is pivoted about the axis of the first horizontal swivel, and the apparatus is fully counterweighted along this axis. Driven toggle joint elements control the space between the arms and hence the outward displacement of the spout, while slewing means move the spout about in a circle as the apparatus is turned with reference to the fixed supply conduit.

3,705,611

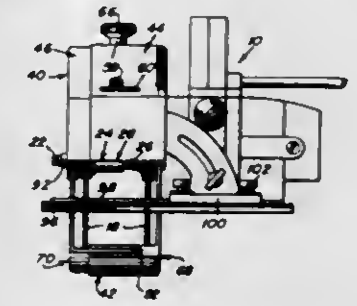
CIRCULAR SAW AND ATTACHMENT THEREFOR

Minoru Sakamoto, 3005 Ualena Street, Honolulu, Hawaii

Filed Dec. 16, 1970, Ser. No. 98,648

Int. Cl. B27b *5/34;* **B27g** *19/04*

U.S. Cl. 143—37 R **11 Claims**



An elongated extension shaft engageable with the drive shaft of a circular saw and projecting therefrom for the reception thereon of a pair of laterally spaced circular saw blades mounted to provide parallel cuts. A two part positioning sleeve is mounted on the extension shaft between the blades and adjustable so as to achieve a predetermined spacing between the blades. Nut means lock the blades for rotation with the extension shaft. A laterally adjustable fixed guard overlies the upper portion of the laterally adjustable blades and a laterally adjustable swinging guard underlies the adjustable blades.

3,705,612
LOCKING OF CAR RADIOS AND THE LIKE

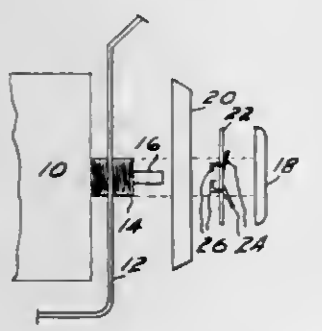
Erasmus Smit Comley, 49 Piet Joubert Street, Monument Towndhip, Krugersdorp, Republic of South Africa

Filed March 31, 1970, Ser. No. 24,063

Claims priority, application Republic of South Africa, March 31, 1969, 69/2297

Int. Cl. F16b *39/32*

U.S. Cl. 151—39 **3 Claims**



The invention is directed to the lockingly securing of a radio receiver or the like in a motor vehicle to prevent the easy removal and theft. The lockingly fixing of a radio includes co-acting biassed elements and formations at a concealed and inaccessible position between a fixed member and a nut whereby tightening of the nut is permitted while loosening rotational movement is blocked. The co-acting means comprise resiliently biassed detent means and shoulder forming openings. Loosing of the nut being possible only by drilling away portions of the nut at particular positions.

3,705,613
TIRE HAVING TREAD GROOVES FORMING DOUBLE NETWORK OF CONTINUOUS CURVES

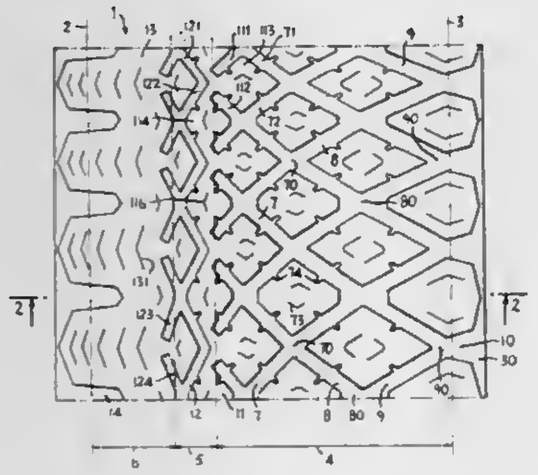
Henri Verdier, Beauregard-L Eveque, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Co., Clermont-Ferrand (Puy-de-Dome), France

Filed Feb. 23, 1971, Ser. No. 117,967

Claims priority, application France, Feb. 20, 1970, 7006274

Int. Cl. B60c *11/00*

U.S. Cl. 152—209 **7 Claims**



A tire has a tread formed with circumferential grooves following curves that are broken or undulating. The amplitudes of the curves increase in a direction from one edge towards the other edge of the tread. Over more than half the width of the tread, the curves followed by the grooves are substantially in phase opposition, and the grooves are connected to each other in such a manner that segments of one groove lie substantially in extensions of segments of an adjacent groove.

3,705,614
TIRE EQUIPPED VEHICLE WHEEL TO BE CONNECTED WITH A TIRE AIR FILLING DEVICE CARRIED BY THE VEHICLE

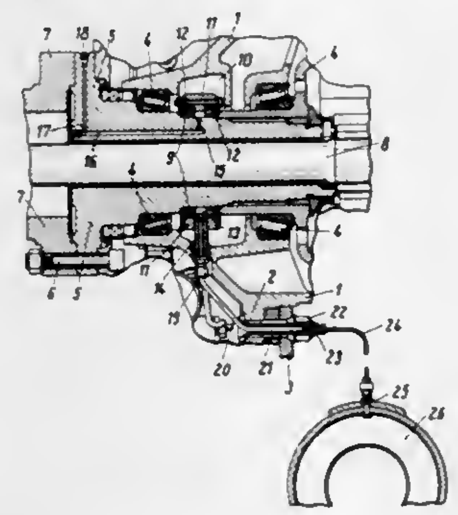
Alwin Juttner, Wiesloch, and Hans Gruner, Heidelberg, both of Germany, assignors to Graubremse GmbH, Heidelberg, Germany

Filed July 21, 1970, Ser. No. 56,910

Claims priority, application Germany, July 28, 1969, P 19 38 202.6

Int. Cl. B60c *23/00*

U.S. Cl. 152—417 **1 Claim**



A vehicle wheel having air tires to be connected with an air filling device of the vehicle, which comprises a rotating air passage ring disposed centrally to an axle; a tire filling valve is connected with the ring by means of conduits; a wheel hub receives the air passage ring; a guide face of a bearing neck of the axle and of a hub carrier is provided, and an air passage ring is sealingly slidingly mounted on the guide face.

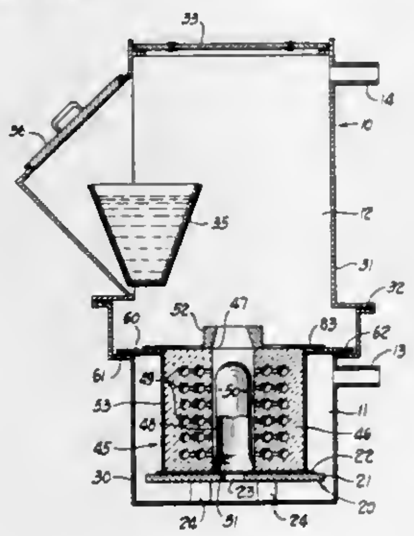
3,705,615
METAL CASTING PROCESSES WITH VACUUM AND PRESSURE

Claude H. Watts, Mayfield Heights, Ohio, assignor to Precision Metalsmiths, Inc.

Filed Dec. 9, 1970, Ser. No. 96,517

Int. Cl. B22d *27/14, 27/15*

U.S. Cl. 164—62 **12 Claims**



A gas permeable mold, preferably an investment mold, is cast under a vacuum. The pressure on the molten metal exposed through the opening of the mold is raised to atmospheric pressure after casting, and a vacuum is applied to the outside of the mold during solidification of the metal.

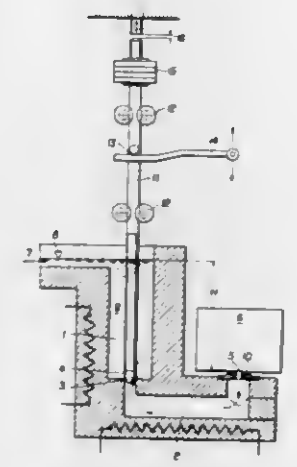
3,705,616
APPARATUS FOR CASTING MOLTEN METAL IN BOTTOM-POURING MOLDS

Oskar Tenner, Rossatz, Austria, assignor to Fa. Gebauer & Lebrner, Vienna, Austria

Filed April 23, 1970, Ser. No. 31,121

Int. Cl. B22d *41/09*

U.S. Cl. 164—155 **10 Claims**



First chamber means define a vertically elongated first chamber and have a bottom formed with a bottom opening communicating with said first chamber. The first chamber means are provided with an overflow inlet communicating with said first chamber on a predetermined intermediate level thereof. Second chamber means define a horizontally elongated second chamber, which is smaller in cross-sectional area than said first chamber and has one end portion communicating with said bottom opening and an opposite end portion formed with an upwardly directed opening adapted to communicate with a bottom-pouring ingot mold. A plug is operable to selectively close and open said bottom opening.

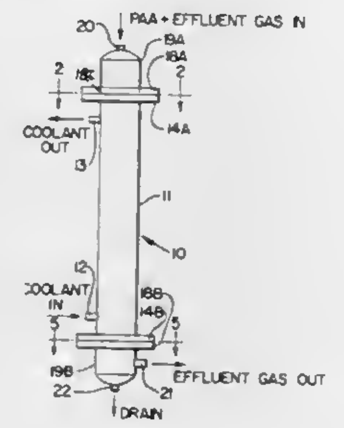
3,705,617
SUBLIMATION APPARATUS AND METHOD

George M. Miller, Winchester, and Max E. Underwood, Bedford, both of Mass., assignors to The Badger Company, Inc., Cambridge, Mass.

Filed Nov. 5, 1970, Ser. No. 87,162

Int. Cl. F28

U.S. Cl. 165—1 **8 Claims**



Method and apparatus for recovering a product (e.g. phthalic anhydride) from a hot effluent product gas in which it exists as a vapor by passing the product gas through a cooled internally finned tube at a temperature to condense or sublimate (solidify) the product out of said product gas as a solid on the fins and internal walls of said tube without encountering rapid plugging of the tube.

3,705,618
HEAT EXCHANGER

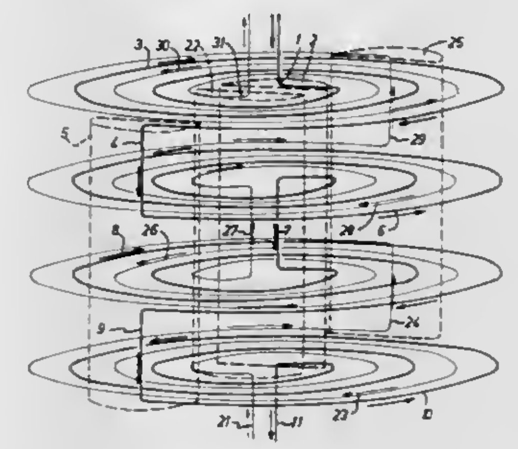
Etienne Jouet, 19 rue du Panorama, Montigny-les-Cormeilles, and Pascal Rebuffe, 18 rue de Sevres, Boulonge-Billancourt, both of France

Filed Dec. 29, 1969, Ser. No. 888,591

Claims priority, application France, Dec. 27, 1968, 68181215; June 20, 1969, 6920823; July 8, 1969, 6923092

Int. Cl. F25f *3/00*

U.S. Cl. 165—166 **2 Claims**



Heat exchangers of generally cylindrical shape, including structure having at least two chambers being wound on themselves in self-enclosing spirals, baffles forming passageways through said chambers to facilitate the flow of heat-exchanging media through said chambers in alternate centripetal and centrifugal relationship.

3,705,619
METHOD OF PRODUCING A TOOTHED RING FOR AN INTERNAL-SHAFT MESHING ROTARY PISTON ENGINE

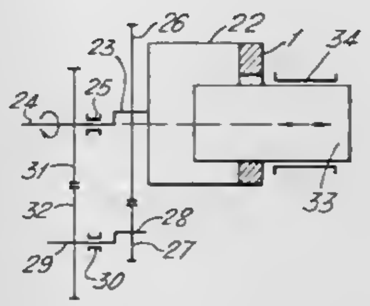
Svend Holm, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Feb. 16, 1971, Ser. No. 115,579

Claims priority, application Germany, April 13, 1970, P 20 17 558.0

Int. Cl. B24b *1/00*

U.S. Cl. 51—287 **4 Claims**



A method and apparatus for producing the ring member of a gerotor gear set. Ring members are first formed roughly to size by broaching a stack of blanks. The honing of the crests and flanks of the teeth is done with a honing mandrel having tapered cross section with the same shape as the star member of a gerotor gear set. The honing mandrel is reciprocated and at the same time is given rotational and orbital movements which correspond to the movements of the same character which occur in the operation of a gerotor gear set wherein the star member may have both rotational and orbital movement relative to the ring member of the gear set.

3,705,620
TWO-STAGE MATERIAL COOLER

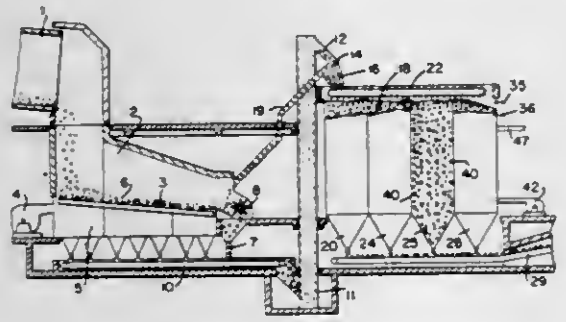
Karl-Heinz Kayatz, Hamburg-Nienstedten, Germany, assignor to Claudius Peters, Aktiengesellschaft

Filed Feb. 23, 1971, Ser. No. 118,006

Claims priority, application Germany, March 6, 1970, P 20 10 601.8

Int. Cl. F28d *21/00;* **F27b** *7/20*

U.S. Cl. 165—104 **12 Claims**



A two-stage material cooler particularly adapted for cooling burning or burned material. The cooler includes a first stage direct cooler such as a grate cooler wherein air is blown through the material as it is discharged from a furnace such as a rotary kiln. The air heated by the hot material is returned as combustion air to the furnace. The partially cooled material is passed through a material breaker and supplied to an indirect cooler for further cooling. The indirect cooler includes a plurality of bins each having a plurality of spaced apart tubes therein. Cooling fluid such as air or water is passed through these tubes. The material to be cooled is placed in the top of these bins and passes downwardly therethrough to be discharged from the bottom of the bins. As material passes through the bins, it contacts the cooling tubes and is thereby cooled.

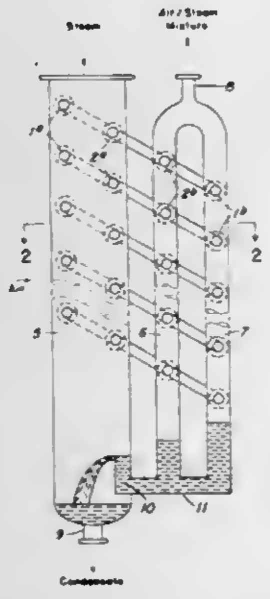
3,705,621
AIR-COOLED HEAT EXCHANGER

Willem Schoonman, Voorschoten, Netherlands, assignor to The Lummus Company, Bloomfield, N.J.

Filed June 25, 1971, Ser. No. 156,844

Int. Cl. F28h *1/06*

U.S. Cl. 165—112 **7 Claims**



An air cooled heat exchanger, having U-tubes, for cooling gases or liquids. Each tube is connected at one end to an inlet manifold and at the other end to a collection manifold. Cooling air flows co-currently with the condensing vapor or cooling liquid, thus preventing subcooling and freezing.

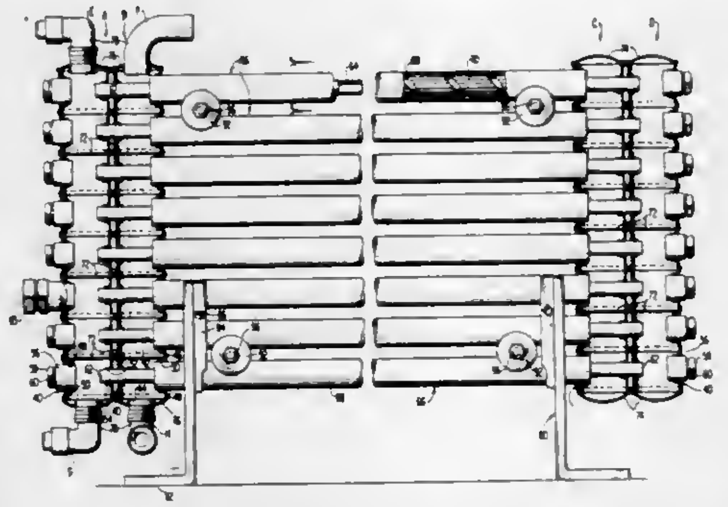
3,705,622
CLEANABLE TUBE WITHIN A TUBE HEAT EXCHANGER AND METHOD OF FORMING MODULAR HEADERS THEREFOR

Leonard H. Schwarz, West Hartford, Conn., assignor to Dunham-Bosh, Inc., West Hartford, Conn.

Filed July 7, 1970, Ser. No. 52,902

Int. Cl. F28d *7/10*

U.S. Cl. 165—143 **5 Claims**



Inner and outer headers at both ends of a tube within a tube heat exchanger are formed of a plurality of axially stacked and brazed drawn metal tubular shell segments. Segments for all headers are identical and carry axially aligned large diameter and small diameter holes on opposite sides thereof for facilitating reception of the inner tube coupling the outer headers and the outer tube coupling the inner headers as well as bushings receiving removable plugs to facilitate cleaning of the interior of the inner tubes of the heat exchanger tube assemblies.

3,705,623
OFFSHORE WELL EQUIPMENT WITH PEDESTAL CONDUCTOR

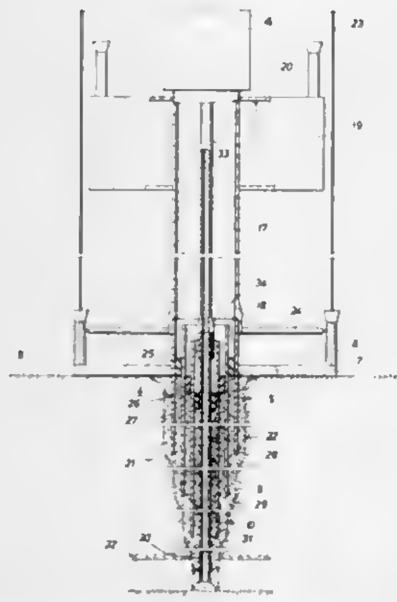
Wouter H. van Eek; Bob E. Bosking, and Adrianus W. van Gils, all of The Hague, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed June 10, 1971, Ser. No. 151,748

Claims priority, application Great Britain, June 17, 1970, 29,424/70

Int. Cl. E21b *7/12, 43/01*

U.S. Cl. 166—.6 **10 Claims**



Apparatus and method for drilling and completing subsea wells using a wellhead mounted on a pedestal conductor supported above a conductor pipe string by a buoyant member.

The conductor string supports a plurality of casings which are cemented over their entire lengths. A single small-diameter casing is suspended from the wellhead and extends over the length of the pedestal conductor.

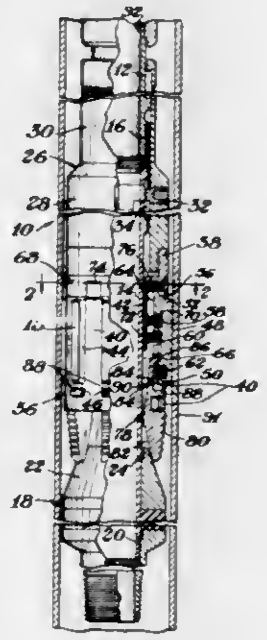
3,705,624
SLIP AND DRAG BLOCK ASSEMBLY

Charles A. Pitts, Wichita Falls, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed June 21, 1971, Ser. No. 154,954

Int. Cl. E21b *43/10, 23/06, 33/129*

U.S. Cl. 166—216 **7 Claims**



This invention relates to a slip and drag block assembly for use with a packer or bridge plug, for example, in the casing of an earth well.

The drag block elements are spring loaded and held within a slotted tubular cage member which is a casting. The slip elements, spring loaded, are pivoted from the drag block elements and are held in position by the tubular cage. Setting of the slips is by movement of the cone assembly of the packer or bridge plug, for example.

Insertion of the drag block elements into the cage is accomplished by means of a rotatable tubular ring contiguous to the drag block end of the cage and having a notch in its end facing the cage whereby each drag block element is inserted in a slot in the cage as the notch in the rotatable ring is aligned therewith. The notch is then successively rotated to the next cage slot assembly for insertion of the drag block element. After the drag block elements are inserted, the rotatable ring is secured with the notch located between a pair of cage slot arrays.

Because the slip elements are pivoted from the drag block elements, the movement required to set the slips is the same regardless of the weight rating of the nominal size of the casing used.

3,705,625
STEAM DRIVE OIL RECOVERY PROCESS

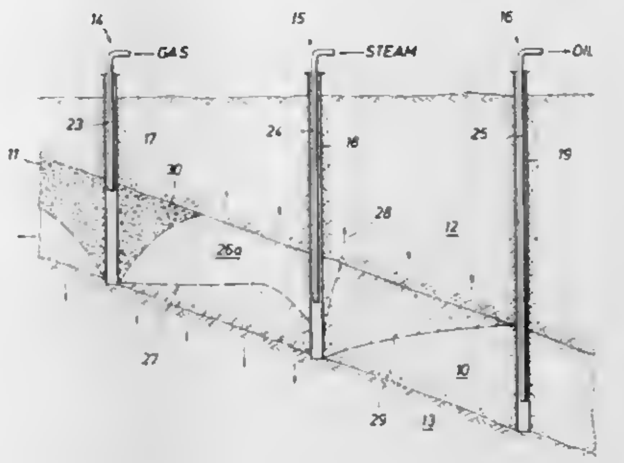
Derrill Gene Whitten, Houston, Tex., and Peter Vanmeurs, Denver, Colo., assignors to Shell Oil Company, Houston, Tex.

Filed Oct. 22, 1971, Ser. No. 191,657

Int. Cl. E21b *43/24*

U.S. Cl. 166—252 **9 Claims**

A line drive steam injection process in a dipping formation is improved by injecting steam into a row of up-dip wells and producing oil from two or more rows of down-dip wells. After steam breaks through into the first row of down-dip producing wells, steam injection is stopped in the up-dip wells and steam injection is initiated in the row of down-dip wells into which steam has broken through. Simultaneously, a non-condensing gas is injected into the up-dip wells to prevent upward migration into the segment of the formation contacted by steam injected through the original up-dip injectors of steam injected into the new row of down-dip injectors.



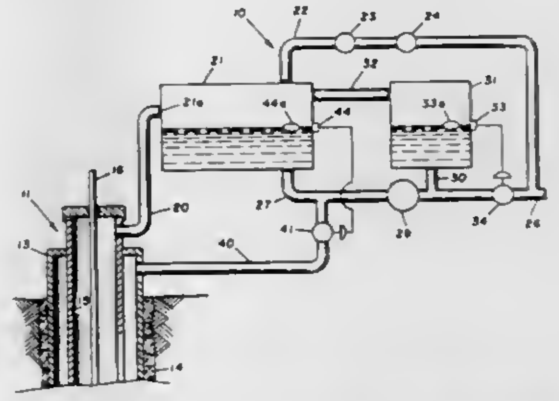
3,705,626
OIL WELL FLOW CONTROL METHOD

Edwin E. Glenn, Jr., Dallas; Vasel R. Slover, and Malcolm K. Strubhar, both of Irving, all of Tex., assignors to Mobil Oil Corporation

Division of Ser. No. 732,460, May 27, 1968, Pat. No. 3,578,077. This application Nov. 19, 1970, Ser. No. 91,174

Int. Cl. E21b *43/00, 43/12*

U.S. Cl. 166—267 **3 Claims**



This specification discloses a method and apparatus for controlling flow of a multiphase fluid stream from a partially depleting supply source such as a pumping oil well so that the flow rate of the liquid phase thereof is maintained substantially constant. Where said source is an oil well, the multiphase fluid is pumped from the well into a separator where it is separated into its liquid and gas phases. A constant volume pump withdraws liquid from the separator at a set flow rate. A conduit connects the separator back to the well and has a valve therein which is controlled by the liquid level in the separator whereby a portion of the liquid in the separator can be returned to the well to maintain sufficient fluid in the well for the well pump to operate at its capacity.

3,705,627
INHIBITION OF SALINE WATER INTRUSION INTO FRESH WATER AQUIFERS

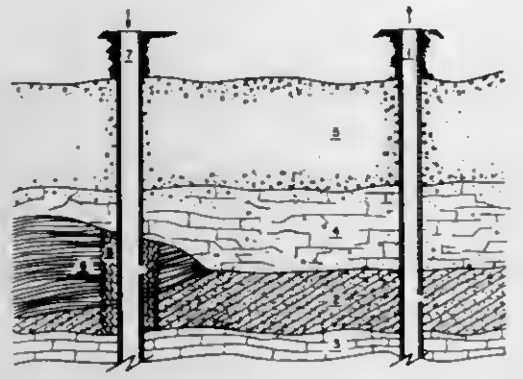
Perry A. Argabright, Sedalia; Jack L. Hummel, and C. T. Presley, both of Littleton, all of Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Feb. 1, 1971, Ser. No. 111,422

Int. Cl. E21b *33/138*

U.S. Cl. 166—295 **9 Claims**

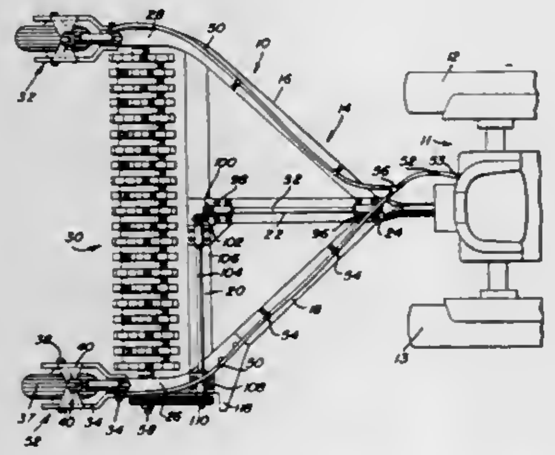
Solutions of soluble compounds, e.g., aqueous alkaline solutions of substituted isocyanuric acids, are injected into an intruding front of saline water to form an insoluble precipitate, thus decreasing formation permeability and reducing or



eliminating contamination of fresh water aquifers by saline water.

3,705,628
SOD CULTIVATOR

William M. King, R.R. No. 2, Lewisburg, W. Va.
Filed Oct. 30, 1970, Ser. No. 86,152
Int. Cl. A01b *9/00*
U.S. Cl. 172—68 **5 Claims**



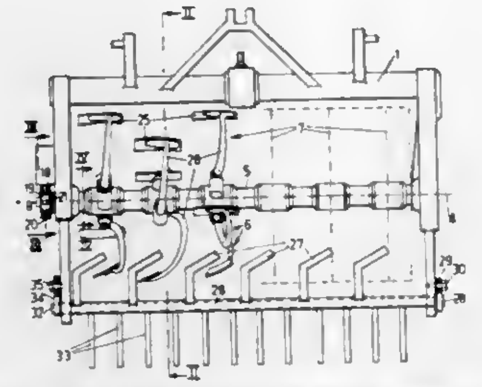
An implement includes a shaft mounting alternatingly positioned members of two distinct types. The first type is a spur disc that digs a narrow seed bed track as the implement is drawn along sod. Each disc is bounded on both sides thereof by members of a second type characterized as roller means. The roller means push down on the sod while the track is being formed so that the lateral boundaries of the track are not disturbed.

3,705,629
MACHINE FOR DIGGING SOIL

Herbert Vissers, Nieuw-Vennep, Netherlands, assignor to Landbouwwerktuigen-en Machine-fabriek H. Vissers N.V., Binnenweg, Rotterdam, Netherlands
Filed Feb. 10, 1970, Ser. No. 9,686
Claims priority, application Netherlands, Feb. 5, 1969, 69.02244
Int. Cl. R01b *33/00*
U.S. Cl. 172—94 **7 Claims**

In a digging machine a rotor with spades is driven around a digging axis, said spades being tiltably mounted on said rotor.

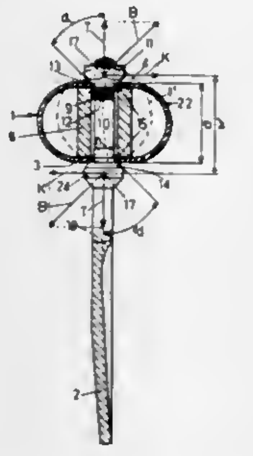
A guide member for guiding the tilting movement of said spades is improved so that the tilting of the spades is accelerated during an angular displacement of the rotor greater than 45°, resulting in an increase of the permissable rotational



speed of the rotor and therefore in an increase of the capacity of the machine.

3,705,630
AGRICULTURAL IMPLEMENT FOR CLOD BREAKING

Herbert Vissers, Nieuw-Vennep, Netherlands, assignor to Landbouwwerktuigen-en Machinefabriek H. Vissers N.V., Binnenweg, Rotterdam, Netherlands
Filed Feb. 2, 1970, Ser. No. 8,045
Claims priority, application Netherlands, Feb. 3, 1969, 6901676
Int. Cl. A01b *23/02, 19/02, 35/22*
U.S. Cl. 172—713 **5 Claims**



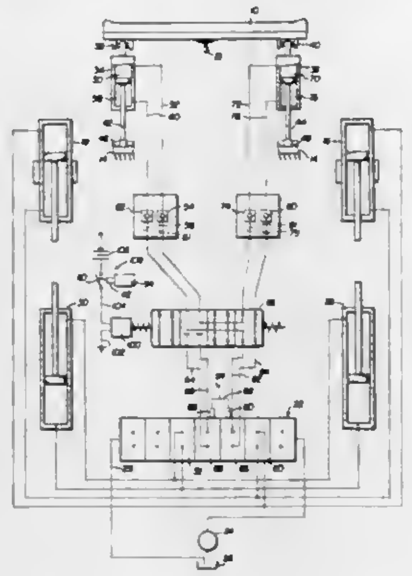
An agricultural implement for clod breaking, comprising a hollow support, for instance of tubular or U-section, and a plurality of clod breaking members extending through recesses in the top and bottom walls of said support and attached thereto by screwed connections.

For providing a rigid support having thin walls and a rigid attachment of the clod breaking members these clod breaking members are inserted through bushes which support the top and bottom walls of said support against being displaced inwardly.

3,705,631
HYDRAULIC TILT AND PITCH CONTROL FOR DOZER BLADE

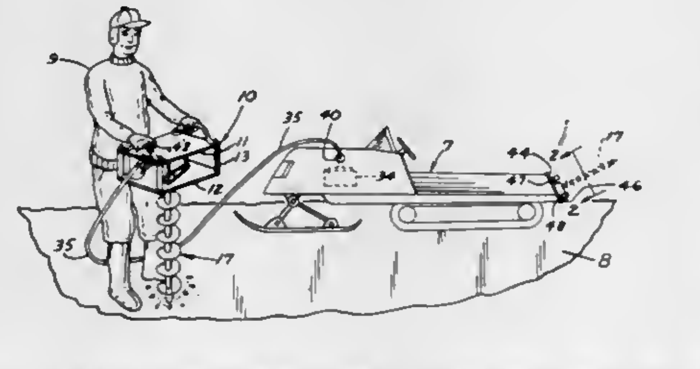
David H. Seaberg, Davenport, Iowa, assignor to J. I. Case Company, Racine, Wis.
Filed May 27, 1971, Ser. No. 147,514
Int. Cl. C02f *3/76*
U.S. Cl. 172—804 **4 Claims**

A fluid control system for a load handling implement such as a dozer blade carried by means of a universal joint on a load handling machine which comprises a pair of double-acting fluid cylinders having one end attached to the implement and the other end to a stationary part of the machine; the pair of fluid cylinders are each connected at opposite ends by a pair of fluid lines to a source of fluid under pressure including a main control valve and a selector valve; the main control valve and the selector valve are actuated by a single control lever which when pivoted in one direction positions the main control valve for tilting the implement clockwise and if pivoted in the opposite direction positions the main control valve for tilting the implement counterclockwise; and the control lever is provided with an actuator to condition the selector valve for pitching of the implement in either forward or rearward inclination by actuation of the control lever actuator coupled with pivotal movement of the control lever in one or the other of the tilt-controlling directions.



3,705,632
PORTABLE ELECTRIC ICE AUGER

Leo J. Burke, 8405 M59, Howell, Mich.
Filed April 5, 1971, Ser. No. 131,277
Int. Cl. E21c *1/00*
U.S. Cl. 173—27 **3 Claims**

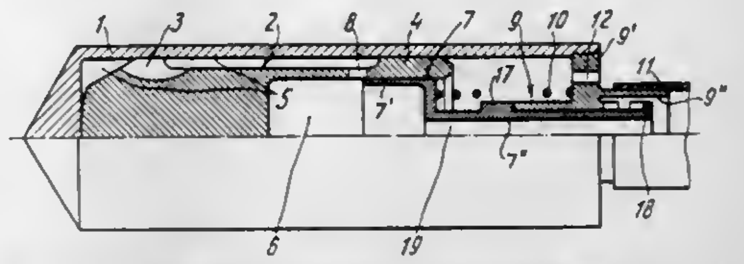


An ice auger transportable on a snowmobile, and utilizing the electrical system of the snowmobile for its power. The electric motor and drive train are supported by a pair of transparent, di-electric plates, which serve as a light weight, safety housing for the power train for the auger bit, and insures direct visual control of the bit when in use.

3,705,633
REVERSIBLE PERCUSSION DEVICE FOR MAKING HOLES IN GROUND BY COMPACTING THE LATTER

Boris Vasilievich Sudinishnikov; Alexandr Dmitrievich Kostylev; Konstantin Stepandvich Gurkov; Konstantin Konstantinovich Tupitsyn, and Vladimir Dmitrievich Plavskikh, all of Novosibirsk, U.S.S.R., assignors to Institut Gornogo Dela Sibirskogo otdelenia Akademii, Nauk, U.S.S.R.
Filed April 5, 1971, Ser. No. 131,136
Int. Cl. E21b *1/00, 11/02*
U.S. Cl. 173—91 **4 Claims**

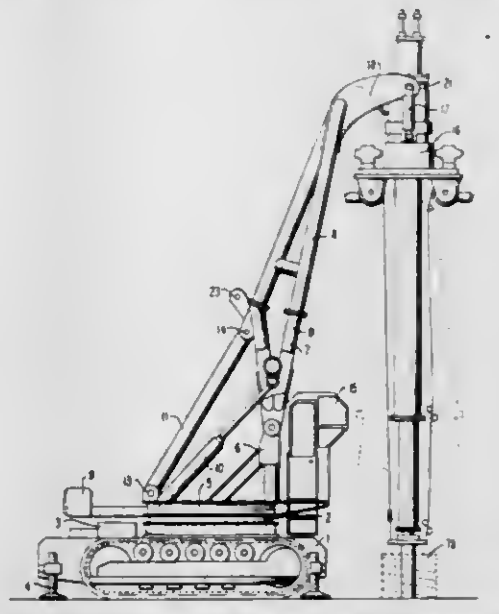
A reversible, pneumatically-operated percussion device having an axially-displacable air-control bushing positionable in one of two positions to correspondingly control forward and reverse movements of the device; the bushing cooperating with a casing and having projections interacting with those on the casing whereby reduction of operating pressure and a



cooperating spring effect reversal of the impact effected by a percussor reciprocably supported in the housing of the device.

3,705,634
UNIVERSAL MACHINE FOR FOUNDATIONS

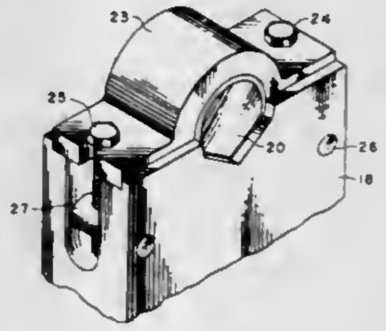
Antonio Casagrande, via Trieste, 33077 Sacile, Italy
Filed Aug. 14, 1970, Ser. No. 63,894
Claims priority, application Italy, Aug. 14, 1969, 60554 A/69
Int. Cl. E21b *7/02;* **E21c** *5/06, 5/11*
U.S. Cl. 175—122 **40 Claims**



A universal machine for foundations for transporting and easily utilizing a work group, which machine includes a base on which a rotating turret is mounted, and an extendable frame for supporting the work group is mounted on the rotating turret so as to permit construction of foundations. The base of the machine has self-moving means such as, for example, a crawler-mounted base. For road transport, the work group and the extendable frame can be lowered, and a counterweight automatically provides the correct equilibrium.

3,705,635
LARGE DIAMETER EARTH BORING BIT

William M. Conn, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Jan. 13, 1971, Ser. No. 106,220
Int. Cl. E21c *13/12;* **F16c** *19/08*
U.S. Cl. 175—364 **4 Claims**



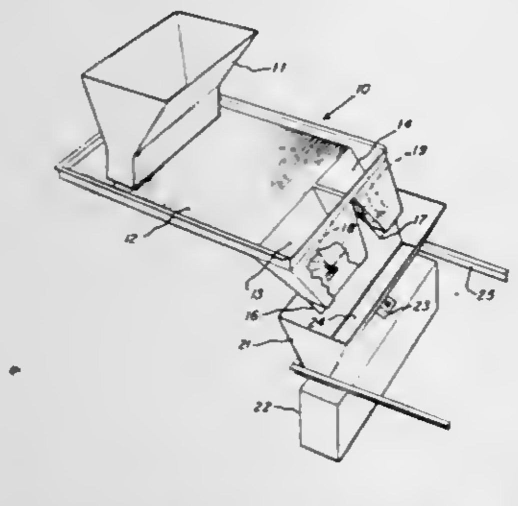
The rolling cutters of a large diameter earth boring bit are locked in place in a saddle mount yet may easily be removed.

A vee-shaped, slabbed-off portion of the journal is held in place by a cap bolted to the saddle mount.

3,705,636
PRODUCT WEIGHING SYSTEM

Kenneth Robert Dunphy, 3322 Belden Drive N.E., Minneapolis, Minn., and Richard Lee Helseth, 6120 5th Avenue S., Minneapolis, Minn.

Filed Dec. 28, 1970, Ser. No. 101,466
Int. Cl. G01g *1/24, 7/00, 13/08*
U.S. Cl. 177—114 **3 Claims**

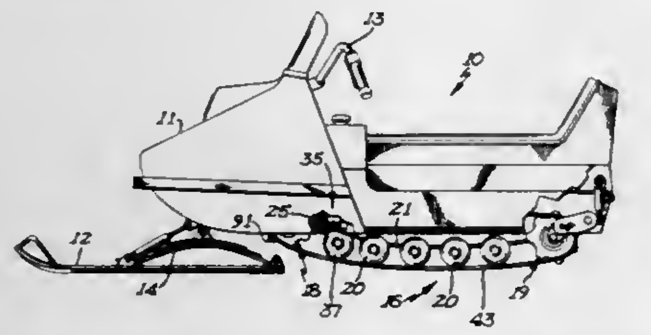


A product weighing system having a beam balance which includes a beam having a product receiving station and pivot means forming a support fulcrum for the beam. Position responsive means are coupled to the beam and are adapted to deliver a signal representing the immediate disposition of the beam. The position responsive means includes a transformer having primary and secondary windings, along with movable core means inductively coupling the windings one to another. The core means is operatively coupled to the beam, the arrangement being such that movement of the beam is adapted to vary the inductive coupling between the primary and secondary windings so as to deliver a signal representing the immediate disposition of the beam balance. Means are provided for coupling the signal to a product delivering conveyor, a weighing container, and gates which function in combination with the conveyor and control delivery of product into the weigh container. If desired, the signal may also be coupled to read-out means including visual or audible read-out.

3,705,637
SNOWMOBILE SUSPENSION SYSTEM

Charles V. Harvey, Route 3, Box 233, Forest Lake, Minn.

Filed May 27, 1971, Ser. No. 147,411
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 R **15 Claims**

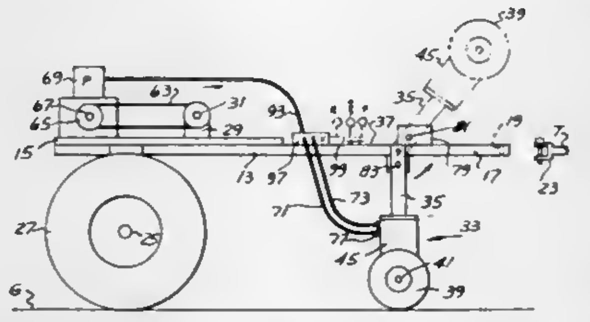


A track suspension means for vehicles having an endless track drive and support surface, the vehicle having frame means with forward and rear mounting points. The track suspension means which is coupled to the vehicle at the mounting points includes longitudinally disposed flexible leaf spring means normally arranged convexly to the running surface, with the leaf spring means having an axis disposed generally parallel to the track axis, and being adapted to flex vertically. The leaf spring, which carries a plurality of supporting means such as bogie wheels for the track, is secured at its forward end to the vehicle frame at the forward mounting point. The endless track suspension means includes forwardly and rearwardly disposed sprockets inscribed within the endless track, and mounting means are provided for the sprockets including axle shafts. Track propelling means are coupled to the forwardly disposed sprockets, while track tensioning means and the rear of said leaf spring are operatively coupled to the rearwardly disposed sprockets. Pivot linkage means are provided for coupling the rear sprocket mounting means to the vehicle at the rear mounting point. The pivot linkage means includes rear support shaft means journaled for pivotal rotation generally concentrically with the common axis of said rear frame mounting points, a first torque arm coupled at one end to said rear support shaft means and with a floating pivot shaft journaled to the other end of the first torque arm. A second arm is provided having one end journaled to the floating pivot, and with the other end coupled to the rear sprocket mounting means, such as the rear axle shaft. Resilient spring bias means are coupled between the frame means and the rear support shaft means and normally urge the mounting shaft means for the rearwardly disposed sprockets such as the rear axle shaft in a direction toward the lower span of the endless track.

3,705,638
AUXILIARY DRIVE AND SUPPORT MECHANISM FOR MOBILE VEHICLES

John P. Shock, 15120 Charlevoix, Grosse Pointe Park, Mich.

Filed May 26, 1971, Ser. No. 147,058
Int. Cl. B60k *25/04*
U.S. Cl. 180—14 A **6 Claims**



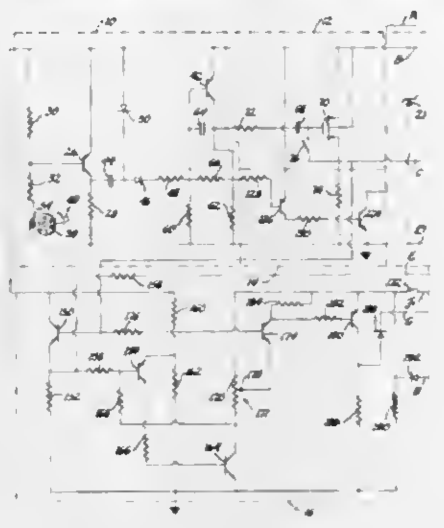
In conjunction with a two-wheeled vehicle having a tongue for connection to a pulling vehicle and having a self contained motor assembly with a power output means; an improved independent drive and support therefore which includes a support bar pivoted on said tongue and secured thereto mounting a transmission housing having a power driven output shaft driving a ground engaging support wheel; there being a hydraulic motor on said housing having an output connected to said output shaft and an auxiliary power take off on said motor assembly connected to a pump and with conduits interconnecting said pump and hydraulic motor.

3,705,639
AUTOMATIC RE-ENGAGE CIRCUIT FOR AN ELECTRONIC SPEED CONTROL SYSTEM

Ronald L. Colling, Millington, and Myron U. Trenne, Flint, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 9, 1971, Ser. No. 161,055
Int. Cl. B60k *27/00;* **F02d** *11/10*
U.S. Cl. 180—105 **3 Claims**

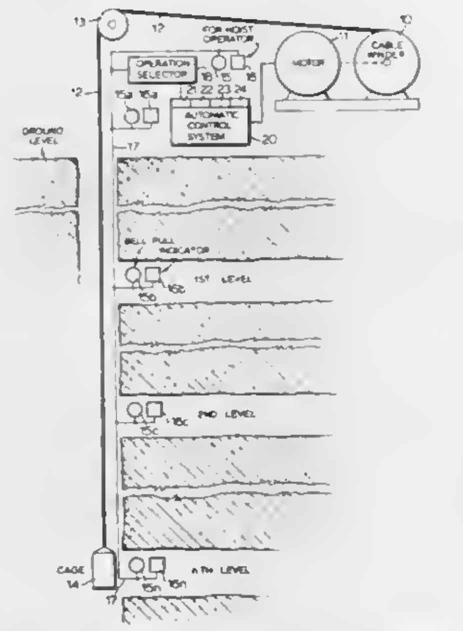
An automatic re-engage circuit for an electronic vehicle speed control system which is armed when the speed control system is disengaged and the vehicle speed has decreased to a predetermined speed below the former cruise speed. After being armed, the automatic re-engage circuit is operative to automatically re-engage the speed control system when the vehicle is accelerated from the lower speed to the former cruise speed.



3,705,640
SIGNALLING SYSTEM FOR MINE HOISTS

Peter De Hertel Eastcott, Peterborough, Ontario, Canada, assignor to Canadian General Electric Company Limited, West Toronto, Ontario, Canada

Filed Jan. 29, 1071, Ser. No. 110,991
Claims priority, application Canada, Feb. 18, 1970, 75142
Int. Cl. B66b *1/16*
U.S. Cl. 187—29 R **4 Claims**

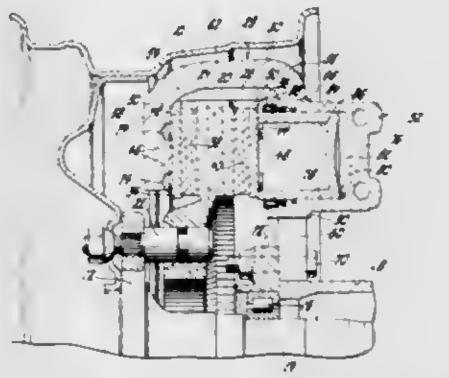


In existing mine hoists, much of the complex equipment needed for automatic control is located at the working levels in the mine where environmental conditions are poor. According to this invention, the complex equipment needed for automatic control of the hoist is located in the same room as the hoist drive where the environment is warm and dry. This is achieved through the use of control equipment of a type that responds to the coded pulses generated in the Bell Pull circuit in the way that the operator responds to the ringing of his bell or flashing of his light. In essence, this equipment duplicates the responses of the operator in that it counts pulses, distinguishes between sets of pulses, remembers this, exercises a degree of logic, and applies the information for control purposes. Moreover, it can be located in the same room as the hoist drive where it is dry and warm. The existing Bell Pull system or an equally simple circuit can now be used for sending the appropriate signals from the various mine levels to the control equipment. An operation selector is provided for selecting a mode of hoist operation between automatic or manual through a suitable connection with the Bell Pull circuit. When operation is manual control, the signals sent by the Bell Pull will, of course, be displayed to the operator.

3,705,641
DISC BRAKE

Frank W. Brooks, and Norman L. Gebhart, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 20, 1971, Ser. No. 108,099
Int. Cl. F16d *69/04*
U.S. Cl. 188—73.3 **6 Claims**

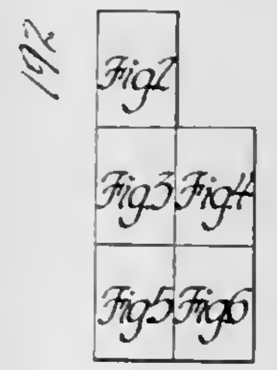


A disc brake for an automotive vehicle in which the caliper frame is made from a stamped steel plate and bent to form a J-section, one leg of the caliper frame having a keyhole-shaped opening through which the cylinder body is mounted and retained in place by means of a flange and tang arrangement. The brake pad assemblies are provided with projections extending into recesses formed in the other caliper leg and in the hydraulic cylinder piston to locate the pad assemblies and hold them in position. The pad assembly backing plates have arms extending to embrace a portion of the caliper frame to further locate and limit movement of the brake pad assemblies and also to transmit brake torque to the caliper frame.

3,705,642
TRANSMISSION CONTROL SYSTEM

Charles H. Thompson, Pittsboro, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 12, 1971, Ser. No. 114,986
Int. Cl. F16h *37/06*
U.S. Cl. 192—4 **15 Claims**



There is disclosed a control system providing manual and also automatic shift control for a multispeed forward and reverse end vehicle transmission. The automatic operation is provided by pilot valves which are controlled by a pressure indicative of vehicle speed and also a pressure indicative of engine torque demand to condition shift valves to effect shifting between all of the forward drives. The manual control is provided by solenoid valve control over the bias of the shift valves to effect manual shifting with downshifting to lower speed range drives being delayed until vehicle speed is suitable for the speed range of the selected lower drive. The transmission includes a torque converter having a lockup clutch whose engagement is effected with the fluid delivery used for the selected drive engagement with the lockup clutch engagement being momentarily interrupted on shifting between certain of the forward drives by shuttle valve operation. A neutral valve whose operation is controlled by solenoid valves operates to deliver fluid to the shift valves for the drive engagements and on interruption of electrical power to its solenoid valves, operates to

3,705,643
BRAKE & CLUTCH CONTROL FOR INDUSTRIAL TRACK

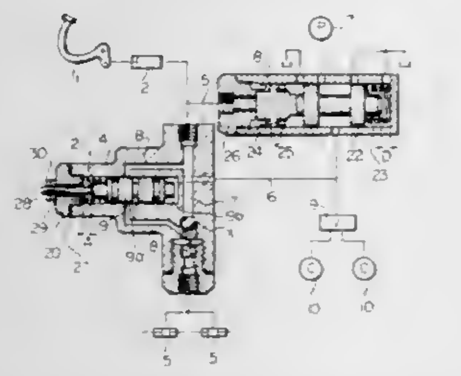
Seijiro Iwaoka, and Hiroo Mori, both of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi-ken, Japan

Filed June 25, 1970, Ser. No. 49,819

Claims priority, application Japan, June 27, 1969, 44/51131; June 30, 1969, 44/52057; Sept. 10, 1969, 44/72203

Int. Cl. F16d *67/02*

U.S. Cl. 192—13 A **9 Claims**



The fluid control system applied to the industrial trucks, is provided with a check valve in a fluid line between a master cylinder and a plurality of wheel cylinders so as to interrupt the return flow of brake oil from the wheel cylinders to the master cylinder, and an interfering means in a bypass line to the check valve so as to admit the return flow of the brake oil in a controlled or restricted condition when the oil pressure in the hydraulic clutches reach to a sufficient pressure for engaging the clutches.

3,705,644
CONVEYOR SCREW ELEMENT

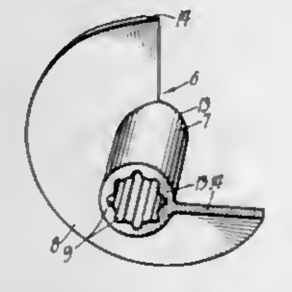
Claude Edward Kawchitch, 1 Charles Street, Jolimont, Victoria, Australia

Filed Jan. 22, 1971, Ser. No. 108,805

Claims priority, application Australia, Jan. 23, 1970, PA 0155/70

Int. Cl. B65g *33/00*

U.S. Cl. 198—213 **2 Claims**



Conveyor screw elements having molded flight portions of relatively short lengths and integrally molded hollow, longitudinally grooved hubs adapted to be mounted on a shaft having longitudinally extending splines. Each of the screw elements is adapted to be angularly offset relative to adjacent ones on the shaft.

3,705,645
INFLATABLE FLEXIBLE CONTAINER AND FABRIC FOR MAKING IT

Patricia F. Koneo, Feasterville, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed April 30, 1971, Ser. No. 139,224

Int. Cl. B65d *85/00;* **D03d** *11/00*

U.S. Cl. 206—46 R **10 Claims**

Textile fabrics are formed into containers, envelopes, or bags which are adapted to be partially or completely filled with a fluid, e.g. water or other liquid or to be inflated with air or other gas. A coating of an acrylic addition polymer is provided on one face of the flexible fabric and covered with a layer of fibrous material. The fiber-coated face becomes the interior wall of the container and prevents adhesion of adjacent internal walls when the container is in collapsed condition. This permits storage of the container in collapsed condition over long periods of time and at temperatures ranging from −20° to 200°F. without developing cracks in the coating or adhesion of the internal surfaces and thereby interfering with the inflation of the container. Such containers are useful as air-mattresses, water-filled mattresses, sleeping bags, pillows, lifebelts, lifeboats, air-filled or water-filled chairs, ottomans, etc. They may be stored in automobiles or other vehicles for automatic inflation upon collision impact to protect passengers therein from injury by cushioning effect.

3,705,646
CARTRIDGE FOR FIXING ANCHOR ELEMENTS IN HOLES OF A SUPPORT STRUCTURE

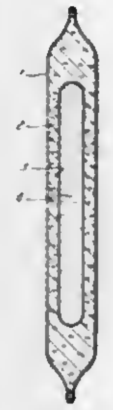
Alfons Jankowski, Essen, and Fritz Schuermann, Winz/Niederwenigern, both of Germany, assignors to Bergwerksverband GmbH, Essen, Germany

Filed Jan. 5, 1971, Ser. No. 103,359

Claims priority, application Belgium, Jan. 8, 1970, 83659

Int. Cl. B65d *79/00*

U.S. Cl. 206—47 A **9 Claims**



A tubular plastic foil bag is adapted for insertion into a hole provided in a support structure and has an inner side, an outer side, and spaced ends. Clamps or similar means closes the spaced ends and the bag contains a mixture of filler material and a hardenable resin. A closed frangible vial, of glass or the like, accommodates a hardener which will harden the resin when it becomes admixed therewith. The vial extends along the bag and is located either in the interior embedded in the mixture, or is secured to the exterior of the bag. When the cartridge is inserted into a support structure and subsequently the bag is ruptured and the vial is broken, the hardener and the mixture can admix and the resin will harden.

3,705,647
APPARATUS FOR CHECKING THE CIRCUMFERENTIAL EDGE SURFACE AND THE DIAMETER OF DISC-SHAPED OBJECTS

Ake Torgny Bergavist, Finspang, Sweden, assignor to Aktiebolaget Svenska Metallverken, Vasteras, Sweden

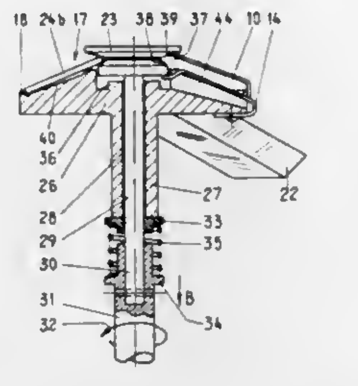
Filed Dec. 22, 1970, Ser. No. 100,748

Claims priority, application Sweden, Dec. 23, 1969, 17829/69

Int. Cl. C10g *25/00*

U.S. Cl. 209—88 **18 Claims**

An apparatus for checking disc-like objects for edge defects and deviations in the diameter of said objects from a predetermined standard diameter. The apparatus includes a movement path for the objects being checked which is defined by two support members. The object supporting members are arranged to move in a parallelistic pattern of movement in relation to each other and are constantly biassed in a direction towards each other, the distance between said members being maintained at a pre-fixed magnitude by the object present in the movement path defined by said members. Also arranged in the vicinity of the movement path of said object is a pivot member, which is caused to be located in said movement path upon axial movement of one of said support members, whereby a defective object located in said path and contributing to said axial movement is pivoted over said pivot and rejected by the apparatus.



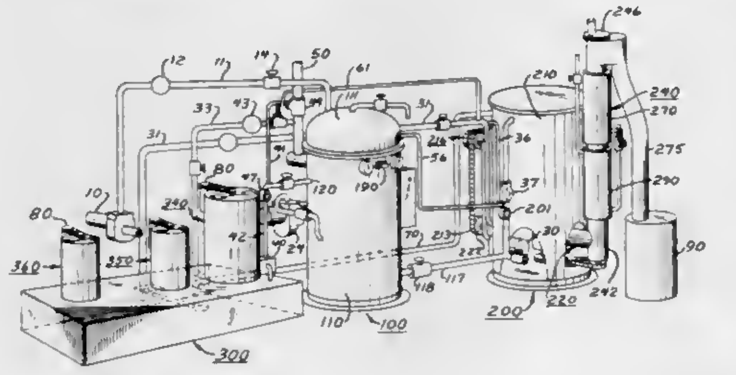
3,705,648
FILTRATION SYSTEM

Kostas Savas Arvanitakis, 7031 W. 63rd, Chicago, Ill.

Continuation-in-part of Ser. No. 173,777, Aug. 23, 1971. This application March 30, 1972, Ser. No. 239,519

Int. Cl. B01d *37/02*

U.S. Cl. 210—66 **29 Claims**



Method of and apparatus for clarifying a contaminated liquid by pumping unclarified liquid through a primary filter increasing the pressure drop across the filter until such pressure reaches a predetermined level. When the pressure reaches a predetermined level, the filtration operation is interrupted, the filtration system closed, and the filter cake accumulated on the primary filters is removed. The contents of the primary filter chamber are drained to a secondary filter chamber or desludger whereat the liquid bearing the dislodged filter cake suspension from the primary filters and additional filter aid media is re-circulated through a secondary filtration system forming a filter cake on the surface thereof and clarifying the contents of the primary filter chamber drawn thereinto. The liquid in the primary filter chamber, clarified thereby, is pumped through the mixing chamber of a pre-coat feeder whereat various filter cake forming media are added thereto. The clarified liquid bearing the suspended filter aids is pumped through the primary filter chamber for re-circulation through the primary filters to form a new filter cake on the surface thereof. When the new filter cake has been formed the filtration system is automatically placed on line to clarify the liquid passing therethrough.

While the primary filter is clarifying liquid passing therethrough, the secondary filter of the secondary filtering chamber is cleansed of accumulated filter cake which settles to the bottom of the secondary filter chamber. The expended filter cake or sludge is conveyed downwardly by a central auger in the desludger chamber into a horizontal auger whereat the expended cake or sludge is conveyed to a vertical auger conveyer. The vertical auger is heat jacketed to expose the sludge to heat for solidifying the sludge to a desired consistency and expelling it into a container for disposal.

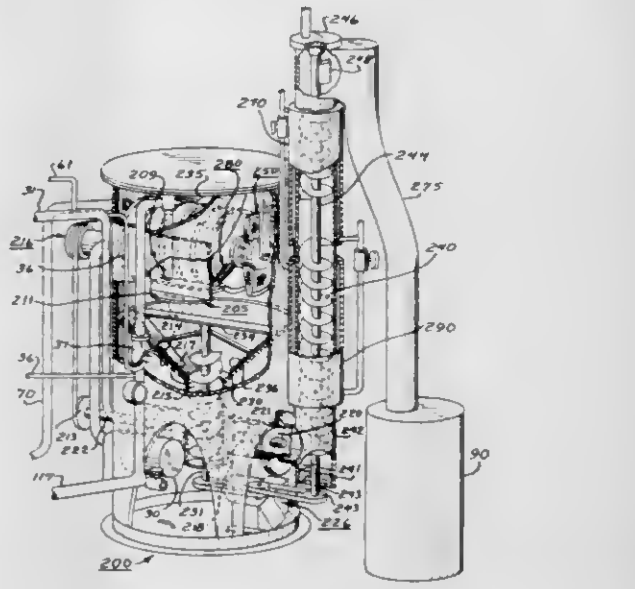
3,705,649
DESLUDGER APPARATUS AND PROCESS

Kostas Savas Arvanitakis, 7031 W. 63rd, Chicago, Ill.

Continuation-in-part of Ser. No. 173,778, Aug. 23, 1971. This application March 30, 1972, Ser. No. 239,630

Int. Cl. B01d *37/00*

U.S. Cl. 210—66 **29 Claims**



Method of and apparatus for collecting and removing contaminants from a filtration system by passing unclarified contaminant bearing liquid through a filter apparatus to collect the contaminants thereon and discharge the liquid clarified thereby. At a predetermined time, the discharge from the filtration system to the filter apparatus is interrupted and the contaminants removed from the filter apparatus to the unclarified liquid whereat they are collected and conveyed out of the apparatus. The collected contaminants are partially solidified by exposure to heat and conveyed from the system for disposal.

3,705,650
VACUUM FLOTATION DEVICE

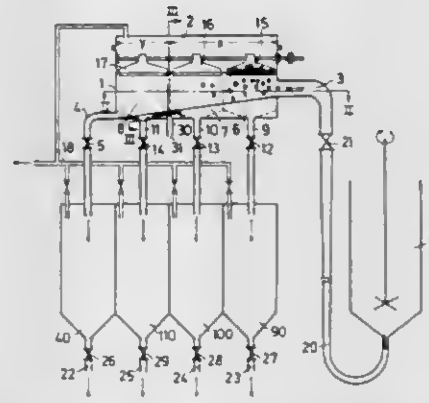
August Gotte, Ronheider Winket 23, Aachen, Germany

Filed Nov. 9, 1970, Ser. No. 87,879

Claims priority, application Germany, Nov. 11, 1969, P 19 56 530.1; Aug. 11, 1969, P 20 39 871.4

Int. Cl. B01d *21/24*

U.S. Cl. 210—221 **19 Claims**

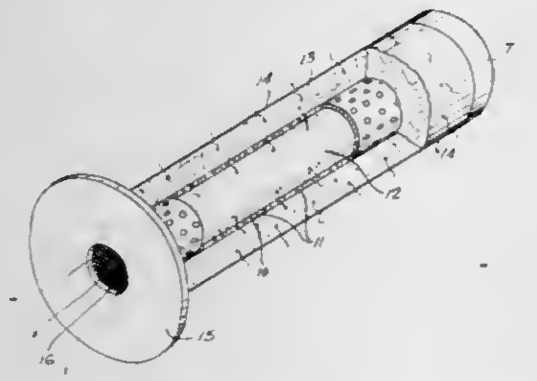


A vacuum foam flotation apparatus for treatment of turbid liquids in which the liquids flow in a trough in an evacuated housing, while conveying means move laterally of the trough and displace foam from the surface of the liquid in the trough into foam pockets arranged along the side of the trough. At least the first portion of the trough has laminar liquid flow therein, while agitating means may be provided to agitate the liquid in the trough beyond the region of laminar flow.

3,705,651

FILTER SYSTEM EMPLOYING ACTIVATED CARBON, POROUS MATERIAL AND DIATOMACEOUS EARTH

Samuel H. Klein, 2240 Halifax Drive, Apt. 1011, Ottawa, Ontario, Canada
Filed Sept. 10, 1971, Ser. No. 179,332
Int. Cl. B01d *27/02*
U.S. Cl. 210—266 **5 Claims**

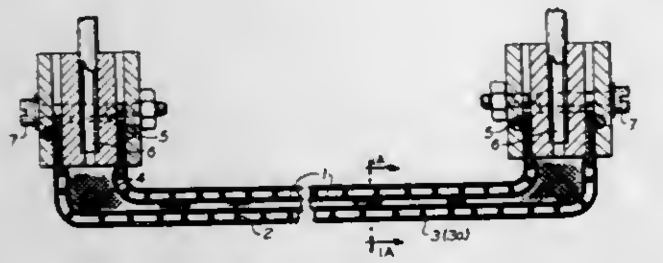


A disposable filter unit for consumer potable water consists of an inner core filled with activated carbon and surrounded by a body of porous material (fiber glass or asbestos) impregnated with diatomaceous earth. An outer layer of diatomaceous earth is formed on the porous material. The direction of water flow is inwardly through the outer materials to the core so that the carbon is arranged downstream of the other filtering materials.

3,705,652

APPARATUS FOR STERILE MATERIAL EXCHANGE

Horst Russmann, Neu Isenburg, and Helmut Determann, Frankfurt am Main, both of Germany, assignors to Biotest-Serum-Institut GmbH, Frankfurt/Main-Niederrad, Germany
Filed March 4, 1970, Ser. No. 16,331
Claims priority, application Austria, March 6, 1969, A 2242/69
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **11 Claims**

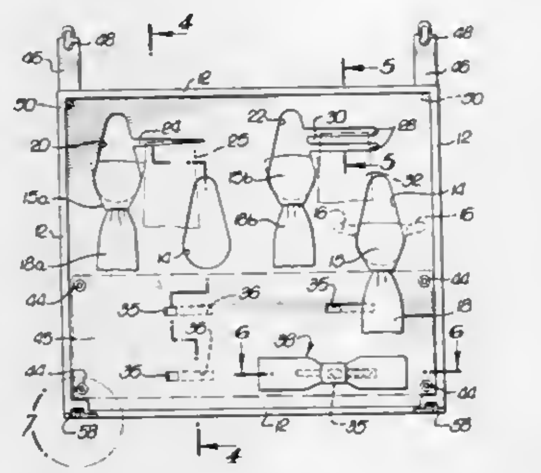


An apparatus for the sterile material exchange in solutions, which comprises a conventional membrane in form of a hose, a grid of synthetic material, and a hollow empty hose of synthetic material. The conventional membrane is disposed between the grid of synthetic material and is received in the hose of synthetic material. Hose connections are carried by the hose of synthetic material and are capable of being closed by a protection cap. A sealing device closes jointly both the hoses, and both hoses permit an access capable of closing by another protection cap to the membrane connection. In one embodiment of the apparatus, the hoses are bent at substantially a right angle for insertion into the sealing or closing device. The invention also includes the system of hoses being wound in a double spiral about two tubes of synthetic material.

3,705,653

NECKTIE RACK

Armand J. Pereyra, 104 West C Street, Ontario, Calif.
Filed April 13, 1971, Ser. No. 133,548
Int. Cl. A47l *7/00*
U.S. Cl. 211—13 **15 Claims**

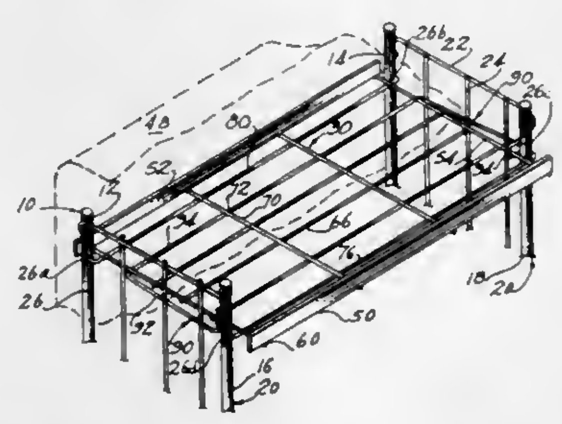


A normally upright panel has apertures shaped for engagement by pretied four-in-hand neckties and apertures for conventional untied neckties with the neckties overhanging the front face of the panel. The smaller ends of the tapered knots of pretied four-in-hands extend through the apertures with wider ends engaging the rims of the apertures on the back face of the panel. Conventional untied four-in-hands are folded and the folded portions are either wedged into tapered longitudinal slots that are formed by apertures or are looped over tongues of the panels that are formed by apertures.

3,705,654

ADJUSTABLE SHELVES AND SUPPORT THEREFOR

Wade H. Barrineau, III, DeKalb County, Ga., assignor to Southern Gross Industries, Inc., Atlanta, Ga.
Filed Jan. 20, 1971, Ser. No. 108,091
Int. Cl. A47f *5/10*
U.S. Cl. 211—176 **13 Claims**

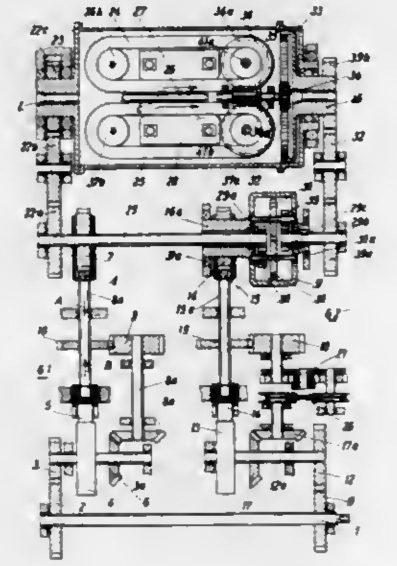


Especially suitable for use in confined areas such as the inside of a panel truck end support units fabricated from plated steel wire each includes vertical posts or standards drilled at spaced intervals with the holes in front post being substantially in alignment horizontally with the holes in the back post. Shelves fabricated from plated steel wire are easily located and removably attached to both of the end panels in the holes of the post thereof from one side of the assembly which may be the aisle of a panel truck. Each shelf is held in place by rearward projecting and horizontally disposed pins on each end of the shelf and each pin being inserted in their respective aligned hole in the back post of the assembly and rearwardly depending ends on each end of the front of a respective shelf which likewise is positioned in the corresponding hole in each of the front post. Shelves are positioned and placed for use by aligning the respective pins at the front and the back of the shelf with the respective openings in the vertical posts and then pushing the shelf rearwardly into position. The shelf is removed by pulling same forward. Optionally a spring member made from a piece of bent and looped wire is pressed out of the way for insertion of the shelf and permitted to spring into position behind the post once the shelf is seated in the respective holes thereby preventing accidental dislodgement of the shelf. The spring member is displaced manually by pressure from one finger while holding on to another part of the shelf.

3,705,655

DEVICE FOR THE CONTROLLED ROTATION AND FEEDING OF A WORKPIECE PARTICULARLY FOR A COLD PILGER MACHINE

Heinz Fahrenholz, Duisburg, Germany, assignor to Demag AG, Duisburg, Germany
Filed June 21, 1971, Ser. No. 154,776
Claims priority, application Germany, July 10, 1970, P 20 34 315.1
Int. Cl. B65h *51/00*
U.S. Cl. 214—338 **7 Claims**



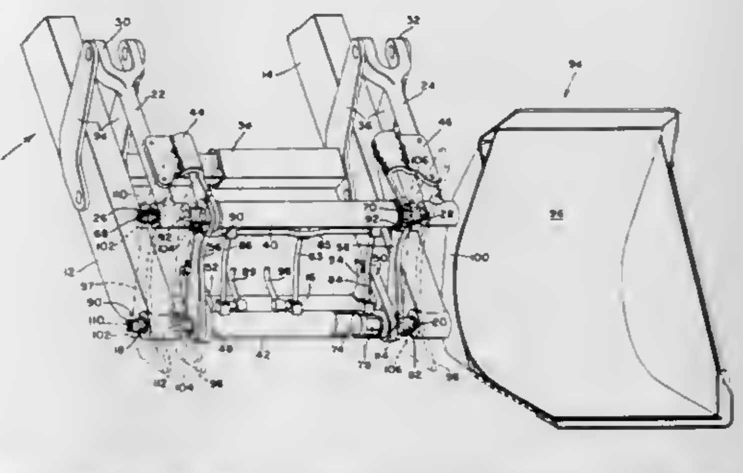
A device for feeding oblong workpieces, particularly for a cold pilger machine comprises first and second endless conveyors having opposed reaches extending substantially parallel and between which a workpiece is adapted to be fed by engagement with the conveyor. The conveyors are supported in a housing which is rotatably mounted in order to impart a rotation to the workpiece in addition to its transverse feeding movement. The apparatus includes an input or drive shaft connected through a first cam controlled gearing for controlling the rotation of the housing and connected through a second cam controlled gearing for controlling the advancement movement of the conveyors. The second cam controlled gearing includes a belt drive which provides for a variation of operation and a drive through planetary gearing and rotary gear members for effecting the drive of the conveyor elements.

3,705,656

QUICK-ATTACH LOADER BUCKET

Richard H. Hunger, Dubuque, Iowa, and Leland Glen Gilbert, Moerfelden, Germany, assignors to Deere & Company, Moline, Ill.
Filed Feb. 18, 1971, Ser. No. 116,412
Int. Cl. E02f *3/70*
U.S. Cl. 214—145 **8 Claims**

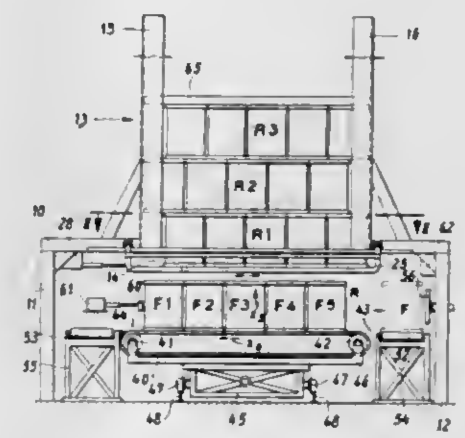
A loader has a pair of forwardly extending lift arms with a pair of forwardly extending tilt control links above the lift arms. A loader bucket is mounted for quick attachment to or detachment from the forward end of the lift arms and control links by means of a mechanism controlled from the operator's seat. The attachment mechanism includes a pair of transversely extending, vertically spaced hydraulic cylinders with piston rods extending from both ends of the cylinders. The upper cylinder is attached to the forward end of the tilt control links and the lower cylinder is attached to and extends between the forward end of the lift arm. The outer ends of the piston rods are extendable into and retractable from corresponding sockets on the rear side of the bucket in response to alternate pressurization of the center of the cylinders or the opposite ends of the cylinders, which is controlled by valve means at the operator's station.



3,705,657

METHOD OF STACKING AND DESTACKING BARRELS

Gerhard Arnemann, Vossbarg 41, D2080 Pinneberg, Germany
Division of Ser. No. 4,549, Jan. 21, 1970, Pat. No. 3,627,149. This application March 25, 1971, Ser. No. 127,920
Claims priority, application Germany, Dec. 20, 1969, P 19 63 968.0
Int. Cl. B65g *57/30, 60/00*
U.S. Cl. 214—152 **1 Claim**



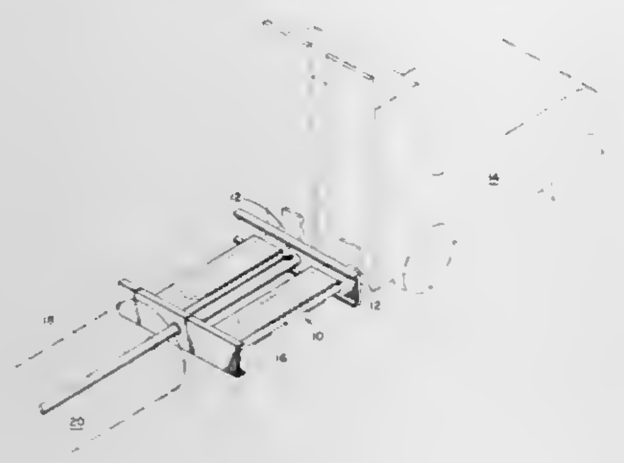
A method and an apparatus for stacking and destacking cylindrical as well as bulgy barrels which allow barrels to be stacked in several rows one on top of the other and to remove the rows of barrels one row after the other again. The apparatus includes a support frame with a storage bay for receiving the barrels. The storage bay includes a bottom feed and discharge opening through which several barrels which have been aligned in a row on a conveyor may be introduced into the bay. Means are provided for feeding the barrels to the feed and discharge opening, for aligning the barrels in a predetermined position, for lifting the barrels into the storage bay and for retaining the barrels within the bay.

3,705,658

CARPET ROLL CARRIER ATTACHMENT

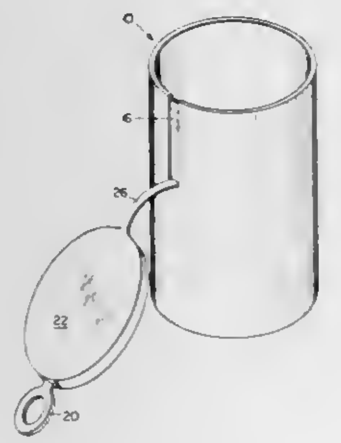
Hugh A. Harris, 3011 Citation Dr., Dallas, Tex.
Filed Dec. 29, 1970, Ser. No. 102,423
Int. Cl. B66f *9/12*
U.S. Cl. 214—620 **1 Claim**

A device for use in attaching a carpet rod to a transport vehicle having forks, characterized by the use of a frame which has socket means into which the forks of the transport vehicle can be horizontally positioned so that the device can be supported by and retained on the forks of the transport vehicle while the carpet rod is inserted into the center of a carpet roll and used to lift and transport the carpet roll.



3,705,659
ERODABLE MATERIAL

William L. Mackle, 394 Court Avenue, Ventura, Calif.
Filed Sept. 18, 1970, Ser. No. 73,469
Int. Cl. B32b *27/08*; **B65d** *23/00*
U.S. Cl. 215—1 C **4 Claims**

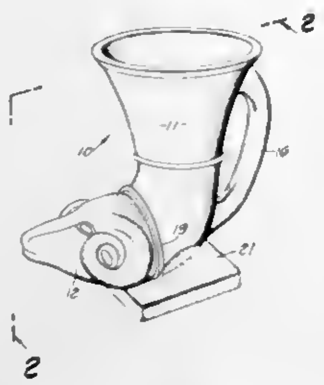


An improved material useful for a multitude of purposes which will dissolve or degrade in a short period of time when exposed to water, water vapor or sunlight. The material includes an intermediate layer of water soluble thermoplastic material with a layer of polyethylene film on both sides thereof. When the material is exposed to normal atmospheric conditions, the intermediate water soluble layer will ultimately dissolve. The thin outer and inner layers will degrade to a powdery film.

3,705,660
MOLDED DRINKING RECEPTACLE

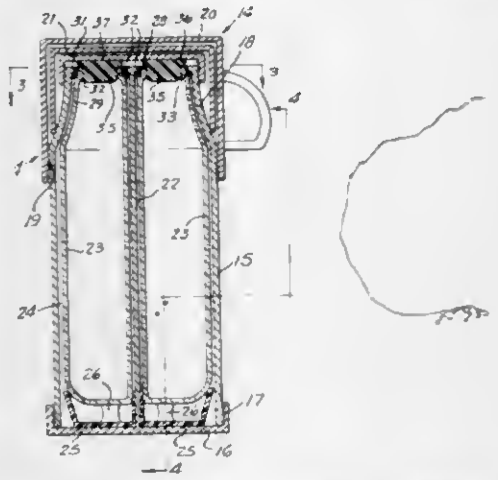
Elvin M. Bright, 17242 Bircher Street, Granada Hills, Calif.
Filed July 27, 1971, Ser. No. 166,348
Int. Cl. B65d *11/02*
U.S. Cl. 215—1 C **26 Claims**

An article of manufacture comprising a drinking receptacle molded of non-metallic material and having the general shape of a bovine horn. The main body is preferably molded in two hollow parts each having a closed end, the smaller part being fixed to the side of the smaller end of the larger part and suitably patterned for esthetic effect. A hand grip is fixed to the main body on the side opposite the smaller part, and a support rest or base for the receptacle may be fixed to the main body or shaped to internest with the latter.



3,705,661
MULTIPLE COMPARTMENT THERMALLY INSULATED CONTAINER

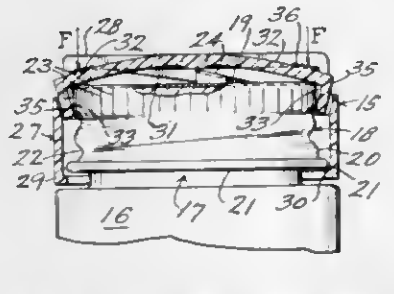
Peter J. Davis, 233 Adams Avenue, Camden, Ark.
Filed Feb. 20, 1970, Ser. No. 12,976
Int. Cl. B65d *1/04*
U.S. Cl. 215—6 **6 Claims**



A double compartment thermally insulated container for two different beverages, the container consisting of a cylindrical housing with a central diametrical partition wall, with two semi-cylindrical beverage receptacles supported therein in the respective semi-cylindrical compartments of the housing, with sealed air spaces provided around the receptacles. A modified form of the invention consists of two cylindrical thermally insulated containers connected together in axial alignment by a connection sleeve.

3,705,662
SAFETY CLOSURE FOR MEDICINE BOTTLES AND THE LIKE

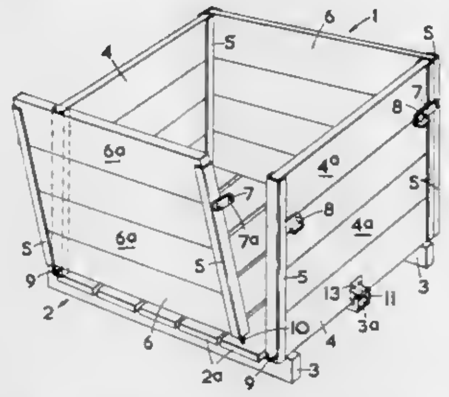
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastic Corporation, Evansville, Ind.
Filed July 28, 1971, Ser. No. 166,696
Int. Cl. A61j *1/00*
U.S. Cl. 215—9 **10 Claims**



The invention is a closure for a medicine bottle or the like which requires a special operation to open. The closure is placed on, for example, a medicine bottle having a threaded neck. The closure includes an inner cap having threads adapted to engage with the threaded bottle neck. A plurality of vertical ribs are provided on the exterior sidewall of the inner cap. An overcap is positioned over the inner cap. The overcap includes at least one flexible portion movable toward the inner cap ribs. A series of mating ribs are provided on the flexible portion adjacent the inner cap ribs. To remove the closure, the flexible portion is depressed causing the adjacent ribs to mate. Rotation of the overcap, after such depression of the flexible portion, transfers force to the inner cap and the closure can be removed from the bottle.

3,705,663
COLLAPSIBLE BULK HANDLING BIN

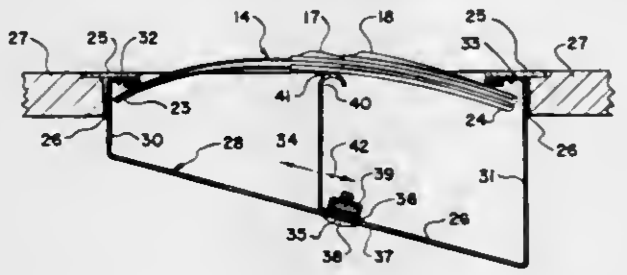
Dudley J. Schubert, Baranduda, via Wodonga, and Donald R. Howe, Morell Street, Mooroopna, both of Victoria, Australia
Filed Nov. 30, 1970, Ser. No. 93,695
Claims priority, application Australia, Nov. 27, 1969, 64418/69; Feb. 20, 1970, 378/70
Int. Cl. B65d *9/12*
U.S. Cl. 217—12 R **3 Claims**



A rectangular collapsible bulk handling bin having a palletized base in which at least one pair of opposite walls are secured to the base as by easily releasable interlocking means the interlocking means at least strongly securing the said pair of walls against outward thrust, the other pair of opposite walls being secured to the base or the first pair of opposite walls as by peg and socket means the adjacent walls being interconnected at the top the combination being simply assembled or disassembled the assembled bin being strongly secure against at least outward thrust on the walls produced by weight of contents.

3,705,664
DISPENSING DEVICE FOR POCKETED ENVELOPES

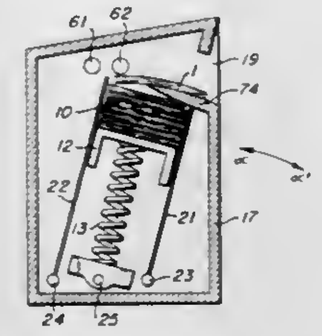
James E. Ferris, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed April 16, 1971, Ser. No. 134,787
Int. Cl. B43m *3/00*
U.S. Cl. 221—47 **6 Claims**



An envelope dispenser for uniformly retaining and flexing pocketed envelopes in a manner which automatically maintains the envelope pockets sufficiently open for efficient insertion of material therein. An adjustable support, slidably mounted beneath the envelopes in the dispenser, applies appropriate flexing force thereto and, in addition, makes it possible for the dispenser to satisfactorily accommodate different types of envelopes therein.

3,705,665
SINGLE-COPY VENDING MACHINES FOR NEWSPAPERS

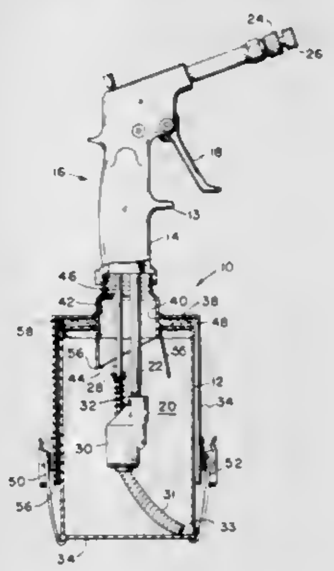
Thomas Gunzler, 1261 Alicia Ave., Teaneck, N.J.
Filed June 8, 1970, Ser. No. 44,274
Int. Cl. G07f *11/48*
U.S. Cl. 221—188 **10 Claims**



A single-copy vending machine for flat articles, such as newspapers, in which the items to be sold are stacked horizontally on a tray and so positioned, by means of a spring motor and a fixed stop, that the parting line between the topmost item in the stack and one immediately below always lies in a predetermined horizontal plane. A separating blade is arranged to move relative to the stack of items in the parting plane and is used to separate the topmost item from the remainder of the stack and make it available for removal from the stack by a purchaser. The blade, simultaneously with the separation of the topmost item, also locks the item second from the top of the stack in an inaccessible position for the purchaser.

3,705,666
APPARATUS FOR PERFORATING AND OPENING A CAN OF LIQUID AND FOR SEALING THE OPENED CAN AGAINST LEAKAGE WHILE COUPLING A DISPENSER TO THE OPENED CAN

Evan S. Nelson, Iron Mountain, and Charles J. Nelson, Kingsford, both of Mich., assignors to The Nelson Company, Iron, Mich.
Filed Feb. 11, 1970, Ser. No. 10,370
Int. Cl. B67b *7/26*
U.S. Cl. 222—82 **4 Claims**

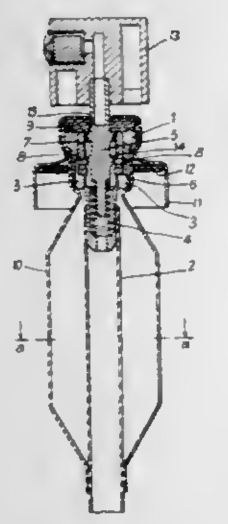


An apparatus for perforating and opening a can of liquid and for sealing the opened can against leakage while coupling a dispenser to the opened can. The apparatus includes a guiding receptacle for the can to be opened connected to a perforator to open the can of the can from which it is desired to dispense liquid. The perforator pushes a portion of the perforated top aside to provide an opening into the can of substantial size, and also, the perforator serves as a conduit communicating with the interior of the can. A sealing means surrounds the perforator for making sealing contact with the can top around the opening to prevent leakage of the liquid therefrom. Fastening means is positioned on the receptacle for engagement with the can for holding the top of the can firmly against the sealing means and a screw coupling is aligned with the perforator conduit for mounting thereto aligned dispenser preferably having an eccentrically positioned intake for withdrawing liquid in the lowest corner of the can.

3,705,667
PROPORTIONING VALVE FOR A PRESSURIZED DISPENSER

Marie Jean Michel Paul Blanie, Paris; Jean Ramis, Yvelines and Henry R. Robert, Paris all of France, assignors to Societe Civile d'Inventions Idees, Paris, France

Filed Aug. 31, 1970, Ser. No. 68,307
Int. Cl. B67d *5/52*
U.S. Cl. 222—136 5 Claims



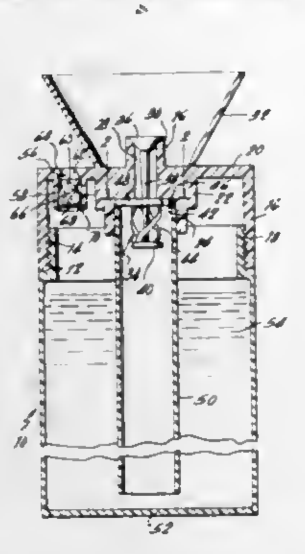
A proportioning valve for a container holding a product which is to be dispensed in predetermined quantities with each operation of the valve under the influence of a compressed fluid, said valve essentially comprising a body having a cylinder which opens on one side on the outside and on the other hand onto a plunger tube which extends almost as far as the bottom of the container, a unit which is slidable in the cylinder and forms a valve being actuated in one direction by depressing the actuating button mounted on the outside of the container at the end of the unit, said button having a nozzle for expelling the product, and in the other direction by a resilient resetting means, characterized in that a proportioning chamber made of a flexible material which opens into the side wall of the cylinder is arranged at least partially along the length of the plunger tube to enclose the latter, and is formed by two dihedrons which are symmetrical in relation to the plunger tube and two semi-cylinders which are capable of bearing against both sides of the plunger tube, the assembly being such that in the course of a push-release working cycle, the proportioning chamber is filled, then communication between the proportioning chamber and the interior of the container is cut, and the proportioning chamber and the nozzle of the actuating button are connected, the proportioning chamber being deflated and evacuated of its contents under the pressure of propellent fluid in the container.

3,705,668
DISPENSER WITH DIP TUBE

Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y.

Filed Nov. 14, 1969, Ser. No. 876,705
Int. Cl. B65d *37/00*
U.S. Cl. 222—207 3 Claims

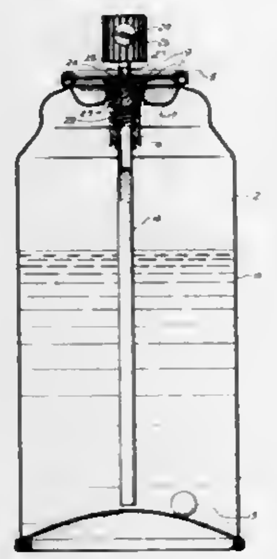
A dispenser comprising a squeezable container having a normally closed valve for preventing feed back of liquid being dispensed from the container and including means mounting the valve in association with a measuring cup at the top of the container and a dip tube which extends from the top substantially throughout the length of the container.



3,705,669
FOAMABLE RESINOUS COMPOSITION

Robert P. Cox, Madison, Wis., and Leonard A. Fish, Chicago, Ill., assignors to Wham-O Manufacturing Company, San Gabriel, Calif.

Continuation-in-part of Ser. No. 860,854, Sept. 24, 1969, abandoned. This application June 8, 1970, Ser. No. 44,529
Int. Cl. C08f *47/10, 29/46*
U.S. Cl. 222—394 14 Claims



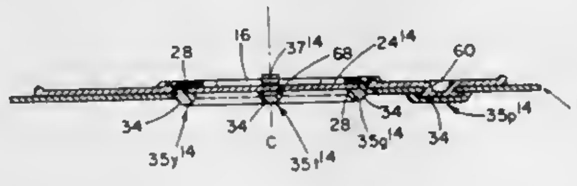
A pressurized or "aerosol" can containing a composition of matter for producing a string of plastic foam is described. The plastic foam produced from the aerosol can is in the form of a cohesive plastic body sufficiently tacky to adhere to inert surfaces such as walls, windows or the like to support the weight of the foam, however, of insufficient tackiness to adhere with a force greater than the cohesive strength of the foam so that the foamed body can be readily removed from surfaces to which it lightly adheres. Such a combination has substantial play and decorative utility.

3,705,670
CAN END WITH BONDED SEAL SLIDE

Donald L. Douty, Franklin Township, County of Westmoreland, Pa., assignor to United States Steel Corporation

Division of Ser. No. 146,945, May 26, 1971, which is a division of Ser. No. 61,384, Aug. 5, 1970, Pat. No. 3,622,055. This application Jan. 28, 1972, Ser. No. 221,548
Int. Cl. B65d *47/10*
U.S. Cl. 222—541 63 Claims

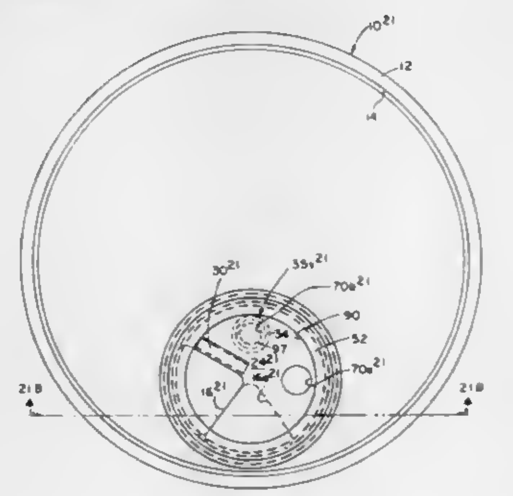
A can end is provided with a pour opening having a pour width. The pour opening is provided with an entry aperture at one end of the pour opening. The entry aperture has a slide width greater than the pour width. The can end has a can end lapping portion and a can end sealing portion adjacent the pour opening and a plane of bulge strength adjacent the entry aperture. A slide has a pivot on the can end, is adapted to pass through the entry aperture and has a slide lapping portion and a slide sealing portion. The slide lapping portion is adapted to register with the can end lapping portion, and the slide sealing portion is adapted to register with the plane of bulge strength. A pull tab has a connection to the slide. Engaging means engage the can end lapping portion to press the can end lapping portion into intimate contact with the slide lapping portion and the slide sealing portion into intimate contact with the plane of bulge strength. A pressure barrier material is used for sealing the intimately contacting can end sealing portion and the slide lapping portion and also for sealing the intimately contacting plane of bulge strength and the slide sealing portion. The pressure barrier material is bonded to the can end sealing portion with a first predetermined shear strength and to the slide lapping lapping portion and to the plane of bulge strength with a second predetermined shear strength less than the first predetermined shear strength. The pull tab is rotatable about the pivot to break the bond between the slide lapping portion and the pressure barrier material adjacent the can end sealing portion so that the pressure barrier material adjacent the can end sealing surface now functions as an exit and reclosure slide guide. The pull tab causes breakage of the bond between the pressure barrier material adjacent the plane of bulge strength and the slide sealing portion and causes the slide to move through the entry aperture on the pressure barrier material adjacent the plane of bulge strength and such pressure barrier material to act as a guide to uncover the pour opening.



3,705,671
CAN END WITH BONDED SEAL SLIDE

Donald L. Douty, Franklin Township, Westmoreland County, Pa., assignor to United States Steel Corporation

Division of Ser. No. 146,945, May 26, 1971, which is a division of Ser. No. 61,384, Aug. 5, 1970, Pat. No. 3,622,055. This application Jan. 28, 1972, Ser. No. 221,571
Int. Cl. B65d *47/10*
U.S. Cl. 222—484 34 Claims

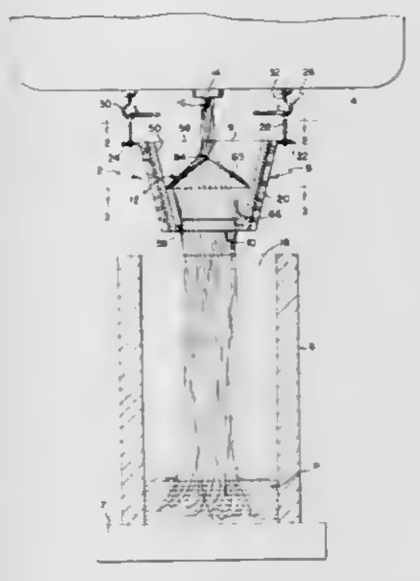


A can end provided with an opening and a can end sealing portion. A slide is disposed against the can end adjacent the opening, and is provided with a first pour opening. A stationary member is disposed against the slide and is provided with a second pour opening and a stationary member sealing portion. The slide has a slide sealing portion adjacent the second pour opening and is movable to a sealing position where the first pour opening does not overlap the second pour opening. A pull tab has a connection to the slide. Engaging means engage the can end and one of the slide and the stationary member to position the stationary member sealing portion adjacent the can end sealing portion, and to press the slide against the stationary member adjacent the second pour opening. A pressure barrier material is used for sealing the can end sealing portion to the stationary member sealing portion and the slide sealing portion to the stationary member adjacent the second pour opening. The pressure barrier material is bonded to the stationary member adjacent the second pour opening with a first predetermined shear strength and to the slide sealing portion with a second predetermined shear strength less than the first predetermined shear strength. The pull tab is movable to cause the slide to move away from the sealing position to break the bond between the slide sealing portion and the pressure barrier material adjacent the second pour opening. The pull tab then is movable to cause the first pour opening to overlap the second pour opening to uncover the second pour opening.

3,705,672
SPLASH ARRESTER HAVING PACT MEMBER SUPPORTED IN HOUSING

Robert A. Saxer, 12934 Linden Lane, Parma, Ohio

Continuation-in-part of Ser. No. 16,766, March 5, 1970. This application July 29, 1970, Ser. No. 59,044
Int. Cl. B22d *37/00*
U.S. Cl. 222—567 14 Claims



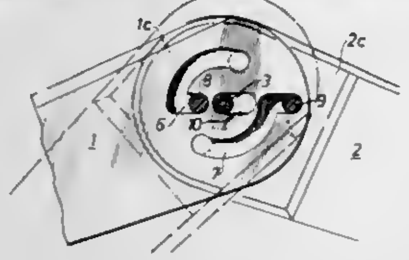
A splash arrester apparatus adapted for use in pouring molten metal into a mold including an open ended housing of refractory material adapted to encompass a stream of molten metal being poured into the mold. An impact member is supported by the housing being adapted to change the direction of flow of the molten metal as it passes through the housing. The impact member and housing define passageway means so constructed and arranged to change the shape of the entering molten metal stream into ribbon-like shaped streams to reduce the force of the molten metal striking the pool of metal contained in the mold.

3,705,673
COLLAPSIBLE GARMENT HANGER

John Markus Mohammar, Violstigen 4, 171 73 Solna, Sweden

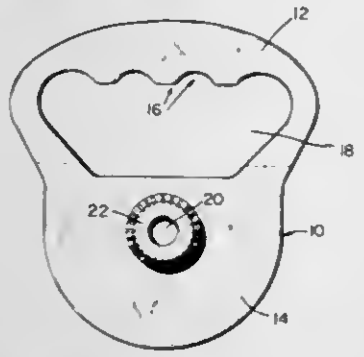
Filed Oct. 13, 1970, Ser. No. 80,334
Claims priority, application Sweden, Oct. 17, 1969, 14296
Int. Cl. A47j *51/10*
U.S. Cl. 223—94 6 Claims

A garment hanger comprises two pivotable arms, a wire loop counteracting the pivot movement and simultaneously serving as an operating member therefor and a hook secured to the wire loop. In the central portion of each arm there is provided means for locking the arms in the initial position, said locking means being adapted upon manipulation of the wire loop to take a release position, so that further manipulation of the wire loop will involve pivoting of the arms. The locking member comprises one or more slots in one arm and corresponding pins received in said slots secured to the other arm. Each said slot has differently shaped portions, i.e. one circular and one straight portion. One arm has, further, a central pin serving as pivot shaft, said pin being displaceable in a substantially straight central slot in the other arm. A strengthening member for the wire loop serves as a fastening means for the support hook. Each arm comprises a substantially flat portion and one upper edge projecting in opposite directions on the respective arms.



3,705,674
CLOTHES HANGER CARRIER

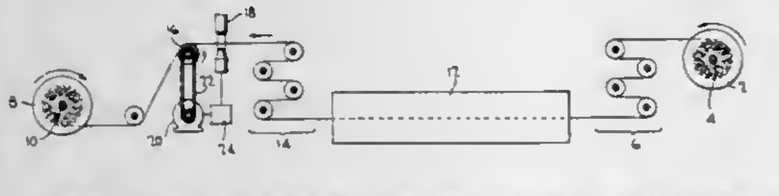
William M. Fisher, Burlingame Hill, Calif., assignor to Atlantic Merchandising Company, San Francisco, Calif.
Filed Oct. 12, 1970, Ser. No. 80,088
Int. Cl. A45c *13/26*
U.S. Cl. 224—45 T **1 Claim**



This is a clothes hanger carrier unit having a handle portion with resilient flanges extending therefrom. A holding member around which garment hanger hooks may be engaged is provided between the flanges. An adjusting nut permits the flanges to be drawn together to tightly grip the garment hanger hooks to prevent their disengagement from the carrier.

3,705,675
LATERAL POSITIONING OF MOVING FIBROUS MATERIALS

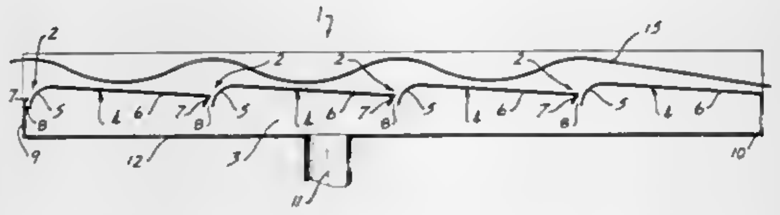
Michael J. Ram, West Orange, N.J., assignor to Celanese Corporation, New York, N.Y.
Filed Aug. 4, 1971, Ser. No. 168,879
Int. Cl. B65h *25/26*
U.S. Cl. 226—3 **10 Claims**



A process and apparatus are provided for laterally positioning at a relatively fixed location a continuous length of fibrous material which is moving substantially in the direction of its length and which is free to undergo lateral movement. The fibrous material possesses a twist of at least about 0.1 tpi, and preferably comprises a plurality of parallel twisted multifilament fiber bundles which are in the form of a ribbon. The lateral position of the fibrous material is sensed and its relatively fixed location is maintained through contact (e.g. tangential contact) with a variably rotating roller.

3,705,676
AIR FOIL CONVEYOR

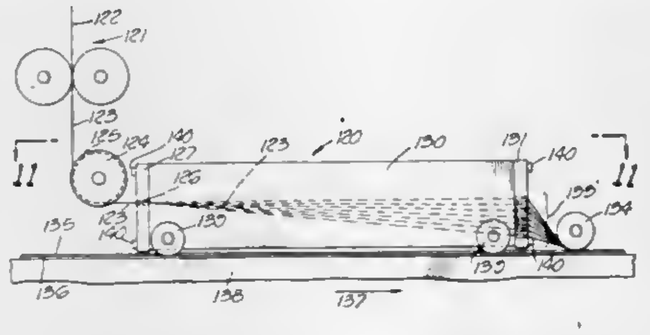
William F. Overly, Winneconne, and Kenneth J. Pagel, Neenah, both of Wis., assignors to Overly, Inc., Neenah, Wis.
Filed March 16, 1970, Ser. No. 19,687
Int. Cl. B65h *17/32*
U.S. Cl. 226—97 **5 Claims**



A common plenum supplies air to a plurality of parallel air foil nozzles disposed in tandem and operative upon a sheet of material adjacent to the nozzle to convey the sheet relative thereto.

3,705,677
RECEIPT BINDERS

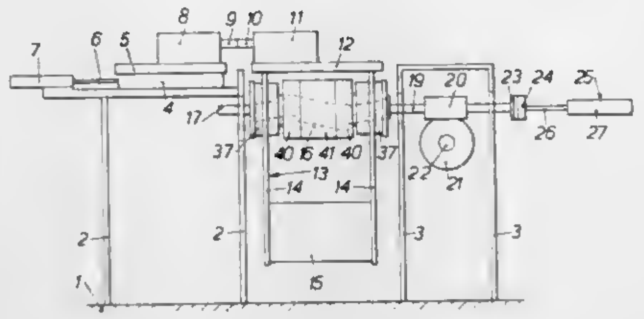
John Leslie Jones, Sr., 1070 Glen Oaks Blvd., Pasadena, Calif., and John Leslie Jones, Jr., 1447 Sutherland Street, Los Angeles, Calif.
Division of Ser. No. 799,887, Feb. 17, 1969, Pat. No. 3,620,891, which is a continuation-in-part of Ser. No. 567,595, July 25, 1966, abandoned. This application Nov. 15, 1971, Ser. No. 198,693
Int. Cl. B65h *23/28*
U.S. Cl. 226—196 **1 Claim**



This invention teaches binders, a manufacturing process and manufacturing apparatus for binders, sales receipts, checks, and like sheets of paper, the binders having thin film base sheets with at least two opposed edges, and having at least one pressure sensitive adhesive coating strip area extending over one strip section area of the base sheets, the adhesive coating strip area being coterminous with two opposed film base sheet edges. A multiplicity of release coated face, flexible, narrow strip backing sheets are arranged in parallel alignment with adhesive coating strip area, with the release coated faces of the strip backing sheets adjacent to and completely covering the adhesive coating strip area. The multiplicity of strip backing sheets are coterminous at their strip ends with the coterminous adhesive coating strip area and the opposed base sheet edges. A single receipt sheet or the like is secured to a single narrow adhesive coating area, made available on the removal of a single strip backing sheet.

3,705,678
FRICTION WELDING APPARATUS

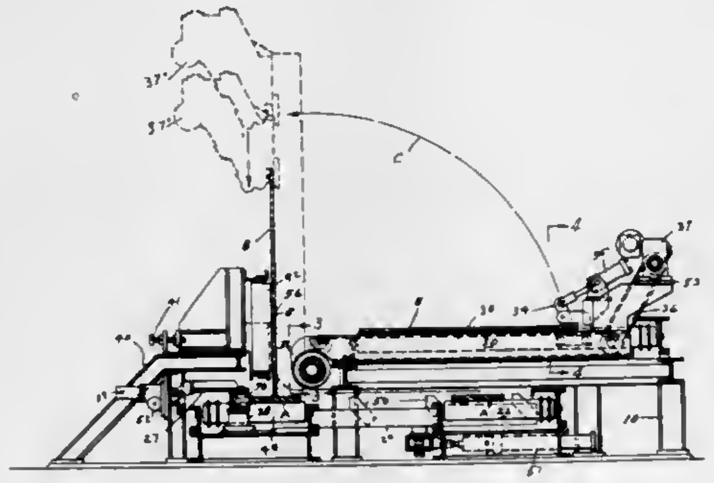
John Gilbert Searle, Hednesford, England, assignor to Allwood Searle & Timney Limited, Digbeth, Walsall, Staffordshire, England
Filed Nov. 18, 1970, Ser. No. 90,685
Claims priority, application Great Britain, Nov. 19, 1969, 56,525/69
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 **6 Claims**



In friction welding apparatus for welding two components together one component is rubbed against the other to produce frictional heat and follows a substantially circular path without rotation. This movement is derived from a follower coupled to a rotor which rotates about a given axis but has a longitudinal axis which is inclined to and intersects the rotational axis. The longitudinal axis thus generates a cone. When the follower is spaced from the apex of the cone it moves in a circular path without rotation and causes complementary movement of one component, but when it is aligned with the apex it no longer moves, even if the rotor continues to rotate, and enables that component to remain stationary while welding is effected. In one embodiment the rotor moves axially of its rotational axis relatively to the follower, while in another embodiment one end of the rotor rotates in a circle of fixed diameter while the apex of the cone is movable in and out of alignment with the follower, which is fixed relative to the rotating end of the rotor.

3,705,679
FORMING MACHINE FOR STRUCTURAL SECTIONS

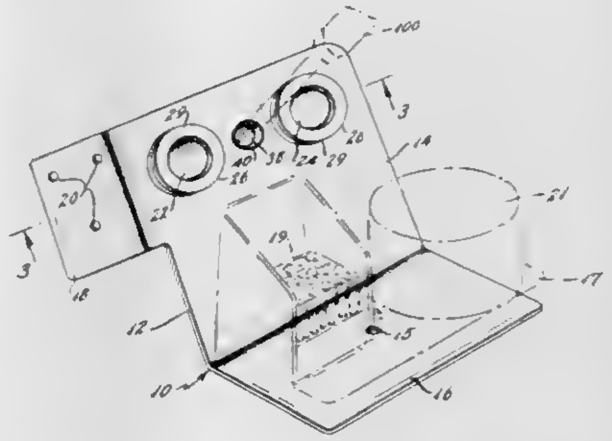
Emerson J. Tenpas, Erie, Pa., assignor to Eriez Manufacturing Company, Erie, Pa.
Filed June 15, 1970, Ser. No. 45,983
Int. Cl. B23k *1/14, 37/04*
U.S. Cl. 228—49 **7 Claims**



This specification discloses a machine for forming structural sections. Such sections are usually made of a web plate and one or more flange plates. These plates are brought together each in a horizontal plane onto two conveyors, the web plate above the flange plate. The web plate is then pivoted to a position in a vertical plane and brought to position on the flange plate. The flange plate is then welded, riveted or cemented to the web plate. The web is swung up by a shaft which has a clamp mechanism attached to it. The web plate is brought into position on the roller conveyor or overhead cranes and clamped in place, the shaft and mechanism is then rotated to lift the web plate from the rollers and to swing the web plate to vertical position over the flange plate. The assembly is then moved past a welder.

3,705,680
TOOL HOLDER

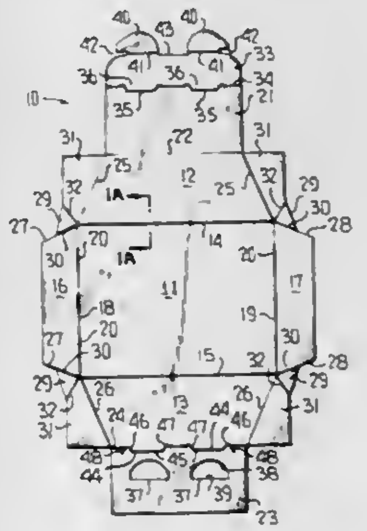
William Jordan Siegel, 9337 Fraser Street, Silver Spring, Md.
Filed June 8, 1970, Ser. No. 44,509
Int. Cl. B23k *1/00, 5/00*
U.S. Cl. 228—57 **5 Claims**



The disclosure relates to a tool holder bracket with a multi-apertured front panel portion. A tool holder cubby mounted in one of the apertures extends rearwardly of the front panel portion and a solder dump mounted in another aperture extends rearwardly of the front panel portion. The solder dump comprises a cylinder opened at both ends and a porous plug disposed inside the cylinder. Any air entrained solder blown down the solder dump will be caught by the porous plug. Desirably a horizontal base portion extends forward of the front panel so that it may serve as a support stand for a tool cleaning unit. The tool holder is particularly adapted for use with miniature soldering irons and a solder extractor.

3,705,681
CARTON WITH ARTICLE-CENTERING MEANS

Harry Rossi, Parsippany, and John H. Myers, Bergenfield, both of N.J., assignors to Continental Can Company, Inc., New York, N.Y.
Filed July 1, 1970, Ser. No. 51,421
Int. Cl. B65d *5/02, 85/00*
U.S. Cl. 229—40 **8 Claims**



This disclosure relates to a carton adapted to be wrapped around an article and together therewith forms a compact package. The blank from which the carton is constructed includes centering tabs disposed at corners of the top panel of the blank for urging an article into centered overlying relationship with the top panel upon folding of the blank around the article to form a package therewith. The carton includes inner and outer bottom-forming panels having cooperating latching means including easy-opening locking tabs. A portion of one of the bottom-forming panels serves as finger-gripping means for releasing the latching means.

3,705,682
APPARATUS FOR SEPARATING CRYSTALS FROM A MELT

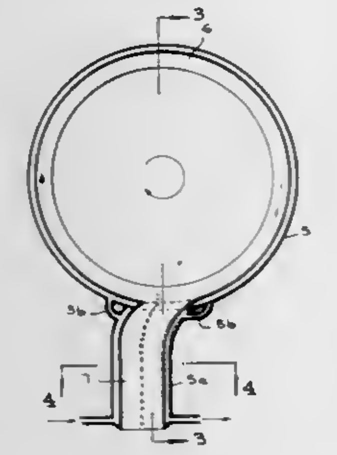
Hans-Joachim Schultze, Chur/Grisons, Switzerland, assignor to Inventa AG, Zurich, Switzerland

Filed April 7, 1970, Ser. No. 26,195

Claims priority, application Switzerland, April 18, 1969, 5875/69

Int. Cl. B04b *15/02*

U.S. Cl. 233—11 **3 Claims**



Method and apparatus for purifying organic substances which form crystals and melt without decomposition by use of centrifuge which includes heating of the discharge channels above the melting point of the substance to prevent crust formation.

3,705,683
PUNCHER FOR MARKING DEVICES

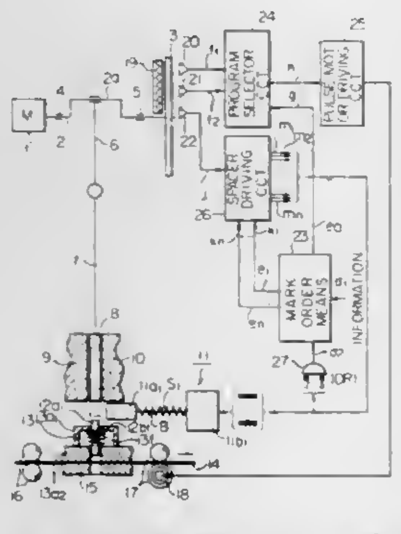
Kazunobu Tsukihashi, No. 168, Shirahata Kami-cho, Yokohama, Japan

Filed May 27, 1971, Ser. No. 147,361

Claims priority, application Japan, June 3, 1970, 45/48219

Int. Cl. G06k *1/02*

U.S. Cl. 234—87 **5 Claims**



A puncher for marking devices, consisting of single reciprocating press ram, a line of punch pins aligned below the press ram with a spacing therefrom. Spacers are selectively inserted between the press ram and the corresponding punch pins, for depressing those punch pins by the press ram which face the spacers thus inserted, for punching a sheet-like material. By controlling the spacers, a plurality of mark holes are bored at a time. The material to be punched may be fed slowly during the actual punching of mark holes, but quickly for spaces between marks.

3,705,684
STEAM PRESSURE AND TEMPERATURE REDUCING INSTALLATION

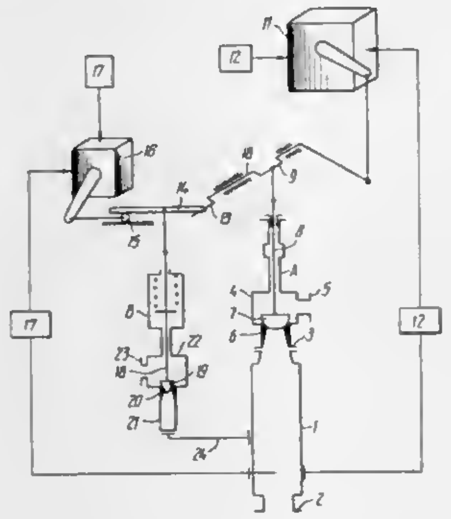
Anatoly Alexandrovich Schetinin, prospekt Metallistov, 18, kv. 74, Leningrad, U.S.S.R.

Filed Nov. 24, 1970, Ser. No. 92,406

Claims priority, application U.S.S.R., April 13, 1970, 1420179

Int. Cl. G05d *23/13*

U.S. Cl. 236—12 **1 Claim**



An apparatus for delivering pressure-reduced and temperature-reduced steam has a container with steam and water inlets and an outlet. A steam valve and a water valve, each having an operating rod are provided at the steam and water inlets respectively. An elongated lever supported on a movable fulcrum at one end and articulatedly coupled to a driving means at the other end is provided to actuate the operating rods of the steam valve and the water valve so as to control their openings. The apparatus has a pressure regulator to which the driving means is sensitive. A second driving means which is sensitive to a temperature regulator which regulates the temperature in the container is provided to move the fulcrum point along the length of the rod. The rods of the steam valve and water valve are coupled respectively in a middle region and at an end remote from the movable fulcrum of the lever so that a ratio of the water-valve-rod distance from the fulcrum to the steam-valve-rod distance from the fulcrum may be varied as desired, to have an improved control of the valve openings.

3,705,685
ENGINE IDLE SPEED GOVERNOR AND THROTTLE CONTROL

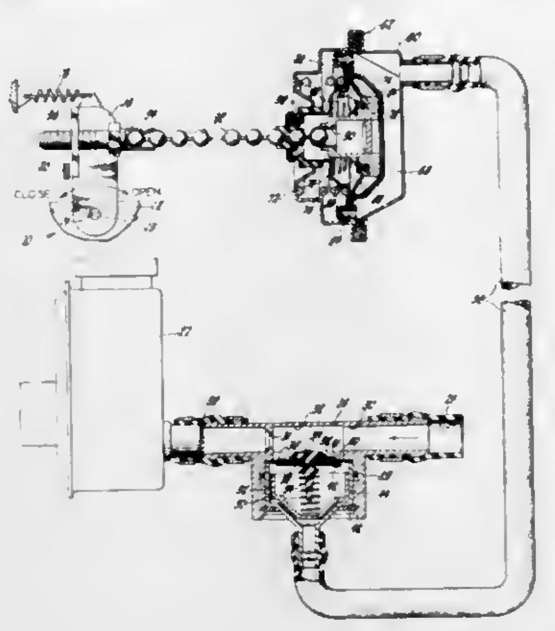
Lee M. Brewer, and Robert P. Rohde, both of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 739,691, June 25, 1968, Pat. No. 3,537,433. This application Jan. 7, 1970, Ser. No. 6,010

Int. Cl. F02d *31/00*

U.S. Cl. 236—93 **2 Claims**

An engine idle speed governor arranged in a preferred embodiment to be operated by hydraulic pressure developed by restricting the power steering pump return flow line. A hydraulic diaphragm actuator motor operates the throttle and incorporates a dashpot to provide a throttle return check operative after manual actuation of the throttle. A control unit in the power steering pump circuit incorporates the restrictive orifice as well as various valves and mechanisms to provide governor damping, limit throttle opening travel upon oil flow failure and hold a fast idle position during cold starting and warm-up.



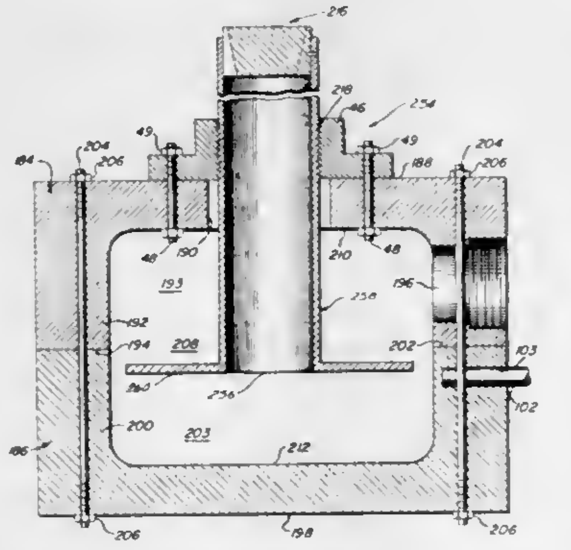
3,705,686
FLOW CONTROLLING SUPPORT BASE FOR ORNAMENTAL FOUNTAINS

John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.

Filed Nov. 9, 1970, Ser. No. 87,886

Int. Cl. B05b *17/08*

U.S. Cl. 239—22 **21 Claims**



In an ornamental fountain having a liquid discharge nozzle, each of a family of flow controlling support bases for the nozzle produces a uniform liquid flow pattern into the nozzle thereby insuring a symmetrical liquid discharge pattern from the nozzle outlet. Each support base further produces an essentially laminar flow of liquid at the nozzle inlet.

3,705,687
SPRAYING DEVICE, MORE PARTICULARLY FOR ABRASIVE LIQUID COMPOSITIONS

Giorgio Vicentini, and Giulio Console, both of Turin, Italy, assignors to Boeri di A.G. Boeri & C., Turin, Italy

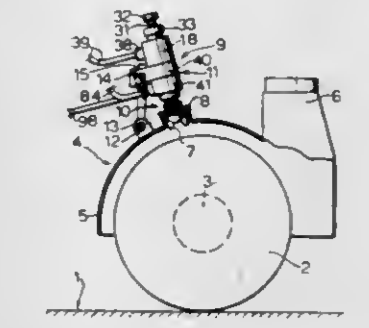
Filed June 18, 1971, Ser. No. 154,375

Claims priority, application Italy, June 25, 1970, 69198 A/70

Int. Cl. B05b *1/30*

U.S. Cl. 239—92 **4 Claims**

A membrane gun for spraying abrasive liquids has a membrane supported around its full periphery in a chamber in the body of the membrane gun, a first surface of the membrane forming a wall of this chamber. A tubular member is supported in the chamber with a free end facing the membrane. A second surface of the membrane is acted on variably by a composite plunger of a single-acting pneumatic cylinder. The liquid is admitted to the chamber and must pass over the free end of the tubular member to enter the interior of their member and be expelled from the gun through a nozzle. Regulation of the plunger regulates the distance of the membrane from the tubular member and thus the flow through the gun. The pneumatic cylinder is arranged coaxially with the body of the gun to occupy the minimum lateral space.



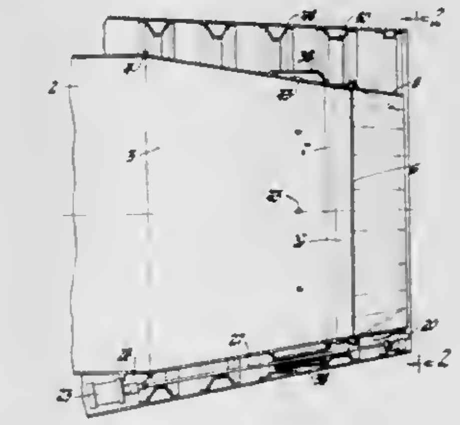
3,705,688
OVAL JET NOZZLE

Charles H. Smale, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 7, 1971, Ser. No. 178,041

Int. Cl. B64c *15/06*

U.S. Cl. 239—265.39 **4 Claims**



A variable jet propulsion nozzle of the multiflap type is characterized by an oval cross-section of the nozzle. The nozzle is reinforced against the effect of pressure tending to deform it toward a more nearly circular cross-section by a hollow reinforcing ring pressurized from within the exhaust duct. The nozzle has an ovate polygonal actuating ring for moving the flaps of the nozzle reciprocated by power cylinders coupled to the actuating ring by pull rods. The reinforcing ring includes tubes defining a sealed-off way through the reinforcing ring for the pull rods.

3,705,689
LIQUID SPRAY APPARATUS

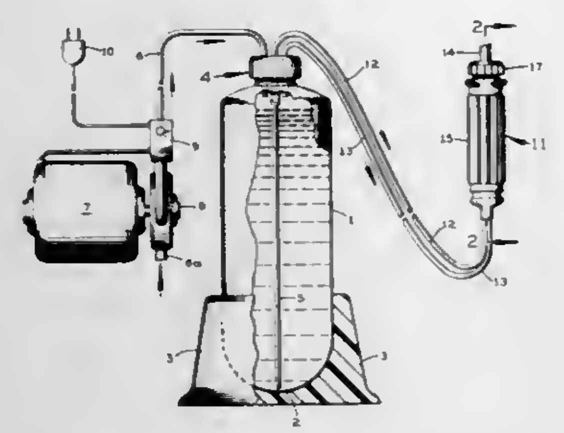
Arron Lee, Miami Beach, Fla., assignor to Chemair Corporation of America, Hialeah, Fla.

Continuation of Ser. No. 788,678, Dec. 14, 1968, abandoned. This application Oct. 27, 1970, Ser. No. 84,495

Int. Cl. B05b *7/32*; **F23d** *13/04*

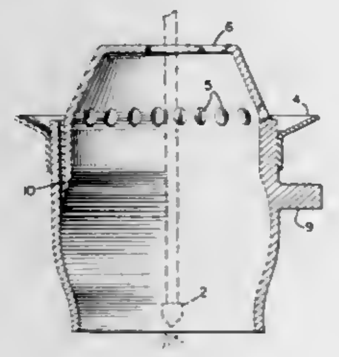
U.S. Cl. 239—337 **11 Claims**

A liquid spray apparatus including a hermetically sealed container for retaining liquid connected to a source of pressurized air or other gas for propelling the liquid from an outlet in the container and a hand operated spray gun having a normally closed finger operated valve terminating in a spray nozzle. A flexible tube connecting the liquid outlet of the container to the liquid inlet of the valve. An auxiliary tube connecting the source of air or other gas to the liquid channel in the valve through a metering orifice for atomizing the liquid into spray from the nozzle when the valve is operated.



3,705,690
COMBUSTION HEADS

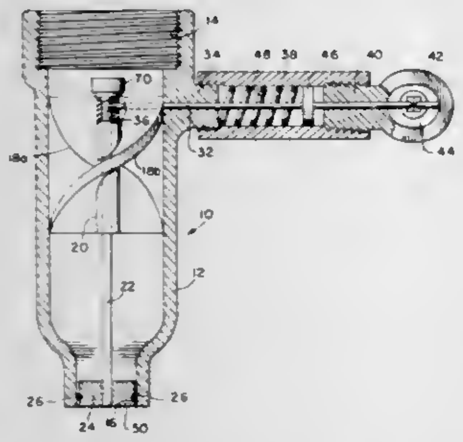
Joseph W. Brown, 5051 Walton Avenue, Philadelphia, Pa.
Continuation-in-part of Ser. No. 115,969, Feb. 17, 1971, abandoned. This application April 17, 1972, Ser. No. 244,673
Int. Cl. F23d *11/38*
U.S. Cl. 239—424.5 **5 Claims**



A combustion head which surrounds the fuel nozzle in an oil burner, the combustion head directing a stream of air into a cone which converges at the fuel nozzle; the inside of the combustion head is contoured to achieve maximum air velocity at the plane of fuel injection.

3,705,691
DISCHARGE HEAD UTILIZING A PRESSURE-RESPONSIVE DETENT MECHANISM

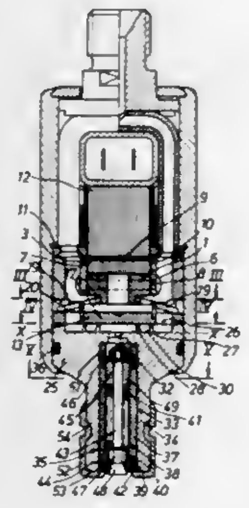
Karol R. Zenker, Needham, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.
Filed Sept. 8, 1971, Ser. No. 178,734
Int. Cl. B05b *1/32*
U.S. Cl. 239—452 **14 Claims**



A pressure responsive discharge head wherein the expellable plug is disposed in the outlet of a body member having an inlet adapted for connection to a source of fluid under pressure, with the plug being connected relative to the body member by means of a detent mechanism. Upon a predetermined temperature being attained in the vicinity of the head, as well as a predetermined pressure existing in the body member, the connection provided by the detent mechanism is broken and the plug is released from the outlet to permit the fluid to be discharged from the nozzle.

3,705,692
ELECTROMAGNETIC INJECTORS

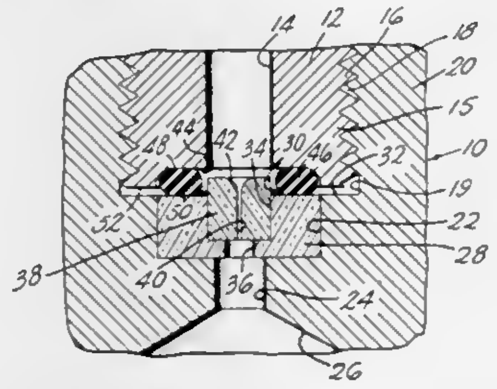
Georges Garnier, Blois, France, assignor to Roto Diesel Clichy, Hauts-de-Seine, France
Filed Feb. 9, 1971, Ser. No. 113,978
Claims priority, application France, Feb. 13, 1970, 7005124
Int. Cl. B05b *1/32*
U.S. Cl. 239—585 **9 Claims**



An injector comprising a cylindrical casing, induction means and fuel-intake means, an injection nozzle body attached to said casing and enclosing an injection needle, a pallet adapted to be attracted at each injection cycle by said induction means for initiating the ejection of fuel, said pallet and said injection nozzle body cooperating to act as a valve for stopping and admitting fuel to said injection nozzle body.

3,705,693
MEANS FOR SEALING FITTINGS AND NOZZLE ASSEMBLIES AT EXTREMELY HIGH FLUID PRESSURES

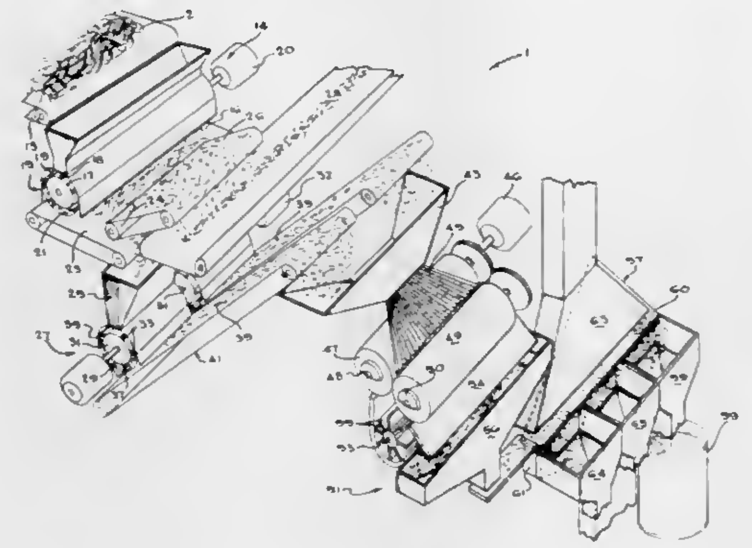
Norman Franz, Apt. 902, 4620 W. 10th Avenue, Vancouver, British Columbia, Canada
Continuation of Ser. No. 876,301, Nov. 13, 1969, abandoned. This application July 16, 1971, Ser. No. 163,456
Int. Cl. B05b *1/00*
U.S. Cl. 239—600 **11 Claims**



Means for sealing joints subjected to extremely high fluid pressures in the order of 70 thousand pounds per square inch wherein an elastic member is provided which is disposed between and initially subjected to moderate mechanical pressure by the components of the joint to be sealed and subsequently subjected to extremely high fluid pressure whereby the elastic member is deformed between the components of the joint so as to seal the joint against leakage.

3,705,694
METHOD OF AND AN APPARATUS FOR RECLAIMING METAL FROM SCRAP WIRE AND CABLE

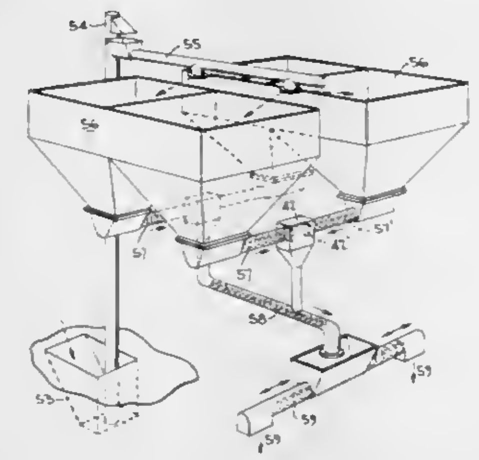
John L. Slocum, 518 Parkdale, Rochester, Mich.
Filed Dec. 2, 1970, Ser. No. 94,385
Int. Cl. B02c *19/12*
U.S. Cl. 241—14 **14 Claims**



An apparatus and a method for reclaiming scrap metal from insulated cables or wires. The insulated wires are chopped into short lengths and subjected to high squeezing pressure between a pair of hard surfaces to crush the casings and destroy the integrity thereof. During the squeezing, the metal pieces are somewhat flattened and the pieces of casing are forced apart, exposing the metal. The metal pieces then fall away or are knocked away from the respective pieces of casing. The metal and casing pieces are then segregated from each other.

3,705,695
DISINTEGRATING AND MIXING APPARATUS ESPECIALLY FOR ANIMAL FOODS

Bela Thomas Sandor, Ayr, Scotland, assignor to Automated Feed Mills Limited, London, England
Continuation-in-part of Ser. No. 871,617, Nov. 10, 1969, abandoned, which is a continuation of Ser. No. 665,843, Sept. 6, 1967, abandoned. This application Oct. 6, 1970, Ser. No. 78,379
Int. Cl. B02c *23/02*
U.S. Cl. 241—34 **12 Claims**



An apparatus for grinding and mixing animal or other food stuff ingredients, including one or more storage silos, metering augers associated therewith for feeding a measured batch of grain to a feed bin and therethrough to grinders such as hammer mills from which the ground ingredients are fed directly into a mixer. A metered batch of additives which do not require grinding is also fed directly into the mixer.

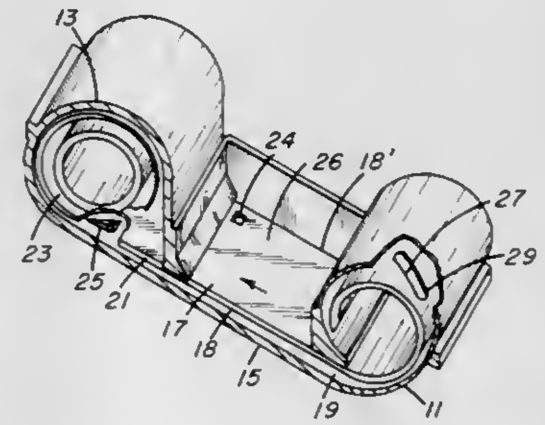
The entire plant is automatically controlled so as to empty the mixer automatically at the end of a proper mixing period and, when the mixer is empty, to initiate or permit the measuring of the next batch, so that one batch follows another automatically until a desired quantity has been mixed.

Two mixers may be fed alternately from a single grinder or group of grinders so that while one mixer takes in the ingredients, the other mixer completes the mixing and the discharge of the previous batch. After each cycle the role of the mixers changes automatically.

In each case the supply from the silos to the feed bin of the grinder is prevented until both the feed bin and the mixer, to which the meal will be directed, are empty.

3,705,696
FILMSTRIP AND FILMSTRIP RETENTION DEVICE

Evan A. Edwards, Pittsford, and Richard H. VanDuzer, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 15, 1971, Ser. No. 198,539
Int. Cl. G03b *1/04*
U.S. Cl. 242—71.2 **13 Claims**

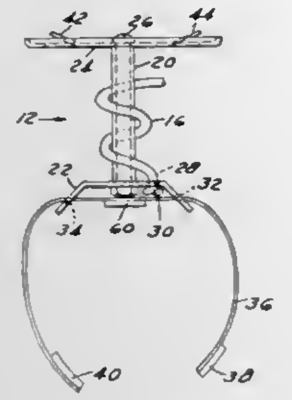


An elongate strip of web material arranged for advancement through a web guiding mechanism, such as a film cartridge, carries a perforation defining an elongated edge that is skewed with respect to the longitudinal axis of the strip. The cartridge includes a protrusion situated to engage initially the skewed edge to stop the advance of the web. Attempts to further advance the web will cause the web face adjoining the skewed edge to conformably engage an undercut surface of the protrusion to prevent further advancement without tearing the web.

3,705,697
SCUBA DIVING REEL

Verdun P. Chagnon, 26354 Ridgemont, Roseville, Mich.
Filed Dec. 24, 1970, Ser. No. 101,280
Int. Cl. B65h *17/46*
U.S. Cl. 242—85 **15 Claims**

An improved reel for carrying line in a convenient manner when scuba diving or skin diving. The reel straps securely about the forearm of a diver preferably wearing a wet-suit and is positioned to be easily unwound or rewound in full view of the diver. Cleating or wedging means are included to fix the unwound line at any length either prior to diving or when the desired depth has been attained. Features of the reel when attached to the arm of the diver allow it to be re-wound or unwound and secured solely with the use of the diver's other arm.



3,705,698

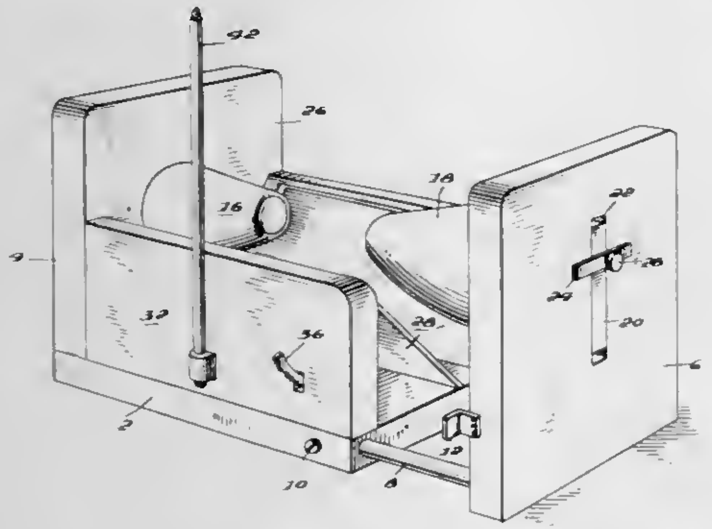
PAYOUT STAND FOR UNIVERSAL TYPE WINDS WITH RADIAL OPENING FOR FEEDOUT

James W. Newman, Scarsdale, N.Y., and Ronald E. Zajac, Yonkers, N.Y., assignors to Windings, Inc., Yonkers, N.Y.

Filed May 24, 1971, Ser. No. 146,208

Int. Cl. B65h *49/00*

U.S. Cl. 242—129.51 5 Claims



A payout stand for holding windings of the universal type having a radial opening into the axial opening through which the inner end of the material is brought out includes a V-shaped cradle in which the wind can be laid and a pair of tapering guiding members which in use project into the ends of the axial opening within the package almost up to the central plane thereof and guiding the loops being withdrawn from the inside of the package and preventing or reducing birdsnesting of the flexible material being withdrawn.

3,705,699

TAPE RECORDER AND CASSETTE FOR MAGNETIC TAPE

Imre Siller, Nuremberg, Germany, assignor to Grundig E.M.V., Elektro-Mechanische & Versuchsanstalt, Furth/Bay, Germany

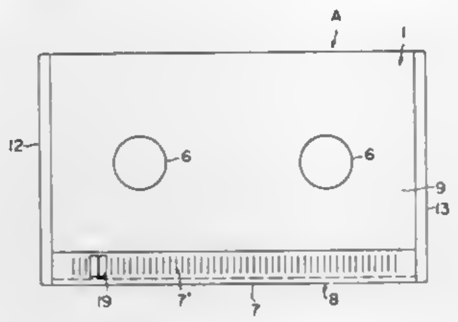
Filed Feb. 4, 1970, Ser. No. 8,643

Claims priority, application Germany, April 16, 1969, G 69 15 105.9; Feb. 8, 1969, G 69 05 057; Feb. 7, 1969, G 69 04 673; March 20, 1969, G 69 11 147; March 18, 1969, G 69 10 787; April 16, 1969, G 69 15 105

Int. Cl. G11b *23/00*

U.S. Cl. 242—199 **8 Claims**

A cassette for magnetic tape which is provided with a scale and a pointer movable along the scale to indicate the length of that portion of tape which has been transported past or is yet to move past a recording or reproducing head in a tape recorder. The scale can be illuminated to facilitate reading in darkness and can be designed to be visible from one, two or three sides of the housing of the cassette. The tape recorder is provided with means for producing optical signals to indicate that the tape is about to move one of its tracks past the erasing head, and with a mechanism which can drive the pointer in response to transport of the tape. The length of the scale is a function of the length of tape so that the pointer reaches the one or the other end of the scale when the tape is fully collected on the one or the other reel in the housing of the cassette.



3,705,700

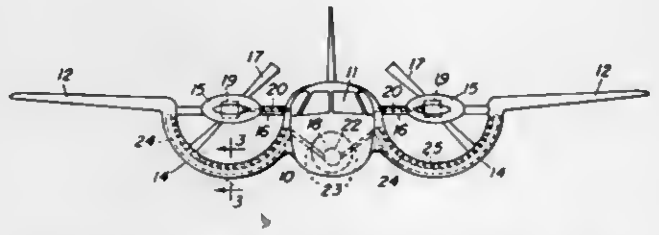
AIR FLOW CONTROL MEANS FOR CHANNEL WINGED AIRCRAFT

Willard R. Custer, 1905 W. Washington Street, Hagerstown, Md.

Continuation-in-part of Ser. No. 838,413, July 2, 1969, abandoned. This application Oct. 23, 1970, Ser. No. 83,326

Int. Cl. B64c *3/32*

U.S. Cl. 244—13 2 Claims



An apparatus for use with channel winged aircraft to seal the airfoil surface of the channel between the trailing edge thereof and the propeller tip, by discharging jets of water rearwardly from the leading edge of the airfoil surface of the channel to form a film of water on said surface. The film of water seals the space between the propeller tip traveling at or near the speed of sound and the channel surface where very low pressure is created just ahead of the propeller tip, so as to prevent spillback of air through this space.

ERRATUM

For Class 246—40 see:
Patent No. 3,706,098

3,705,701

SAFETY MOTOR MOUNT

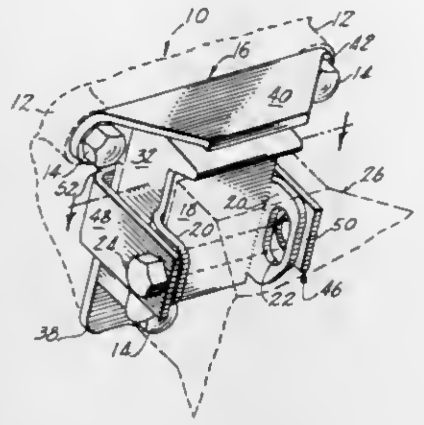
Theodore C. Hunt, 1109 Tumlin Street N. W., Atlanta, Ga.

Filed Nov. 11, 1971, Ser. No. 197,813

Int. Cl. F16m *5/00*

U.S. Cl. 248—9 3 Claims

A safety motor mount for resiliently mounting the engine of certain automobiles on the frame in such a way as practically to eliminate the chance of complete detachment of the mount which may cause jamming of the accelerator or other serious difficulties. The existing motor mount which comprises a U-shaped base on which is attached a block of rubber bonded thereto and also having bonded thereon a steel plate has been modified to include another, larger U-shaped member passing around the outside of the motor mount and being held in place by the same bolt which passes through the original U-shaped member. When the engine lifts on the motor mount the rubber lock is deformed only a limited amount due to the restriction of the present modification and if the rubber block breaks or separates the present U-shaped member prevents complete detachment.



3,705,702

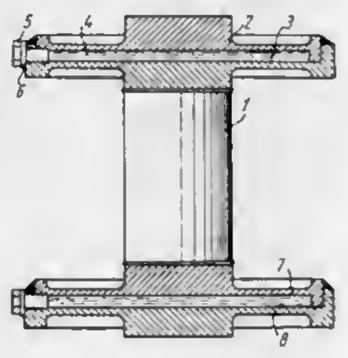
VIBRATION-ABSORBING SUPPORT

Viktor Grigorievich Podolsky; Iosif Mikhailovich Balkarei, and Sergei Mikhailovich Grigoriyants, all of Kharkov, U.S.S.R., assignors to Prodktny I Nanchno-Issildovatelsky Institut, Kharkov, U.S.S.R.

Filed July 14, 1971, Ser. No. 162,351

Int. Cl. F16l *15/00*

U.S. Cl. 248—20 1 Claim



A support including a rod having at its end faced elastic disks connected in pairs along the perimeter and made so that within each pair there is provided a space filled with an incompressible medium.

3,705,703

STAND WITH CARRYING DEVICE

Curt Niggeloh, Fichtenhof, 5608 Radevorwald, Germany

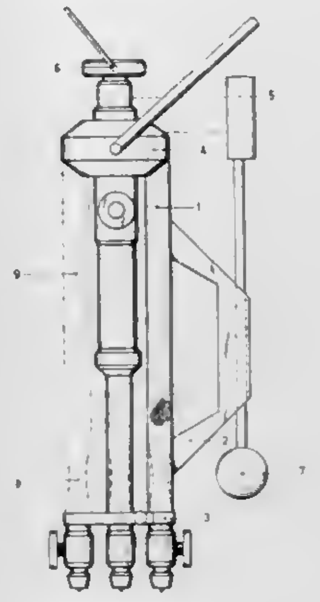
Filed April 27, 1970, Ser. No. 32,132

Claims priority, application Germany, April 28, 1969, G 69 17 159; Nov. 28, 1969, G 69 46 137.6

Int. Cl. F16m *11/06, 11/38*

U.S. Cl. 248—168 **11 Claims**

A stand, particularly for photo- or film-cameras, which comprises at least one leg including profiled tubes, telescope-like displaceable into each other and capable of being clamped together relative to each other. A stand-head is pivotally connected with the tubes, and one of a carrying grip and of a carrying loom disposed on the leg and comprises the same working material as that of the stand leg.



3,705,704

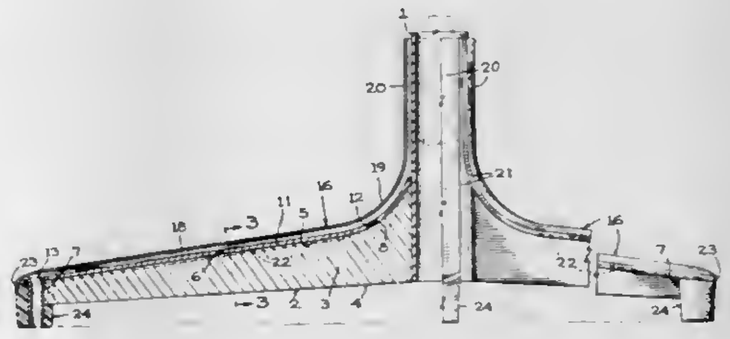
CHAIR BASE

Melvin A. Textoris, Struthers, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio

Filed March 8, 1971, Ser. No. 121,854

Int. Cl. F16m *11/20*

U.S. Cl. 248—188.7 9 Claims



A chair base includes a vertical column from which radiate a plurality of legs each having a top plate and a caster-receiving socket adjacent its distal portion. An end cap is removably mounted about the socket while a separate integral scuff cap is slidably attached in an overlying manner to each leg and extends in an upward direction to overlie a portion of the base column.

3,705,705

SEAT DECELERATION ATTENUATION APPARATUS

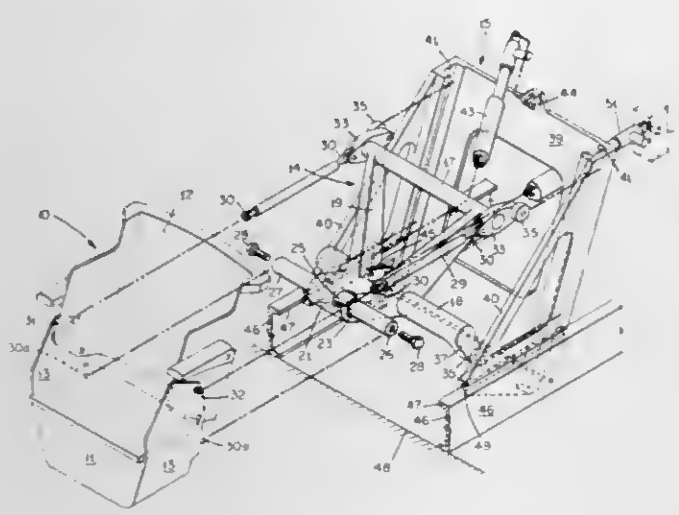
Walter S. Eggert, Jr., Huntingdon Valley, Pa., assignor to The Budd Company, Philadelphia, Pa.

Filed Aug. 23, 1971, Ser. No. 173,944

Int. Cl. F16m *11/20*

U.S. Cl. 248—430 **7 Claims**

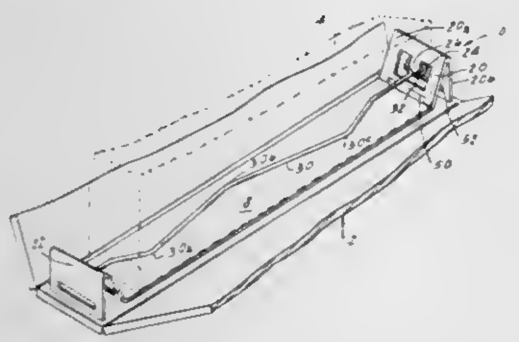
Seat support apparatus for a vehicle equipped with independent orthogonal deceleration devices. A seat is attached to a carriage which is constrained for movement in a vertically disposed track in a frame. The frame is constrained for fore and aft movement on a rail attached to the floor. The seat is supported for relative lateral movement to the carriage; such movement being normally decelerated by lateral attenuation means. The carriage supporting the seat is restrained against vertical movement by attenuation means secured between the frame and the carriage; while fore and aft deceleration is provided by attenuation means interposed between the floor of the aircraft and the frame.



The Invention herein described was made in the course of or under a contract or subcontract thereunder with the Department of Navy.

3,705,706
HANGER HARDWARE FOR A DIRECTORY

Robert N. Azzato, Pheonix, Ariz., assignor to General Binding Corporation, Northbrook, Ill.
Filed Jan. 22, 1971, Ser. No. 108,902
Int. Cl. A47b *97/00*
U.S. Cl. 248—441 **10 Claims**

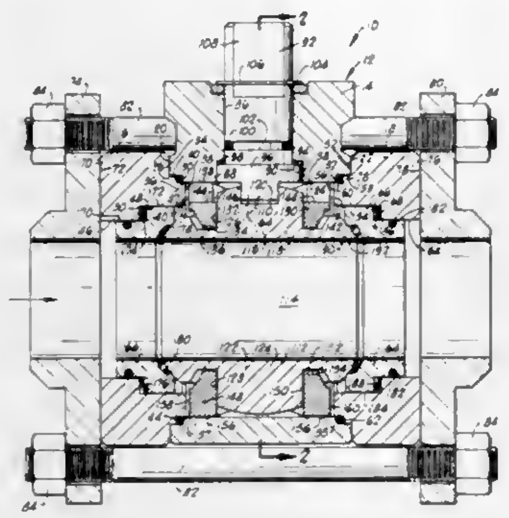


A simple, inexpensive hanger means for a directory that is readily adaptable for any type of installation and which provides fast and secure attachment of the directory comprises a backing support member having an end support means integral with each end thereof and generally upstanding therefrom, said end support means having a wire attachment means integral therewith and a spring wire adapted to be snapped into locking engagement with the wire attachment means. A slot in at least one of the end support means receives therethrough a pair of legs of a detachable hanger connector. Each of the legs has a notch thereon which securely locks the hanger connector in place when the legs are spread. The detachable hanger connector has various connection means thereon such as a swivel, wire hook, and lanyard.

3,705,707
SELF-ALIGNING TRUNNION BALL VALVE

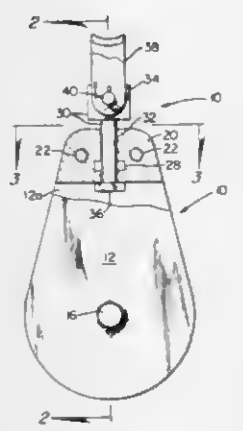
Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla.
Filed July 13, 1971, Ser. No. 162,224
Int. Cl. F16k *5/06*
U.S. Cl. 251—84 **17 Claims**

A ball valve in which the spherical valve member is rotatably supported in the valve body by two bearing members slidably disposed therein. Each bearing member rotatably receives a respective journal member formed on the valve member. The two bearing members and the valve member supported thereby are adapted to move axially within the valve body during operation of the valve to provide proper alignment of the valve member in the valve body. Means are also disclosed for providing proper radial alignment of the valve member in the valve body.



3,705,708
PULLEY BLOCK

Gerald A. Cunningham, Ward, Colo., assignor to Blockits, Inc., Ward, Colo.
Filed July 19, 1971, Ser. No. 163,568
Int. Cl. B66d *1/36*
U.S. Cl. 254—195 **6 Claims**



Rope or line block characterized by an intermediate connector disposed between ends of sheave side plates or cheeks and a shackle which, by choice of its position, relative to the cheeks, permits the connector to rotate about an axis perpendicular to the pulley axis or be secured against such rotation in alternative angular positions such as 90° apart, to thereby orient the shackle carried by same in alternative positions. Two shackles of alternative form may be provided, one of which permits the shackle to rotate about a transverse axis of the connector and the other which prevents such rotation.

3,705,709
SAFETY RAIL FOR ROADS AND MOTORWAYS

Francois Georges Andriussi, Grenoble, France, assignor to Societe de Wendel et Compagnie, Paris, France
Continuation-in-part of Ser. No. 710,005, March 4, 1968. This application June 3, 1970, Ser. No. 42,970
Int. Cl. E01f *15/00*
U.S. Cl. 256—13.1 **13 Claims**

Safety rail for roads and motorways comprising in combination at least one element which has a great effective length without a break and a large linear mass and an undeformable section having a relatively large modulus of inertia and is capable of deforming plastically to a great extent, and sup-

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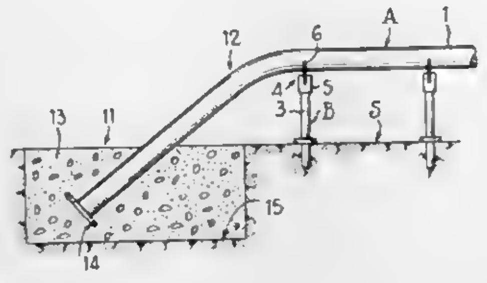
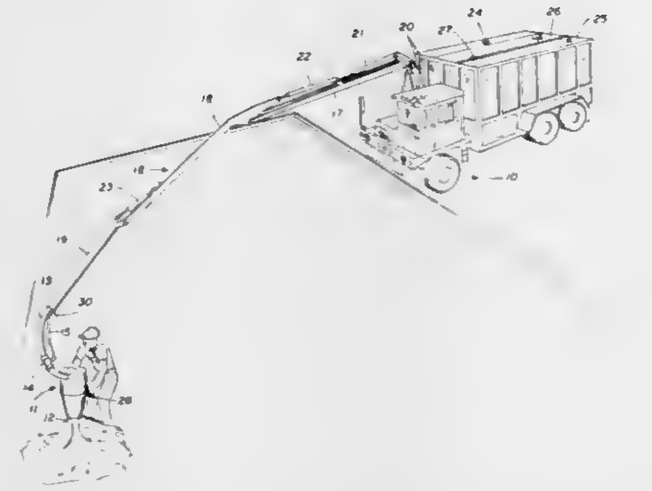
ports on which said element rests horizontally with no appreciable mechanical attachment thereto and which substantially unaffect the homogeneity of said fundamentally active element.



3,705,710
SOLIDS FEEDER SYSTEM

Frederick N. Mueller, Dallas, Tex., assignor to Tetradyne Corporation, Dallas, Tex.
Filed June 7, 1971, Ser. No. 150,543
Int. Cl. B28c *5/06*
U.S. Cl. 259—151 **4 Claims**

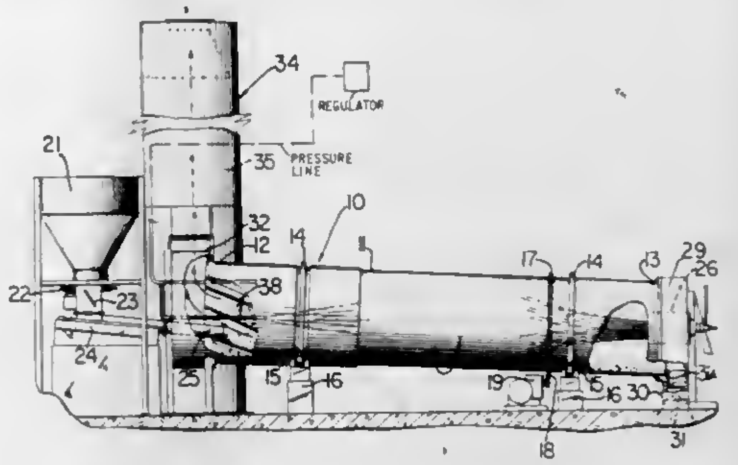


A system is provided for dispensing and delivering particulate material which includes an upright hopper with continuous sidewalls converging to a generally elongated outlet at the bottom, an endless conveyor belt positioned to move across the outlet which carries a series of upright cleat members. A housing enclosing the conveyor belt, and an air flow channel extending transversely through the housing and between adjacent cleats as they move past the air flow channel to thereby transmit solids therefrom which are entrapped between adjacent cleats as the belt moves across the hopper outlet. A preferred system is provided which includes one or more of such solids dispensing and delivery systems for transmitting components of a settable cementitious mixture to a suitable cement mixing zone via a gas stream.

3,705,711
INTERNALLY HEATED ROTARY DRUM FURNACE WITH SMOKE ABATER

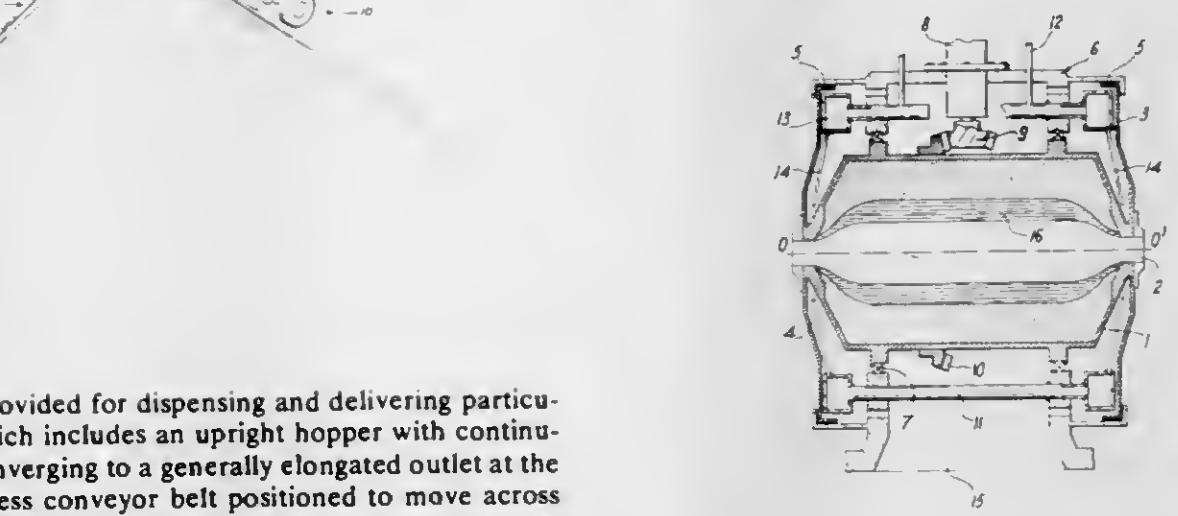
Karl H. Seelandt, Oregon, and Hobart L. Wentworth, Barrington, both of Ill., assignors to Sola Basic Industries, Inc., Milwaukee, Wis.
Filed Nov. 27, 1970, Ser. No. 93,198
Int. Cl. F27b *7/00*
U.S. Cl. 263—32 R **14 Claims**

A cylindrical dryer drum is mounted for rotation about its longitudinal axis and has a burner at one end and an inlet for metallic scrap or swarf at the other end with the scrap being advanced longitudinally through the drum in contact with the products of combustion. One end of the dryer has a discharge chute for the scrap with both the inlet and discharge being substantially sealed against the entry of air into the drum. The products of combustion are discharged at the inlet end of the drum into a vertical stack provided with an afterburner.



3,705,712
AXIAL POURING-NOZZLE STRUCTURE FOR ROTARY MELTING FURNACE

David Yerouchalmi, 3 rue de L'Idle de France 78, Le Mesnil, Saint Denis, France
Filed Oct. 16, 1970, Ser. No. 81,343
Claims priority, application France, Oct. 24, 1969, 6936565
Int. Cl. F27b *7/20*
U.S. Cl. 263—33 R **9 Claims**

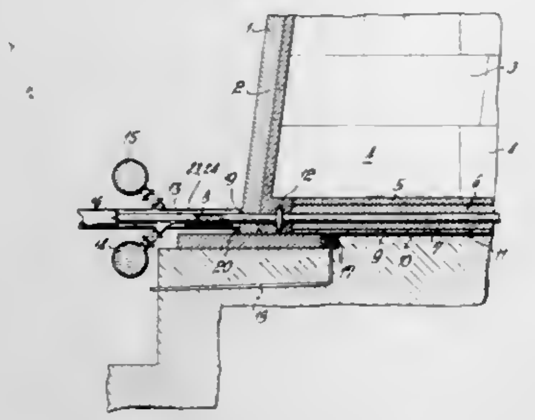


The nozzle structure has a substantially frustoconical profile of revolution about the axis of rotation of the furnace and comprises a metallic partition system which provides recesses having their openings on the internal periphery of said profile, ceramic bricks which are fitted within the recesses and fluid-circuits for cooling the partition system.

3,705,713
BOTTOM COOLING DEVICE FOR SHAFT FURNACES

Walter Wirtz, Duisburg, and Ulrich Genge, Homberg, both of Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed Nov. 2, 1970, Ser. No. 85,978
Claims priority, application Germany, Nov. 12, 1969, P 19 56 837.7
Int. Cl. F27b *1/24*
U.S. Cl. 263—44 **13 Claims**

A bottom cooling device for shaft furnaces, particularly for blast furnaces, comprises an arrangement of cooling pipes behind a layer of lining bricks which are made of graphite or carbon. The lining bricks are adapted to contain a liquid metal which has a destructive effect on the bricks particularly a metal such as pig iron. The device includes a metal layer of high thermal conductivity which is arranged between a lining layer and a terminal plate and within which there is embedded a grid of cooling ducts. The cooling ducts form a secant in



respect to the base circle of the furnace and they connect to a ring duct having diametrically opposite inlet and outlet connections.

3,705,714

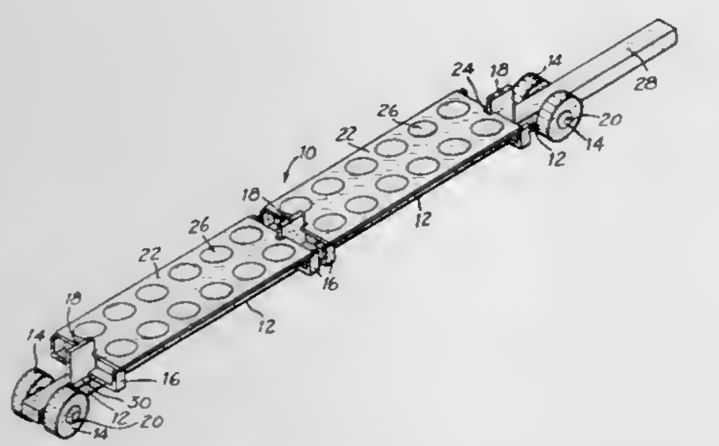
SILICON NITRIDE KILN FURNITURE

Richard A. Alliegro, Holden, Mass., assignor to Norton Company, Worcester, Mass.

Filed May 20, 1971, Ser. No. 145,190

Int. Cl. F27d *5/00*

U.S. Cl. 263—47 R **2 Claims**



A device or item of kiln furniture for the conveyance of silicon wafers into and out of a diffusion furnace in the manufacture of silicon diodes. The device is made essentially of high purity silicon nitride and consists of an elongated base with rotatable wheels attached thereto, and supporting means for carrying silicon wafer laden silicon nitride or silicon boats. The device, by virtue of its design and material of which it is composed, satisfies the peculiar and stringent requirements of silicon diode manufacture, by virtue of the devices ability to retain its integrity through repeated thermal shock, its chemical purity, and its non-dust generating character.

3,705,715

METHOD AND APPARATUS FOR QUENCH HARDENING ELONGATED WORKPIECES

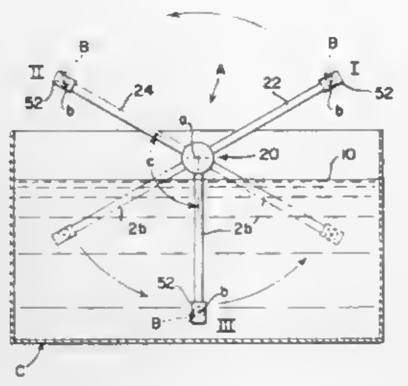
Richard S. Sheetz, Shaker Heights, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Oct. 1, 1970, Ser. No. 77,278

Int. Cl. C21d *1/66*

U.S. Cl. 266—4 A **5 Claims**

A method and apparatus for quench hardening a plurality of successive elongated workpieces supported on a carrier and movable in a generally circular path from a loading station, to a heating station, and then through a quench hardening station wherein the members supporting the workpieces on the carrier are independently movable with respect to the other members of the carrier, at least in the vicinity of the quenching station.



3,705,716

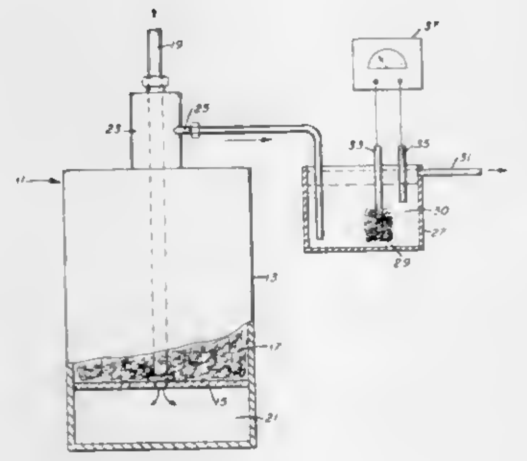
MONITORING SILVER RECOVERY

Thomas N. Hendrickson, Perry, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 9, 1971, Ser. No. 161,148

Int. Cl. C22b *11/00*

U.S. Cl. 266—22 **6 Claims**



Silver is recovered from a photographic processing solution by passing the solution through a mass of steel wool in a recovery vessel. The effluent electrolyte from the vessel is then passed through a voltaic cell wherein one of the electrodes is iron in the form of steel wool. When the steel wool in the recovery vessel has lost its power to efficiently remove silver, silver ions appear in the effluent electrolyte in increasing concentration. Upon the generation of a predetermined value of electrical current in the voltaic cell representing a predetermined silver concentration, the recovery unit is disconnected and sent off for refining of the contained silver.

3,705,717

ROTARY FURNACE DOOR DESIGN

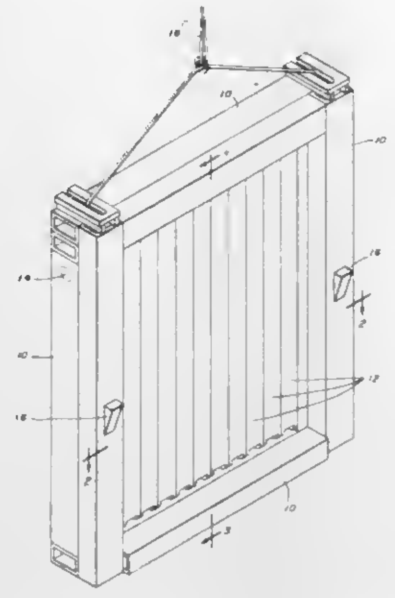
Edward J. Hadberg, Gary, Ind., assignor to United States Steel Corporation

Filed Jan. 25, 1971, Ser. No. 109,351

Int. Cl. F27h *17/00*

U.S. Cl. 266—24 **1 Claim**

A refractory-free furnace door comprising a plurality of vertically disposed tubular metallic pieces pivotally suspended within a frame member in a side-by-side abutting relationship.



The ends of each tubular piece are open so that air will circulate therethrough to air-cool the door.

3,705,718

HIGH EFFICIENCY LEAF SPRING

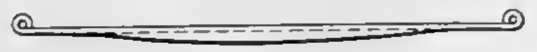
Hiroshi Fukui, Gifu-ken; Gakuji Iwatsu, Tokai, and Junichi Kato, Nagoya, all of Japan, assignors to Aichi Steel Works Limited, Araomachi, Tokai-shi, Aichi-ken, Japan

Filed Jan. 5, 1971, Ser. No. 104,018

Claims priority, application Japan, Jan. 22, 1970, 45/6150

Int. Cl. F16f *1/18*

U.S. Cl. 267—47 **3 Claims**



A high efficiency leaf spring which has a circularly arcuate shape in transverse cross section, the radius of curvature of said circularly arcuate shape continuously being increased with the bending moment progressively decreasing from a point where it is largest, based upon a logical analysis and development, so that the maximum tensile stress may be uniform over the entire length of the spring.

3,705,719

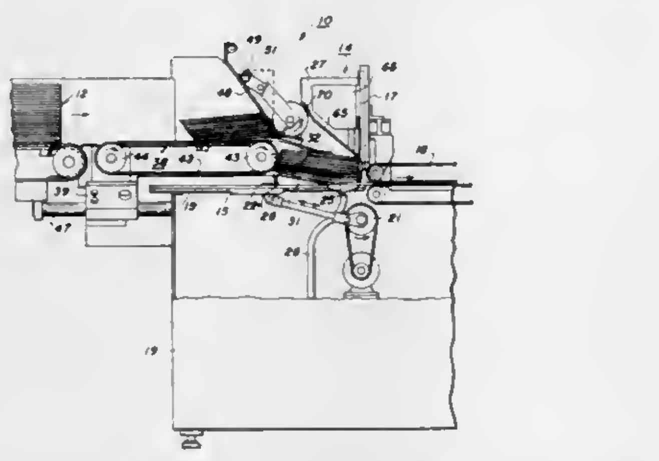
ARTICLE HANDLING APPARATUS

Neil A. Pollt, Cary, and Albert G. Enskat, Barrington, both of Ill., assignors to Xerox Corporation, Stamford, Conn.

Filed Sept. 28, 1970, Ser. No. 75,902

Int. Cl. B65h *3/08, 29/22*

U.S. Cl. 271—3 **3 Claims**



An automatic loading apparatus especially designed to handle folded articles such as newspapers, the apparatus including a supply conveyor for bringing newspapers forward to a feeder-hopper, the hopper being below and extending beyond the discharge of the supply conveyor; means to place the articles in shingled relationship before the articles reach the supply conveyor discharge; a pressure roller disposed to rest on the supply conveyor adjacent the discharge thereof to assure sustained driving contact of the articles' trailing end with the supply conveyor as the articles pass from the supply conveyor to the feeder-hopper; and means to drive the pressure roller in unison with and at substantially the same speed as the supply conveyor.

3,705,720

TOY AIRCRAFT ROUNDABOUT WITH FLEXIBLE CONTROL TETHER

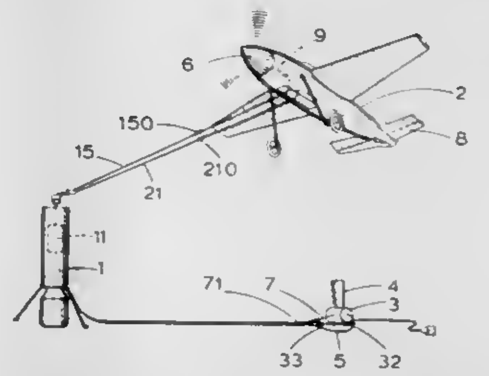
Reginald W. Nicholls, Stansted Mountfitchet, England, assignor to Mattel Inc., Hawthorne, Calif.

Filed Jan. 26, 1971, Ser. No. 109,877

Claims priority, application Great Britain, Feb. 3, 1970, 5,151/70

Int. Cl. A63b *27/04*

U.S. Cl. 272—31 A **9 Claims**



A model aircraft adapted to fly about a pylon to which it is tethered is powered and controlled by rotary movement of power and control wires between the pylon and aircraft. The aircraft incorporates a compensating linkage between the control wire and movable control surface of the aircraft.

3,705,721

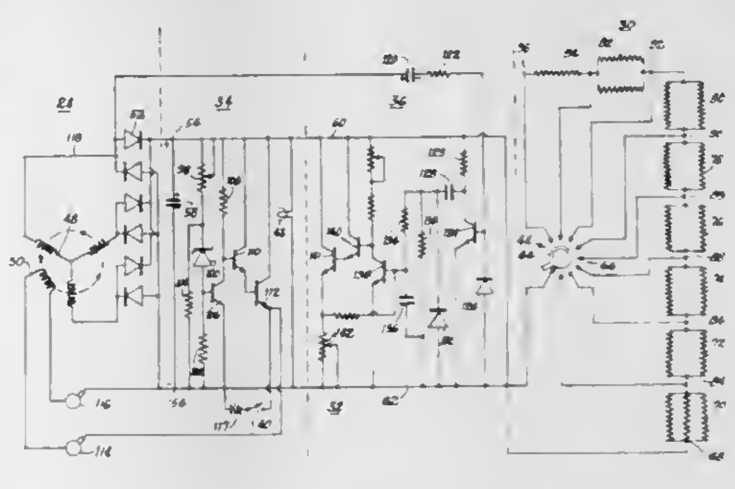
CONSTANT INPUT ENERGY ABSORBING APPARATUS

John R. Lulay, Chicago, Ill.; Bruno J. Marusarz, Chicago, Ill., and Edward J. Mateja, Westchester, Ill., assignors to American Gage & Machine Company, Chicago, Ill.

Filed Nov. 5, 1969, Ser. No. 874,264

Int. Cl. A63b *23/04*

U.S. Cl. 272—73 **6 Claims**



An energy absorbing apparatus of the dynamometer type which in one embodiment is combined with a stationary exercising device. The apparatus includes a generator supplying a load to be connectively switched to the generator. A regulator maintains the output voltage of the generator at a constant value while an auxiliary load is provided and is controlled by a switch responsive to the variations in the rotation rate of the generator to maintain its horsepower input at a substantially constant value.

3,705,722

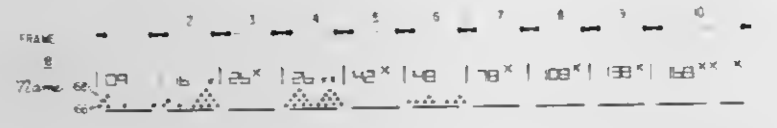
METHOD AND APPARATUS FOR AUTOMATIC BOWLING SCOREKEEPER

John G. Bolger, Jr., Orinda, and Carl A. Walker, Moraga, both of Calif., assignors to Digilux Corporation

Filed June 9, 1970, Ser. No. 44,733

Int. Cl. A63d *5/00, 5/04*

U.S. Cl. 273—54 C **26 Claims**



The disclosure introduces a new concept in automated scoring systems for bowling; that of the score sheet memory bank. A score sheet memory bank is herein defined as a score sheet presenting a permanent record printed out as a function of a "pins standing" array which, in addition to being optically projectable in conventional fashion, functions as a non-electric memory bank of an otherwise electronic score computer.

A pin sensing system, based on the definition of pin sensing zones by intersecting reflecting and transmitting optical paths, transmits "pins standing" information to distinct optical projection and data printing systems.

The transmission of the "pins standing" information to the optical projection system takes place after each ball is rolled and is subject to a manual correction based on individual observation prior to the time a circuit to the data printing system is completed through a momentary time delay circuit. The data printing system then prepares a permanent record of the standing pin array which is optically projectable in conventional fashion and, additionally, functions as the memory bank of an optoelectronic computer system which performs summing computations culminating in a digital printout for each frame.

3,705,723

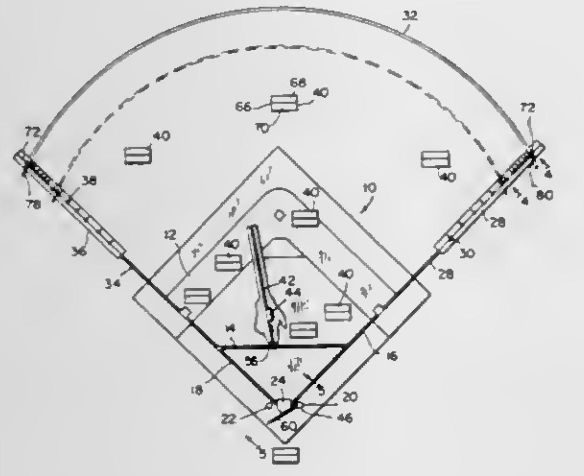
BASEBALL GAME

Charles J. Eissler, 5810 N. 6th Street, Philadelphia, Pa.

Filed Jan. 29, 1971, Ser. No. 110,995

Int. Cl. A63f *7/06*

U.S. Cl. 273—89 **4 Claims**



A baseball game suitable to simulate an actual baseball game including a bat rotatable by one of the players to hit a disc-like ball pitched by another player and a pitching arm for directing the disc-like ball toward the bat. The said pitching arm is freely movable behind a pitching line to direct fast balls, slow balls and curve balls toward the rotatable bat as determined by the actions of one of the players. The game also includes a game board defining an infield and an outfield and a movable right, left and center field fence which may be positioned with respect to the infield and outfield to simulate the actual dimensions of any selected major league stadium.

3,705,724

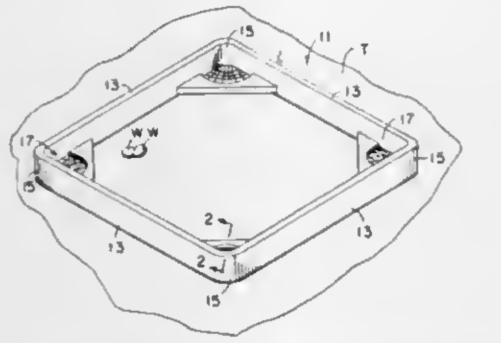
TIDDLY WINKS TARGET BOARD

Alfred C. Einstein, Clayton, Mo., assignor to Affiliated Hospital Products, Inc., St. Louis, Mo.

Filed Feb. 20, 1970, Ser. No. 12,954

Int. Cl. A63b *63/00*

U.S. Cl. 273—95 E **8 Claims**



A game unit including a frame having a rim and a plurality of pockets with a central through-hole void zone therebetween and within the bounds of the rim and pockets, for enabling play from said central void zone into selected ones of said pockets. The frame may be vertically reversible to turn pockets upside down, with pockets having a high upper edge facing the void zone when turned up on one side and a lower height upper edge facing the void zone when turned up on the other side as compared to a table or floor or other supporting surface for the frame, thereby providing for the playing of tiddly winks or similar snap or flip action games from said central void zone, at two levels of difficulty.

3,705,725

TARGET AND CIRCUIT MEANS FOR AUTOMATICALLY INDICATING THE SCORE OF A PROJECTILE SHOT FROM A TARGET

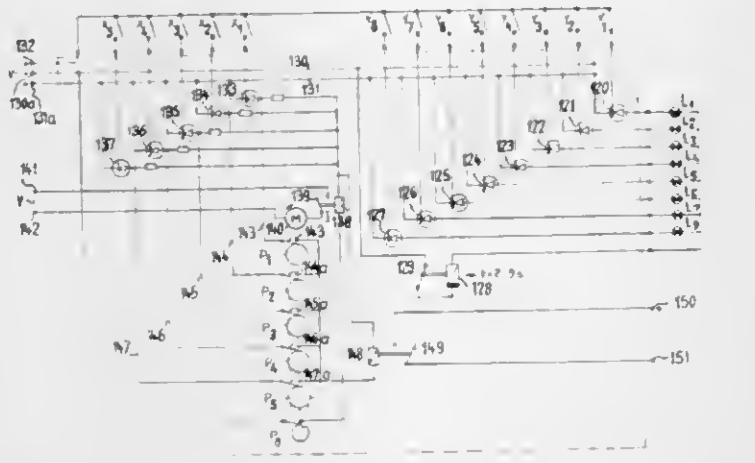
Claude Thalmann, Egg Bei Zurich, Switzerland, assignor to Polytronic Ltd., Saint-Aubin, Switzerland

Division of Ser. No. 638,692, May 2, 1967, Pat. No. 3,529,828. This application Oct. 23, 1969, Ser. No. 871,368

Claims priority, application Switzerland, May 3, 1966, 6371/66

Int. Cl. F41j *5/04*

U.S. Cl. 273—102.2 A **7 Claims**



A shooting target having at least two electrically conductive sheets, which are connected to circuits for automatically indicating position and point value of hit scored, the projectile fired simultaneously contacting the two sheets to close the circuit. The circuit utilizes two shift registers, each of which is connected to an oscillator. Each shift register comprises flip-flops each connected to respective conductive zones and sectors of the target. The flip-flop of the shift register is triggered via a NAND gate when a target zone is hit, and it, in turn triggers an oscillator. The pulses of the oscillator are directed on one hand to the flip-flops and returns them to their steady-state condition. On the other hand, the pulses of the oscillator are directed to the counter of a receiver which indicates the value which corresponds to that of the target zone hit.

3,705,726

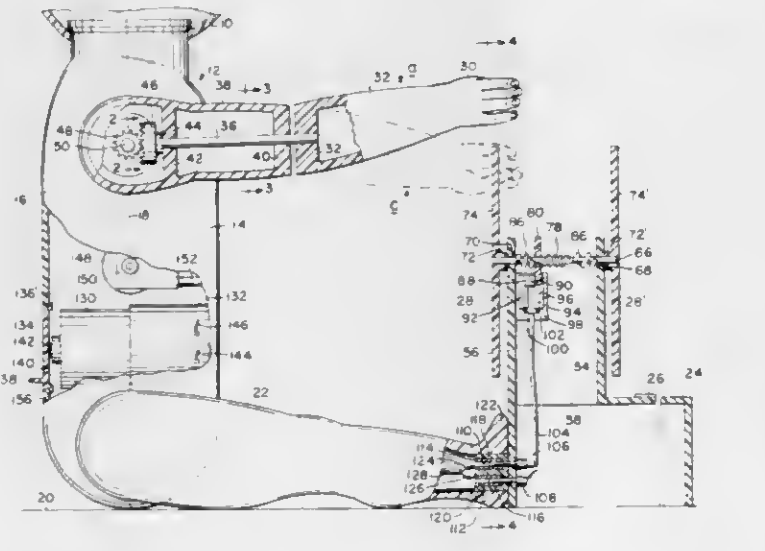
POINTER SPINNING MECHANICAL DOLLS

Frank T. Johmann, 49 Hampton Dr., Berkeley Heights, N.J.

Filed June 8, 1970, Ser. No. 44,064

Int. Cl. A63f *5/04*; **A63h** *3/20*

U.S. Cl. 273—141 A **10 Claims**



This invention relates to a doll having a movable hand driven by an electric motor, preferably battery operated, which hand can move through a sequence of positions to spin a pointer, thus permitting the doll to appear to be an active participant in conventional games wherein a marker is moved on a game board a certain number of spaces determined by spinning a pointer.

3,705,727

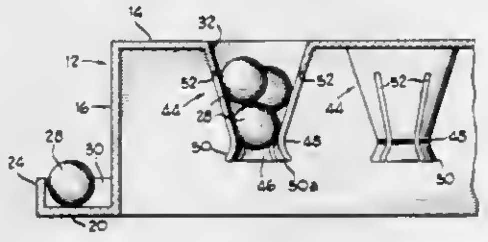
BOARD GAME APPARATUS

Jeffrey D. Breslow, Chicago, Ill., assignor to Marvin Glass & Associates

Filed Dec. 15, 1970, Ser. No. 98,291

Int. Cl. A63f *3/00*

U.S. Cl. 273—135 B **2 Claims**



A game apparatus including a game board having playing piece receiving areas in the form of a finite number of openings arranged in rows with generally frustoconical pockets depending from the openings and terminating in a reduced neck. The pockets have upright slits therein so that the walls defining the pockets are yieldable. The game apparatus further includes a chance device for determining the location of a playing piece and playing pieces of a size and shape slightly larger than the terminal end of the pockets so that they may be held therein but may be pushed through the yieldable walls of the pocket responsive to a force applied to a playing piece.

3,705,728

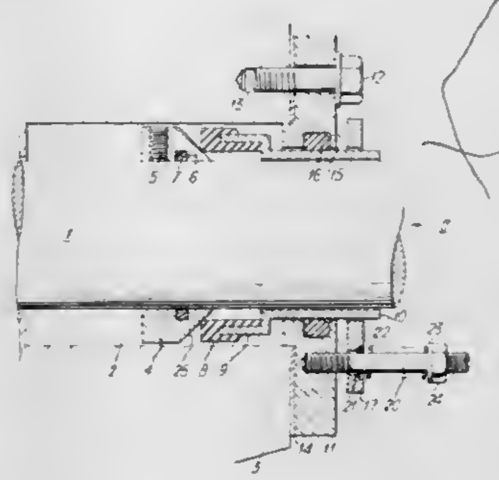
ROTARY SHAFT SEALS

Thomas Ritchie Millar, Slough, England, assignor to Trist Mouldings & Seals Limited, Buckinghamshire, England

Filed Dec. 3, 1970, Ser. No. 94,694

Int. Cl. F16j *15/34*

U.S. Cl. 277—81 **3 Claims**



A rotary shaft seal is of the kind which comprises two sealing rings, the first of which is mounted on and rotates with the shaft and the second of which is mounted on a non-rotatable sleeve. The sleeve surrounds the shaft within a tubular housing which has an open end and the sleeve is sealed to the housing in which it is axially slidable under spring pressure to press the second ring against the conical surface on the first ring to form a seal. The first sealing ring is mounted on the shaft within the housing, the second sealing ring is mounted on the inner end of the sleeve, the spring pressure urges the sleeve inwards into the housing to press the second ring against the conical surface on the first ring and the seal between the sleeve and the housing is at the open outer end of the housing, that is on the side of the second sealing ring remote from the first sealing ring.

3,705,729

SKI

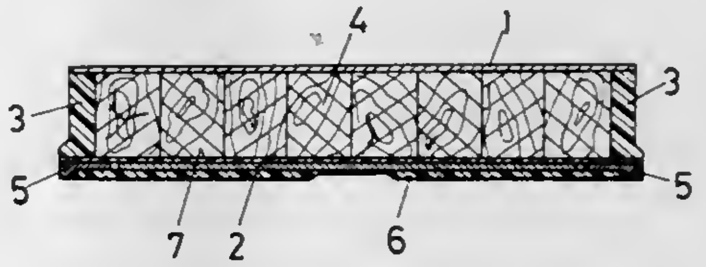
Anton Arnsteiner, 5730 Mittersill, Austria

Filed Feb. 19, 1970, Ser. No. 12,209

Claims priority, application Austria, Feb. 21, 1969, A1767/69

Int. Cl. A63c *5/12*

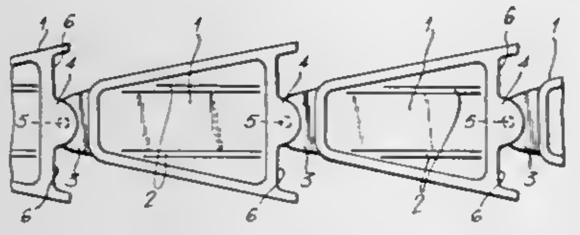
U.S. Cl. 280—11.13 L **1 Claim**



A ski including a ski body having at least one load-bearing lower facing sheet, steel edges and at least one intermediate layer of an elastomeric material, and the steel edges being laterally arranged adjacent the lower facing sheet whereby the steel edges and lower facing sheet both are connected to the ski body over the common intermediate layer of elastomeric material so that the latter dampens stresses developed under varying load and temperature conditions.

3,705,730
COASTING DEVICE

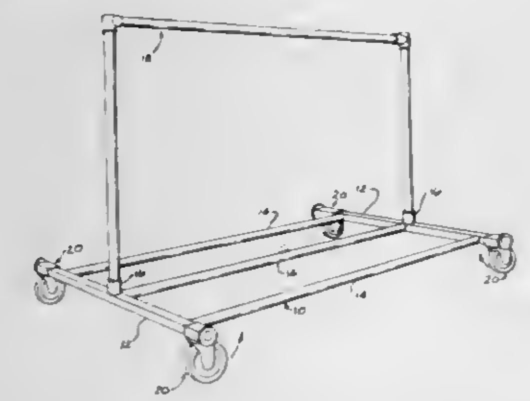
Jon Bergsland, Hoffsum 60, Oslo 3, Norway
Filed Feb. 9, 1970, Ser. No. 9,718
Claims priority, application Norway, Feb. 11, 1969, 534169
Int. Cl. B62b *13/00*
U.S. Cl. 280—24 **5 Claims**



A coasting device with coupling means to form a train of two or more coasting sleds is so arranged that at each side of the rear coupling means is a rest for a foot of a rider sitting on the next following sled.

3,705,731
KNOCK-DOWN GARMENT RACK WITH SELECTIVELY POSITIONABLE WHEELS

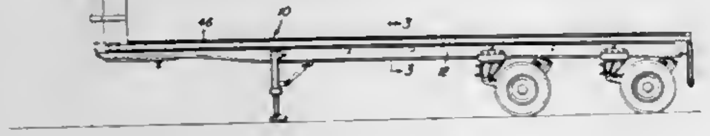
James L. Berchak, 14785 S. Gallatin, Brookpark, Ohio
Filed Sept. 28, 1970, Ser. No. 75,960
Int. Cl. B62b *11/00*
U.S. Cl. 280—36 R **5 Claims**



A knock-down garment rack, which has a main frame member on which are mounted wheels which wheels are selectively positionable in an operative position and in a storage position.

3,705,732
TRAILER CONSTRUCTION

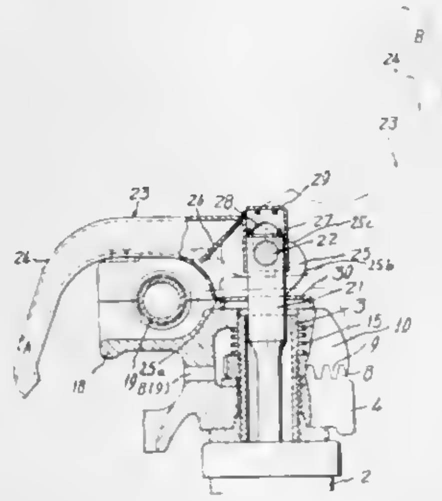
Joseph A. Marinelli, New Castle, Pa., assignor to City Weldings & Manufacturing Co., Inc.
Continuation-in-part of Ser. No. 794,944, Jan. 29, 1969, Pat. No. 3,612,569. This application Sept. 15, 1971, Ser. No. 180,562
Int. Cl. B62d *53/06*
U.S. Cl. 280—106 T **11 Claims**



A combined vehicle frame and load bed construction including a pair of elongated generally parallel longitudinal beams interconnected at points spaced longitudinally therealong by means of a plurality of transverse beam members extending and secured therebetween. The construction further includes outboard transverse brace members secured to and projecting endwise outwardly from the remote sides of the longitudinal beams and the outer ends of the transverse brace members are innerconnected by means of longitudinal rail members secured thereto. A plurality of side-by-side longitudinally extending and longitudinally staggered decking members are secured over the transverse beam members and brace members and the upper surfaces of the longitudinal beams are spaced above the upper surfaces of the transverse beam members. The brace members and the decking members are sufficient in vertical thickness to project slightly above the longitudinal beams when secured to the transverse beam members and brace members and include panel-like portions of reduced vertical thickness extending over the longitudinal beams in order that a substantially planar decking surface is provided with substantially all portions of the decking members solidly supported from beneath by either the transverse beam members and brace members or the longitudinal beams.

3,705,733
STEERING HANDLE ATTACHING APPARATUS IN A TWO-WHEELED VEHICLE

Mikihiro Koyama, Adachi-machi, and Takashi Inagaki, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 9, 1970, Ser. No. 96,363
Claims priority, application Japan, Dec. 20, 1969, 44/120572
Int. Cl. B62k *15/00, 21/24*
U.S. Cl. 280—278 **5 Claims**

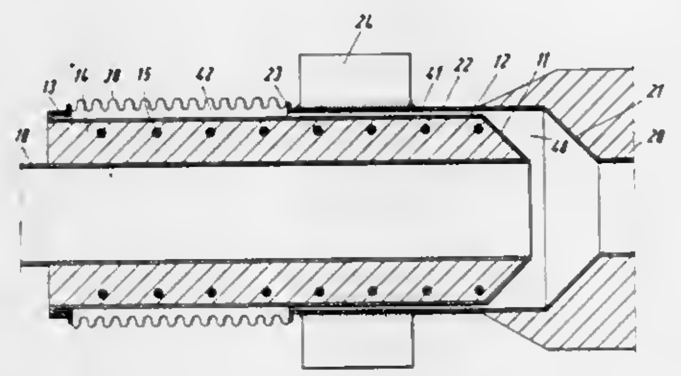


A steering handle for a two-wheeled vehicle is attached to a support member facing the upper end of a front wheel fork attached to a steering stem. The support member is rotatably mounted on the steering stem and the fork and support member have opposed crenelations which are engageable and disengageable, so that the steering handle support member can be rotated either together with the upper end of the front wheel fork or independently thereof. The support member can be displaced either by a cap threaded on the stem or by a cam member pivoted thereon in order to mesh the crenelations.

3,705,734
ARRANGEMENT FOR COMPENSATING FOR CHANGES IN THE LENGTH OF PIPES AND THE LIKE

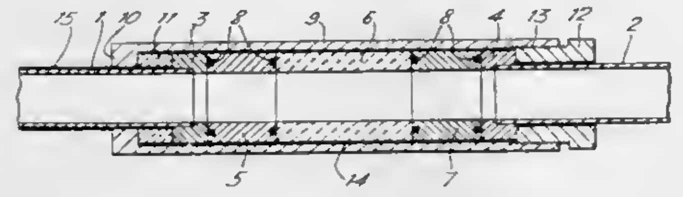
Gundolf E. Rajakovics, Wien, Austria, assignor to Gebr. Boehler & Co., A.G., Kapfenberg, Austria
Filed May 13, 1970, Ser. No. 36,763
Claims priority, application Austria, May 16, 1969, A 4659/69
Int. Cl. F16l *53/00*
U.S. Cl. 285—41 **6 Claims**

Arrangement for compensating for changes in the lengths of pipes subjected to high operative temperatures. One of the two pipe portions at a joint between them extends into the other, and a flexible pleated sleeve surrounds the inner pipe portion, the space between the pleated sleeve and the inner pipe being dead ended at a location remote from the zone at which the two main portions of the pipes confront each other. The arrangement includes means for cooling the space within the pleated sleeve, and means selectively to heat such space and its contents, as at the start of an operation, to melt any solid material which may be in the space within the pleated sleeve.



3,705,735
ELECTRICALLY INSULATING JOINTS FOR HIGH-PRESSURE PIPELINES

David Fulton Davidson, Hale Barns, and Brian Arthur Irving, Sale, both of England, assignors to Associated Electrical Industries Limited, London, England
Filed Feb. 20, 1970, Ser. No. 13,143
Int. Cl. F16l *19/02, 58/00*
U.S. Cl. 285—53 **7 Claims**

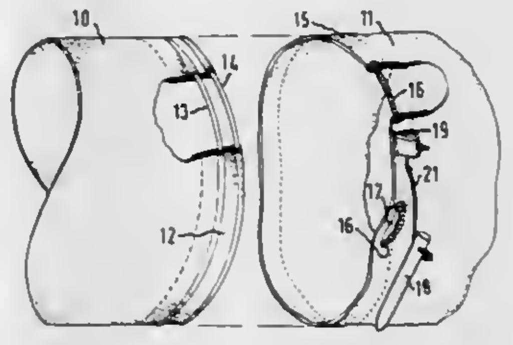


An electrically insulating joint between two electrically conducting pipe which in use are at different electrical potentials, wherein the pipes are clamped to opposite ends of an insulating spacer sleeve with metal collars interposed between the ends of the sleeve and the pipes, and at least the one of the collars which is anodic with respect to the other being formed of a metal such as titanium which forms a protective insulating skin under electrolytic action and thereby reduces the rate of galvanic corrosion.

3,705,736
JOINTS FOR FLEXIBLE DUCTING

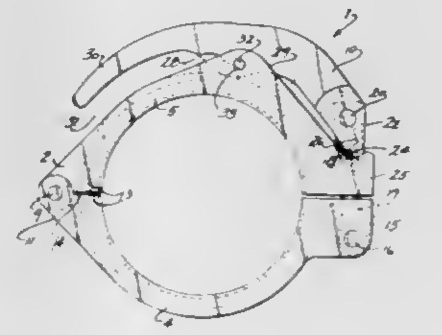
Gordon Bertram Dawson, Worcester, England, assignor to Dowty Meco Limited, Worcester, England
Continuation-in-part of Ser. No. 825,906, May 19, 1969, abandoned. This application March 3, 1971, Ser. No. 120,533
Claims priority, application Great Britain, Feb. 6, 1969, 6,398/69; June 27, 1969, 32,558/69; March 6, 1970, 10,948/70
Int. Cl. F16l *31/00*
U.S. Cl. 285—260 **11 Claims**

A joint is made between two lengths of flexible ventilation ducting by tightening around a seam on an end of one length of ducting an endless ring of flexible strand located in a seam on the adjacent end of another length.



3,705,737
PIPE COUPLING WITH RELEASABLE CONNECTOR

Robert E. Westerlund, Mequon, and Herbert A. Westerlund, Port Washington, both of Wis., assignors to Construction Forms, Inc., Cedarburg, Wis.
Filed April 23, 1971, Ser. No. 136,682
Int. Cl. F16l *17/00*
U.S. Cl. 285—365 **9 Claims**

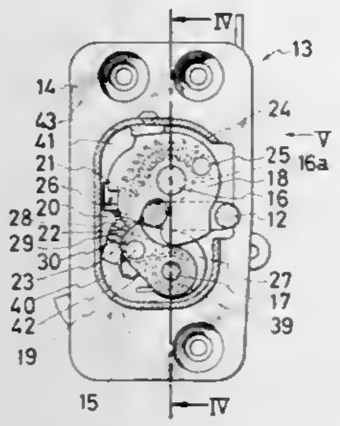


A coupler unit includes two hemispherical sections having a U-shaped cross-section and opposed radial end faces. A hinge pin connects the one end of the sections with a selected spacing between the opposing faces. A toggle assembly connects the opposite ends and includes a bolt, pivotally attached to a first section and having an outer nut pivotally connected to a handle which extends over the adjacent section. The handle includes an integral cam end corresponding to a cam surface on the second section to provide a cam action in response to engagement and pivotal movement of the handle. An operating handle extends over the coupler sections with a central integrally formed enlargement extending inwardly between a pair of walls with the enlargement resting on the section. The enlargement and walls have aligned openings to receive a locking pin.

3,705,738
DOOR LATCH MECHANISM

Noboru Yoshimura, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan
Filed Sept. 28, 1970, Ser. No. 75,848
Claims priority, application Japan, Oct. 4, 1969, 44/94742
Int. Cl. E05c *3/26*
U.S. Cl. 292—216 **5 Claims**

An automotive door latch mechanism comprising a rotatable latch bolt in the form of a fork, and a bolt-supporting shaft, said shaft being enlarged at a part with which a striker pin is engageable thereby permitting its tight engagement with the striker pin for preventing the lowering of the vehicle door relative to the stationary member thereof.



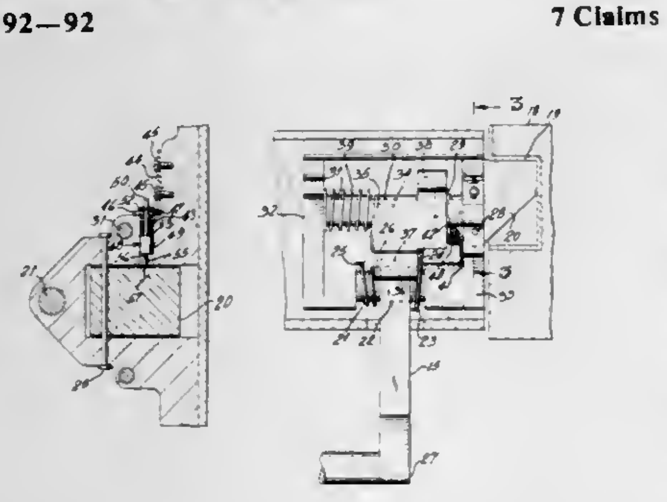
3,705,739
PANIC LOCK DEVICE

Norman R. Adler, Fitchburg, Mass., assignor to Ilco Corporation, Fitchburg, Mass.

Filed July 7, 1971, Ser. No. 160,421

Int. Cl. E05c *19/00*

U.S. Cl. 292—92 **7 Claims**



An improved panic lock device of the type in which a latch bolt is retracted responsive to forces exerted on an eccentrically weighted, pivotally mounted panic bar. The improvement relates to a shear pin assembly operatively projected into position to prevent downward pivotal movement of the bar and, hence, premature retraction of the latch bolt should the bar support spring lose their temper, as would be the case if the latter were subjected to high temperature conditions.

3,705,740
COLLISION FORCE ABSORPTION DEVICE

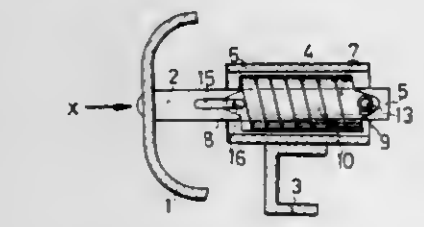
Masanao Shiomi, Toyota-shi, and Tadataka Narumi, Kariya-shi, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

Filed Dec. 12, 1969, Ser. No. 884,675

Claims priority, application Japan, Dec. 17, 1968, 43/92763

Int. Cl. F16f *7/12;* **B60r** *19/06*

U.S. Cl. 293—89 **1 Claim**



An energy absorbing member in the shape of a coil having a plurality of closely spaced loops, being capable of plastic deformation in one direction only, and being rigid in the opposite direction, said energy member being fixed at one end through a force receiving member to a vehicle accessory, such as a bumper, or a seat, and being fixed at the other end through a support member to the vehicle chassis.

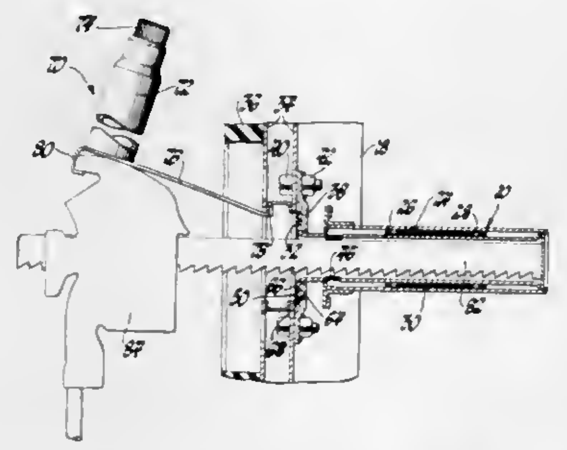
3,705,741
ENERGY ABSORBING BUMPER MOUNT AND RESTORATION TOOL THEREFOR

Robert L. White, Frankenmuth, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 30, 1971, Ser. No. 167,616

Int. Cl. B60r *19/00*

U.S. Cl. 293—89 **5 Claims**



An energy absorber of the type having a plurality of rolling bodies engaged between a pair of telescopable cylinders mounts a bumper to a vehicle. One of the telescopable cylinders is attached to the vehicle frame and the other is releasably clamped to the bumper and includes a splined surface on the inner periphery thereof. A restoring tool includes a hook which is used in conjunction with a conventional bumper jack in pulling the bumper away from the frame, thus restoring the cylinders to their pre-impact axial relation. The restoring tool also includes a splined portion which, subsequent to release of the clamp attaching the cylinder to the bumper, is inserted into the cylinder and used in conjunction with the bumper jack to effect rotation of the cylinder and consequent alignment of the rolling bodies with an undeformed area of the cylinder.

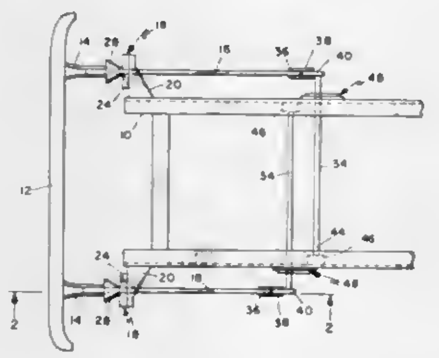
3,705,742
VEHICLE BUMPER ASSEMBLY

Willis L. Lipscomb, 2208 Willow, San Diego, Calif.

Filed Nov. 1, 1971, Ser. No. 194,344

Int. Cl. B60r *19/06*

U.S. Cl. 293—89 **8 Claims**



A vehicle bumper assembly providing for limited damping of transverse or slanting of the bumper or impact-receiving member as well as damping of longitudinal movement under impact, the latter movement being opposed by a torsion bar. The torsion bar, conceived as ordinarily provided in duplicate, is located some considerable distance from the end of the vehicle and connected to the bumper by a push rod so that, as long as the relatively stout push bar remains functional the torsion bar will ordinarily be effective in damping the movement of the bumper relative to the frame. Novel means is provided for resiliently mounting the push bar and a unique dual function is obtained in the torsion bar since it is mounted for limited flexing as a spring in addition to its torque function. A resilient apron conceals the mechanical structure, prevents vibration noise and also has a minor supplementary buffering action. The primary supporting means resiliently holds the bumper in place while allowing, with resistive buffering action, transverse or slanting movement under impact conditions with little or no activation of the torsion bar which can therefore be structurally designed to handle the ordinarily greater longitudinal shocks.

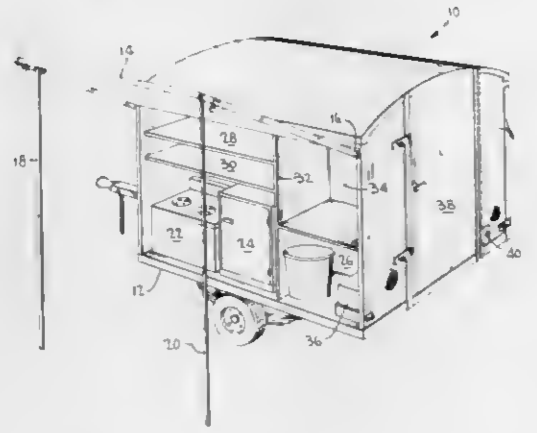
3,705,743
COMBINATION KITCHEN AND CLOTHES TRAILER

Thomas J. Toomey, 604 Paradise Court, Gaithersburg, Md.

Filed June 9, 1971, Ser. No. 151,343

Int. Cl. B60g *3/32*

U.S. Cl. 296—23 R **4 Claims**



A mobile trailer frame comprises a walled and roof housing which includes a hinged side opening which is supported by telescoping members to provide access to a mobile kitchen which includes a refrigerator, stove, and adjustable shelved compartments for the storage of food. The front and rear of the mobile trailer has a doorway which provides access to a clothing storage area which extends the full length of the trailer and which includes a fully extendible clothes rack which rides on nylon wheels in a track so as to extend from the closet outside of the mobile trailer to provide easy access to the clothes.

3,705,744
THREE POSITION FOLDING SEAT

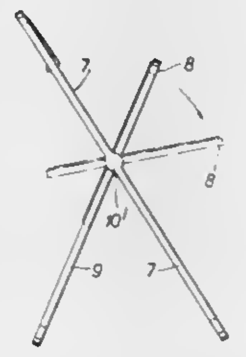
Giancarlo Piretti, and Leonida Castelli, both of Bologna, Italy, assignors to Anonima Castelli S.A.S., Bologna, Italy

Filed April 7, 1970, Ser. No. 26,314

Claims priority, application Italy, Sept. 20, 1969, 40195 A/69

Int. Cl. A47c *4/00*

U.S. Cl. 297—55 **9 Claims**



A folding chair has a rectangular outer frame in which a U-shaped inner frame is received. A flat seat is received within the inner frame with the seat and two frames all relatively pivotal about a common axis. Stops are provided at the axis to allow the seat to pivot relative to the inner frame from a position coplanar therewith to a position extending at an angle thereto. The U-shaped inner frame can, in turn, pivot from a position coplanar with said outer frame to a position extending at an angle thereto. In this manner the seat can be raised out of the down, use position while the base of the chair remains open and the chair remains standing for storage of the chair or passage of someone past the chair in a cramped aisle. The pivots are completely contained between the frames and seat at the axis so that the chair only has three independently movable pieces.

3,705,745
VEHICLE SEAT

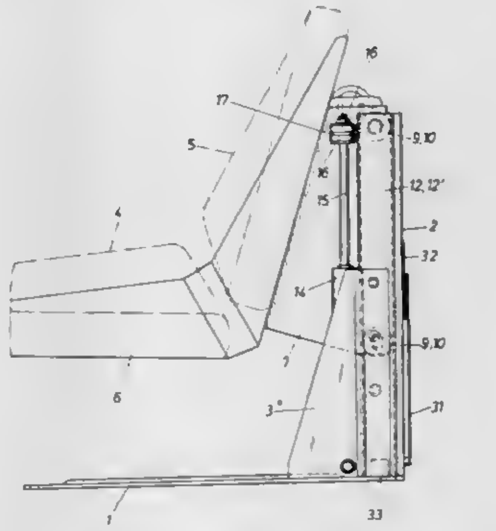
Manfred Ambrosius, Langenfeld-Richrath, Germany, assignor to Bremshey & Co., Solingen-Ohligs, Germany

Filed Sept. 16, 1968, Ser. No. 762,219

Claims priority, application Germany, Sept. 14, 1967, P 16 30 164.9

Int. Cl. B60n *1/02*

U.S. Cl. 297—308 **4 Claims**



A vehicle seat with endless adjustment of the resilient means of the seat rigidly connected with the back of the seat, which comprises a spring leg disposed on the back of the seat and continuously adjustable as to its inclination with length variations. A stationary seat frame includes guide rails for guiding the back of the seat by means of three pairs of rollers, and comprising first guide means arranged in longitudinal direction of the seatframe receiving and guiding two lateral of the pairs of rollers, the first guide means restraining movement of the seat in the direction of movement of the vehicle and second guide means receiving had guiding the third and central of pairs of rollers, the second guide means restraining movement of the seat in the transverse direction

3,705,746
ICE RESURFACER

Starr R. McLeod, 148 Broadway, Sydney, Nova Scotia, Canada

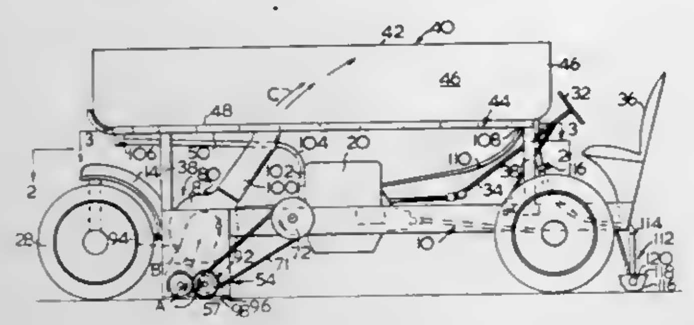
Filed Sept. 14, 1970, Ser. No. 71,665

Claims priority, application Canada, Sept. 26, 1969, 063222

Int. Cl. E01b *5/12*

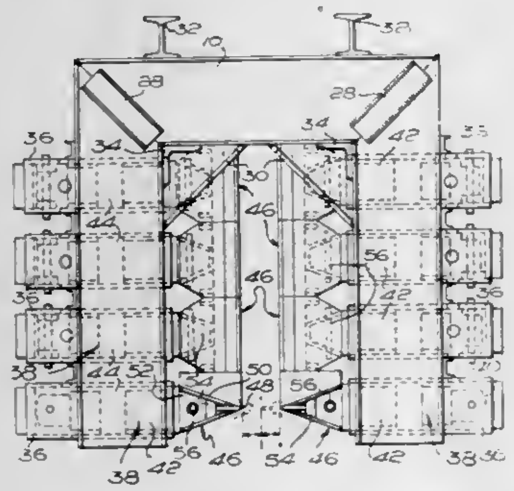
U.S. Cl. 299—25 **8 Claims**

A self-propelled ice shaving machine suitable for use in skating rinks or the like includes a pair of power rotary cutters positioned immediately beyond the steerable front wheels of the vehicle. A suction blower removes ice chips and cuttings blown upwardly from the rotary cutter blades and conveys the cuttings and chips to a receptacle disposed above the vehicle chassis. The vehicle is powered by means of an internal combustion engine and means are provided to connect the engine in heat exchange relationship with the receptacle thereby to cause melting of the ice chips. The water derived from the melting of the ice is spread over the surface of the ice at the rear of the machine by means of a suitable water spreader connected to the vehicle chassis.



3,705,747
STRUCTURE DEMOLITION APPARATUS

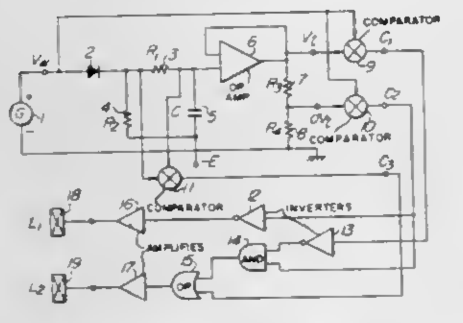
Leonard John Blackburn, Fagley Cottage, Fagley Road, Bradford, England
Filed Dec. 28, 1970, Ser. No. 101,690
Int. Cl. E21c *27/30*
U.S. Cl. 299—70 **4 Claims**



An apparatus for demolishing structures comprising a frame adapted to fit over or around a portion of the structure to be demolished and a plurality of cutting chisels which can be moved under hydraulic pressure to cause by a biting action severance of a piece of structure from the remainder.

3,705,748
CONTROL SYSTEM FOR PREVENTING THE SKIDDING OF VEHICLES

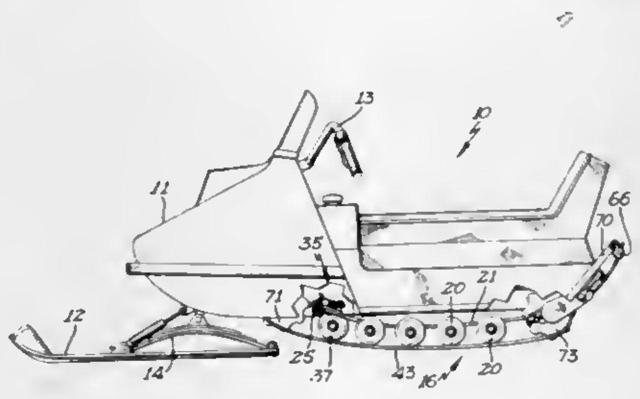
Takeshi Ochiai, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota-shi, Japan
Filed April 3, 1970, Ser. No. 25,436
Claims priority, application Japan, Oct. 20, 1969, 44/83758; Oct. 20, 1969, 44/99575
Int. Cl. B60d *8/08*
U.S. Cl. 303—21 BE **6 Claims**



Equipment for of preventing the skidding of vehicles by detecting the speed of wheel rotation, comparing the detected speed with a set reference value of the deceleration characteristics, controlling the wheel rotation by suitably effecting three kinds of braking pressure operations, namely decreasing, maintaining and increasing the braking pressure, in response to the results of the aforesaid comparison, and renewing the reference speed value to be newly set when the wheel speed exceeds the previous set reference value by a predetermined amount, and an apparatus for modulating the wheel braking pressure at a required value adapted to driving conditions.

3,705,749
SUSPENSION SYSTEM FOR SNOWMOBILES

Charles V. Harvey, Route 3, Box 233, Forest Lake, Minn.
Filed April 6, 1971, Ser. No. 131,673
Int. Cl. B62d *55/10;* **B62m** *27/02*
U.S. Cl. 305—27 **9 Claims**

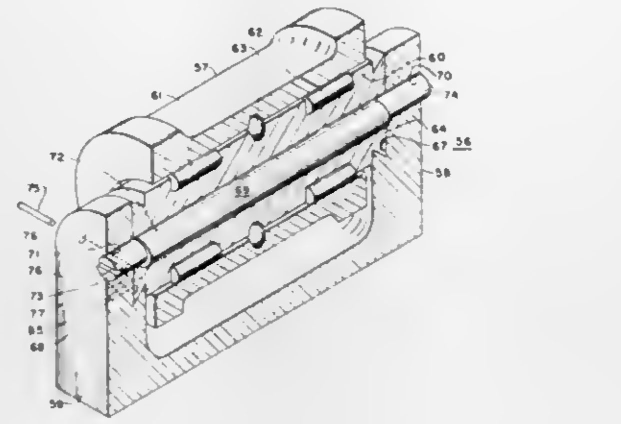


A track suspension means for vehicles having endless track drive and support surfaces, the vehicle having frame means with forward and rear mounting points. The track suspension means which is coupled to the vehicle at the mounting points includes longitudinally flexible leaf spring means, the leaf spring means having an axis disposed generally parallel to the track axis, and being adapted to flex vertically. The leaf spring, which carries a plurality of supporting means for the track, is secured at its forward end to the vehicle frame at the forward mounting point. The endless track suspension means includes forwardly and rearwardly disposed sprockets inscribed within the endless track, and mounting means are provided for the sprockets including mounting shafts. Track propelling means are coupled to the forwardly disposed sprockets, and track tensioning means and the rear of said leaf spring are operatively coupled to the rearwardly disposed sprockets. Pivot linkage means are provided for coupling the rear sprocket mounting means to the vehicle at the rear mounting point. The pivot linkage means includes a first arm pivotally coupled to the vehicle mounting point and with a floating pivot shaft journaled to the other end of the first arm. A second arm is provided having one end journaled to the floating pivot, and with the other end coupled to the rear sprocket mounting means. Resilient spring bias means are coupled to the second arm and normally urge the mounting shaft means for the rearwardly disposed sprockets in a direction toward the lower span of the endless track.

3,705,750
RETAINING PIN AND BEARING ASSEMBLY

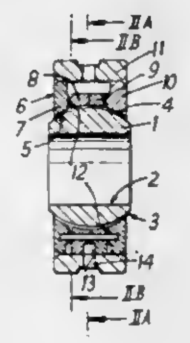
Morgan L. Crow, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Nov. 5, 1970, Ser. No. 87,134
Int. Cl. E21b *9/10, 9/36;* **E02f** *15/44*
U.S. Cl. 308—8.2 **5 Claims**

An elongated retaining pin having offset end portions allows a bearing assembly to be loosened and easily removed. During operation, the retaining pin is held in position. When the bearing is to be disassembled, the retaining pin is rotated to loosen the bearing assembly.



3,705,751
SPHERICAL BEARING

Colin W. Dee, Wimborne, England, assignor to The Horstmann Gear Co. Ltd., Bath, Somerset, England
Filed March 23, 1970, Ser. No. 21,916
Claims priority, application Great Britain, April 22, 1969, 20,503/69
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **6 Claims**

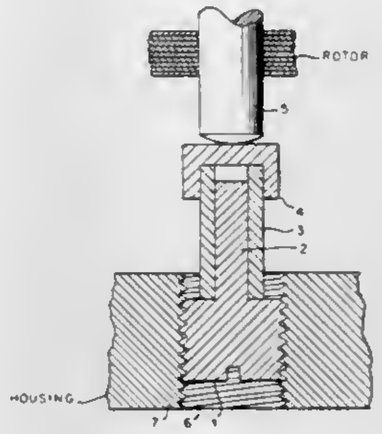


A fluid bearing has a radially-inner bearing member and a radially outer bearing member respectively having a part-spherical internal surface and a part-spherical external surface defining between them a fluid bearing gap, one of the bearing members having in it one or more rows of fluid feed slots disposed circumferentially and each opening at one end in the part-spherical surface of that bearing member, said bearing member including passage means communicating with the other end of each of the slots for supply of fluid through the slots to the bearing gap.

3,705,752
THRUST BEARING FOR MIDGET MOTORS

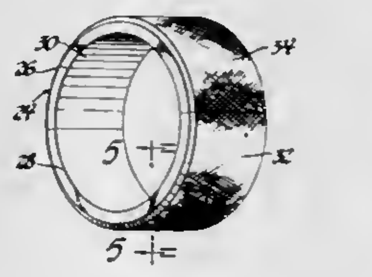
Hanns Ott, Nurnberg, and Hans Peter Latussek, Feucht, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed April 2, 1971, Ser. No. 130,581
Int. Cl. H02j *9/02*
U.S. Cl. 308—159 **3 Claims**

A thrust bearing includes an elastic member received in a cup-shaped threaded member that is secured to a housing structure of a midget motor, and a bearing plate mounted on the elastic member within the cup-shaped threaded member.



3,705,753
METHOD AND MEANS FOR REDUCING FRETTING OF CONTACTING SURFACES

John C. Bierlein, Royal Oak; Arnold O. DeHart, Rochester, and Louis W. Handwerker, Jr., Detroit, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Aug. 3, 1970, Ser. No. 60,260
Int. Cl. F16c *9/04*
U.S. Cl. 308—240 **5 Claims**

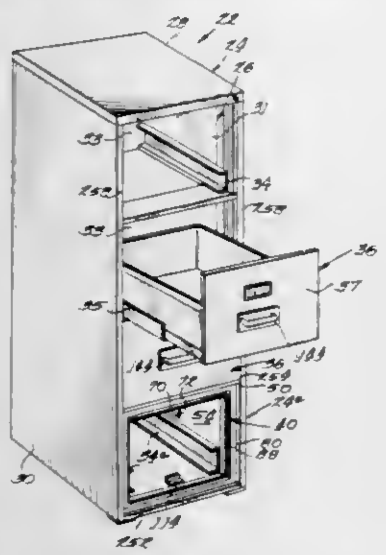


In a preferred embodiment, a journal bearing insert and its retainer have contacting cylindrical surfaces which are maintained in substantially fixed engagement but subject to variable loads, causing repetitive slight relative movement of the surfaces under pressure. Lubrication is provided to reduce fretting of the surfaces through a latticework of interconnected closely spaced grooves on the order of 10.001 inches deep, which may be etched or otherwise formed over the exterior surface of the insert on the interior surface of the retainer.

3,705,754
FILING UNITS

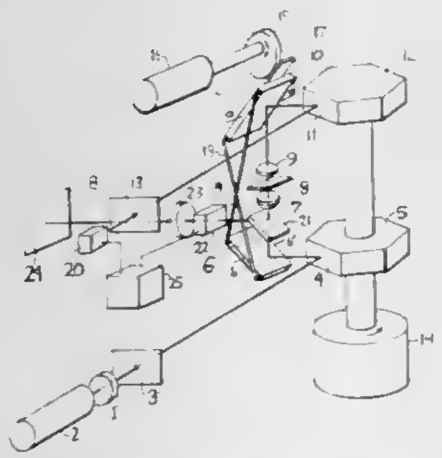
James R. Drum, and Philip A. Temple, both of Muscatine, Iowa, assignors to Hon Industries Inc., Muscatine, Iowa
Filed Feb. 16, 1970, Ser. No. 11,649
Int. Cl. A47b *81/00;* **F25d** *11/00*
U.S. Cl. 312—214 **18 Claims**

A multidrawer filing unit is disclosed including a cabinet and one or more drawers of uninsulated construction, with an insulated vault case inserted in a section corresponding to one drawer space. The access opening of the vault case is aligned with a front opening of the cabinet. A drawer for the vault case has an insulated front which provides an interfitting closure for the access opening of the vault case and also closes the aligned front opening of the cabinet.



3,705,755
MICROSCOPY APPARATUS

Stephen Charles Baer, 1837 Seminole Avenue, Bronx, N.Y.
Filed Aug. 24, 1970, Ser. No. 66,293
Int. Cl. G02b *17/00, 21/00*
U.S. Cl. 350—6 **11 Claims**

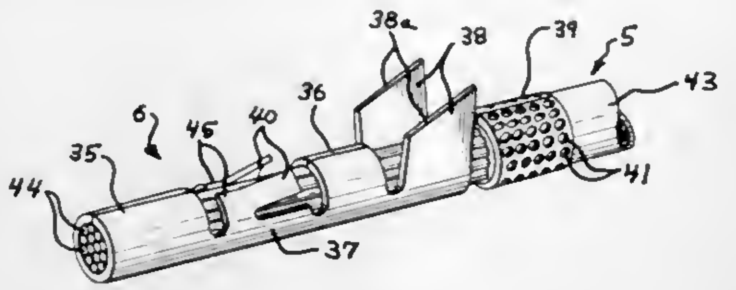


Images of areas of selected planes of an object or field to be viewed are provided by apparatus including means for focusing an incident beam of radiation onto a point in the selected plane, a pinhole aperture, means directing radiation emanating from the irradiated point onto said aperture, means synchronously scanning the incident and emanating beams in a raster pattern across said selected plane, means producing a third beam of radiation with an intensity proportional to the intensity of the radiation from said emanating beam directed onto said pinhole aperture, means focusing said third beam upon a point in an image plane, and means scanning said third beam across said image plane in synchronization with the scanning of said irradiated point across said selected plane, to produce an image of said selected plane at said image plane.

3,705,756
TERMINAL MEMBER FOR LIGHT TRANSMITTING MEANS

Joseph Richard Keller, and James Pritulsky, both of Harrisburg, Pa., assignors to AMP Domestic, Inc.
Division of Ser. No. 858,549, April 29, 1969, Pat. No. 3,638,008, which is a continuation-in-part of Ser. No. 591,254, Nov. 1, 1966, abandoned. This application Dec. 28, 1970, Ser. No. 101,655
Int. Cl. G02b *5/16*
U.S. Cl. 350—96 B **4 Claims**

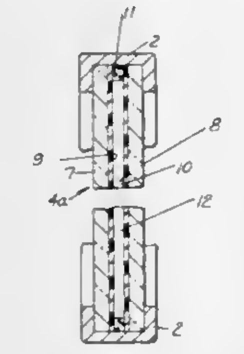
A terminal member for terminating an end of a light transmission means for use in a device for effecting multiple light transmission from a single light source. The terminal member



is crimped onto the end of a fiber-optics member to facilitate connection of the fiber-optics member to a panel display.

3,705,757
REAR PROJECTION SCREEN

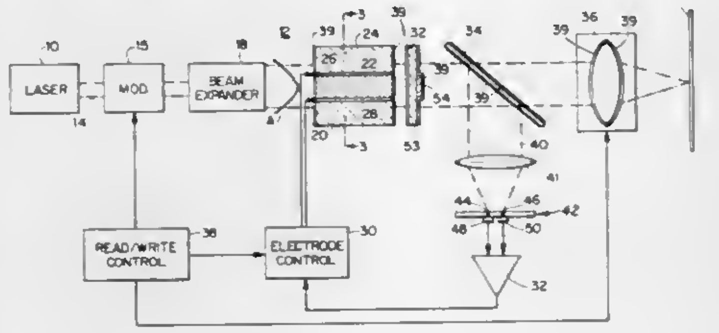
Douglas B. Huber, Cincinnati, Ohio, assignor to Polacoat, Inc., Cincinnati, Ohio
Filed April 5, 1971, Ser. No. 131,110
Int. Cl. G03b *21/60*
U.S. Cl. 350—126 **10 Claims**



A rear projection screen which is essentially free from scintillation, said screen being composed of two essentially parallel screen surfaces lying in closely spaced apart relation, one of said surfaces comprising a refraction lens system composed of lens defining transparent articles contained in a plastic carrier coating, the other surface of said screen comprising either a second refractive lens system or a light transmissive matte surface which acts as a refractive system, said systems each acting to disperse light passing therethrough at different wave lengths to individually produce scintillation effects, said two systems jointly acting to counterbalance their respective scintillation effects to provide a screen which is essentially free from scintillation.

3,705,758
APPARATUS FOR CONTROLLING A BEAM OF COHERENT ELECTRO-MAGNETIC WAVES

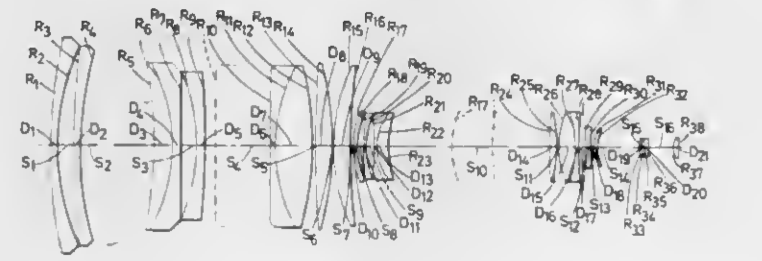
Haim Haskal, Brookline, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 30, 1969, Ser. No. 889,054
Int. Cl. G02f *1/28;* **H01s** *3/00;* **G01d** *9/42*
U.S. Cl. 350—160 R **12 Claims**



Focusing means in the path of a beam of coherent electromagnetic waves focus the beam on a focal plane. The beam intensity varies across the diameter. First transparent refractive means in the path of the more intense portion of the beam transmits the waveforms but retards their phase. Second transparent refractive means in the path of the less intense portion of the beam transmits the less intense waveforms but retards their phase an amount different from that of the first refractive means. Interference at the focal plane between the phase changed waveforms alters the original intensity profile of the waveforms. By controlling the relative phase changes the intensity pattern can be altered to be substantially uniform across the beam with only small loss of energy.

3,705,759
OPTICAL OBJECTIVE OF VARIABLE FOCAL LENGTH

Gordon Henry Cook, Oadby, England, and Francois Laurent, Yverdon, Switzerland, assignors to The Rank Organisation Limited, London, England
Continuation-in-part of Ser. No. 39,122, May 20, 1970, abandoned, which is a continuation-in-part of Ser. No. 696,443, Jan. 8, 1968, abandoned. This application Dec. 18, 1970, Ser. No. 99,537
Claims priority, application Great Britain, May 20, 1970, 39,112/70
Int. Cl. G02b *15/16, 15/18*
U.S. Cl. 350—184 **15 Claims**

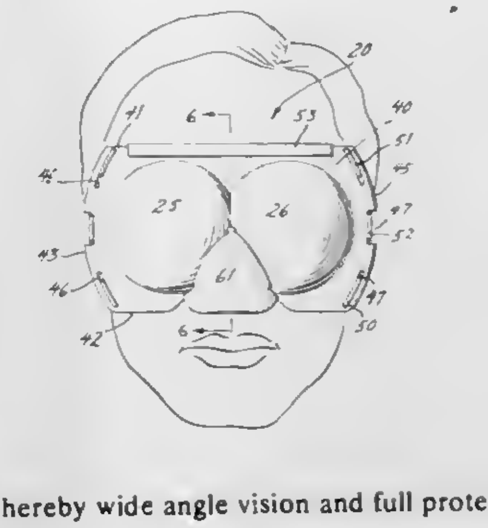


The invention relates to an optical objective for photographic or other purposes, having movable members disposed between front and rear members which are normally stationary, whereby the equivalent focal length of the objective can be continuously varied while maintaining constant the position of the image plane, and in particular concerns a zoom lens having a divergent front member, a convergent second member, a divergent third member, a convergent fourth member and a divergent fifth member, wherein the second and fourth members move forwardly and the third member simultaneously moves rearwardly for zooming towards maximum focal length and wherein the zooming system constituted by the first four members is characterized by a number of specified mathematical relationships involving the focal lengths and magnification ratios of the second, third and fourth members.

3,705,760
FACE GOGGLES

Walter J. Langendorfer, Lansdowne, and David W. Coffin, Sr., Prospect Park, both of Pa., assignors to Langendorfer Plastics Corporation, Lansdowne, Pa.
Filed March 4, 1971, Ser. No. 120,961
Int. Cl. G02c *7/10;* **A61f** *9/02*
U.S. Cl. 351—44 **7 Claims**

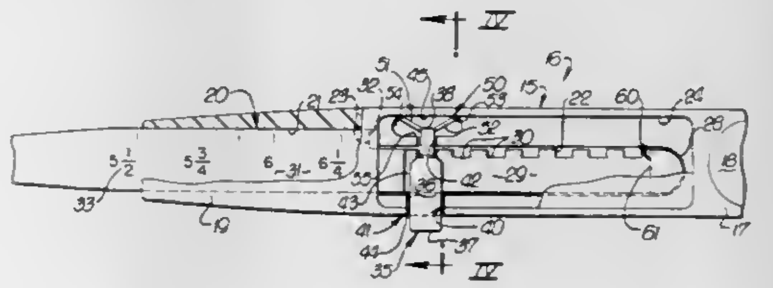
Face goggles for eye and face protection in the form of a transparent plastic, for instance acrylic, spherical face plate having individual viewing spheres positioned over the eyes of



the wearer, whereby wide angle vision and full protection are achieved.

3,705,761
ADJUSTABLE TEMPLE FOR EYEGLASSES

Masakatsu Fujisawa, San Francisco, Calif., assignor to American Safety Equipment Corporation, Encino, Calif.
Filed Feb. 16, 1971, Ser. No. 115,583
Int. Cl. G02c *5/20*
U.S. Cl. 351—118 **5 Claims**

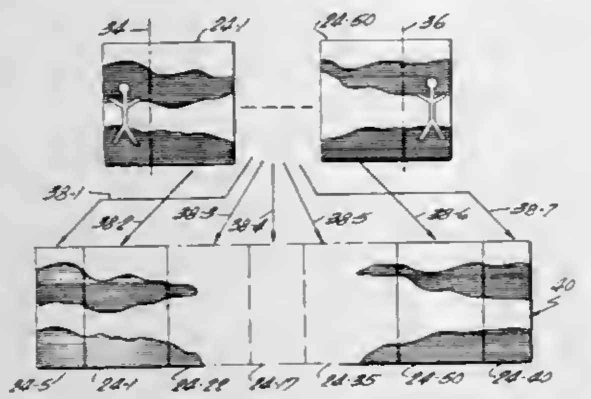


The adjustable temple for eyeglasses has a transversely notched front portion of an ear contoured part telescoped into a rearwardly open ended cavity portion of a forward part, and releasably locking member slidably positioned in a transverse open ended compartment in the forward part and in communication with the cavity portion, the locking member integrally including a detent shoulder, a spring member and an actuator end, whereby manual actuation of the actuator end moves the detent shoulder out of the notch against the action of the spring member, permitting manual longitudinal adjustment of the parts to fit different head sizes, and on release of the actuator end, the spring member forces the detent shoulder into an aligned notch to lock the parts together, providing individually adjusted eyeglasses.

3,705,762
METHOD FOR CONVERTING BLACK-AND-WHITE FILMS TO COLOR FILMS

Fred Ladd, Great Neck, N.Y., and Jung Hoon Song, Seoul, South Korea, assignors to Color Systems, Inc., New York, N.Y.
Filed Sept. 20, 1971, Ser. No. 182,044
Int. Cl. G03b *19/18, 21/32*
U.S. Cl. 352—38 **16 Claims**

A method for converting black-and-white animated cartoons to color cartoons. An enlarged print is made for each frame of the cartoon, a celluloid sheet is placed over each print, the outlines of the characters in the frame are drawn on the sheet, and the characters are then hand colored. Several prints corresponding to each scene are then cut in order to derive unobstructed background views. The background views are pieced together to form a photo-montage of the background for the scene. The background is then hand colored. The final color film is made by placing successive celluloid sheets in successive positions on a common background and exposing the final film frame-by-frame. A similar technique is disclosed for converting live-action films.



3,705,763

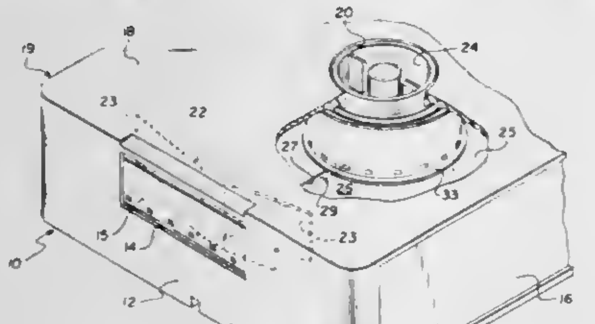
DISENGAGEABLE ANTI-BACKUP MECHANISM FOR A FILM CARTRIDGE

James L. Almstead, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 7, 1971, Ser. No. 141,324

Int. Cl. G03b *23/06, 27/62*

U.S. Cl. 352—78 R **6 Claims**



A film cartridge includes an anti-backup mechanism for preventing rotation of the take-up spool when the cartridge is out of a camera and the mechanism is disengageable for permitting rotation of the take-up spool when the cartridge is loaded in the camera. In a preferred embodiment, the mechanism comprises a latching member having a detent portion and mounted for movement transverse to the axis of rotation of the spool between a first, engaged position wherein the detent portion engages the spool to prevent rotation thereof, and a second, disengaged position wherein the detent portion is disengaged from the spool to permit rotation thereof. The latching member is secured to a spring which is actuated through an exposure aperture in the cartridge by a camera member so that if the camera has a reversible film drive, "fade and lap dissolve" photographic sequences are possible.

3,705,764

MOTION PICTURE CAMERA FOR THE MAKING OF EXPOSURES WITH FIXED AND VARIABLE EXPOSURE TIMES

Herbert Reinsch, Kongen, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

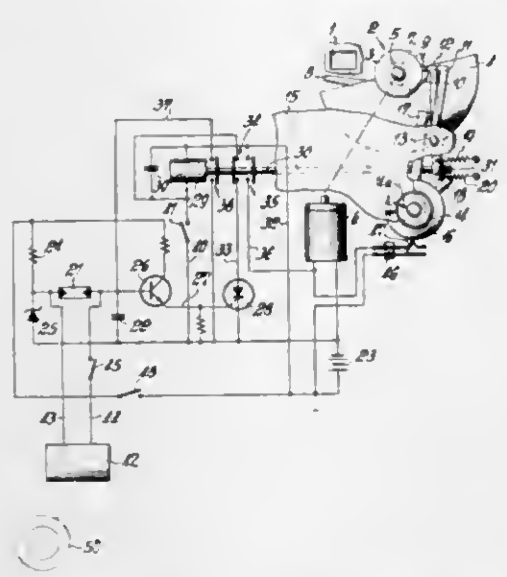
Filed Nov. 29, 1971, Ser. No. 202,761

Claims priority, application Germany, Dec. 5, 1970, P 20 60 026.4

Int. Cl. G03b *17/46*

U.S. Cl. 352—121 **13 Claims**

A motion picture camera wherein the shutter is adjustable by a knob between a first position in which it shields the film from scene light upon completion of each of its cycles and a second position in which it exposes the foremost unexposed film frame to scene light upon completion of each cycle. The film is transported by an intermittent which is driven by a motor serving to move the shutter through a cycle during each transport of the film by the length of a frame. When the shutter is adjusted to assume its second position, the motor is operated by an electric timer which transmits signals for energization of an electromagnet at intervals whose length is a function of scene brightness. The armature of the electromagnet starts the motor which causes the intermittent to advance the film by the length of a frame and which also causes the shutter to complete a cycle in response to each energization of the electromagnet. This enables the camera to make any desired number of successive time lapse exposures with "long" exposure times (e.g., in the range of one or more seconds or minutes), always as a function of scene brightness.



3,705,765

APPARATUS FOR USE IN FOCUSSING IMAGES

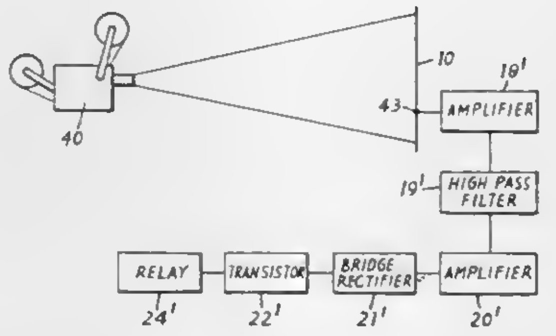
David Fenton Fenner, Dunstable, England, assignor to National Research Development Corporation, London, England

Filed Jan. 23, 1970, Ser. No. 5,283

Claims priority, application Great Britain, Jan. 23, 1969, 3,738/69

Int. Cl. G03b *3/00*

U.S. Cl. 353—101 **21 Claims**



Apparatus for focussing images on screens in which a strip of the image is scanned by a radiation-sensitive device. The well-defined edges of a focussed image produce high-frequency components in the output of the radiation sensitive device which are absent when the image is out of focus. Scanning is produced by deflection coils of a television camera or by the pull-down mechanism of a projector which allows some radiation to reach the screen during pull-down. The focus may be determined in two planes, one in front of and the other behind the screen whereby an indication of the direction in which the lens should be moved to focus the image on the screen is given.

3,705,766

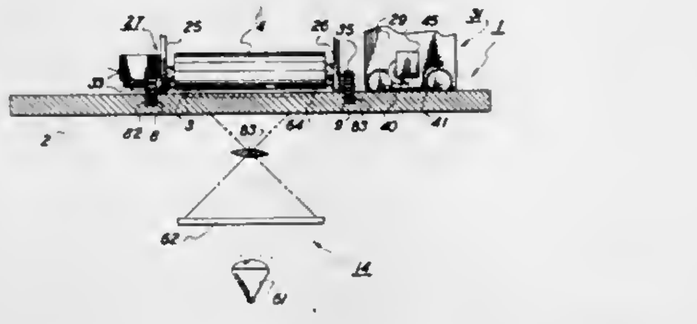
PHOTOELECTROPHORETIC APPARATUS

Raymond K. Egnaczak, Williamson, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 28, 1970, Ser. No. 84,714

Int. Cl. B01k *5/00;* **G03g** *15/04*

U.S. Cl. 355—3 **15 Claims**



A photoelectrophoretic ink is spread over a flat transparent plate by a first roller traveling over the plate along a first path. Voltages are coupled to the first roller and plate and radiation is directed onto the ink for forming an image as the roller travels over the plate. A second roller travels over the plate along a path that intersects the first. The first and a third roller are used for image forming, and the second roller is used for image transferring. Web handling mechanisms are provided to feed webs between the rollers and plate as a roller moves over the plate.

3,705,767

ELECTROPHOTOGRAPHIC DEVICE

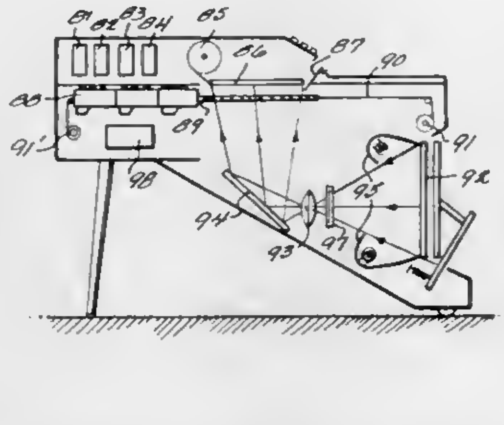
Yasuo Tamai, and Osamu Fukushima, both of Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed July 21, 1970, Ser. No. 56,852

Claims priority, application Japan, July 21, 1969, 44/57544

Int. Cl. G03g *15/00*

U.S. Cl. 355—4 **11 Claims**



An electrophotographic device for reproducing a colored original characterized by the interconnection of a plurality of processing units each having a corona charging means, a color-decomposing filter of a color corresponding to a unique color constituent of the colored original, and a developing means for applying a toner of a color complementary to the color of the filter, the elements of each developing unit being arranged in the sequence mentioned above. The interconnected processing units are moved across the surface of a stationary electrophotographic sensitive material on which the image of the colored original is projected, the original also being held in a stationary position whereby the colored original is reproduced on the surface of the sensitive material after all processing units are moved thereacross.

3,705,768

COPYING APPARATUS

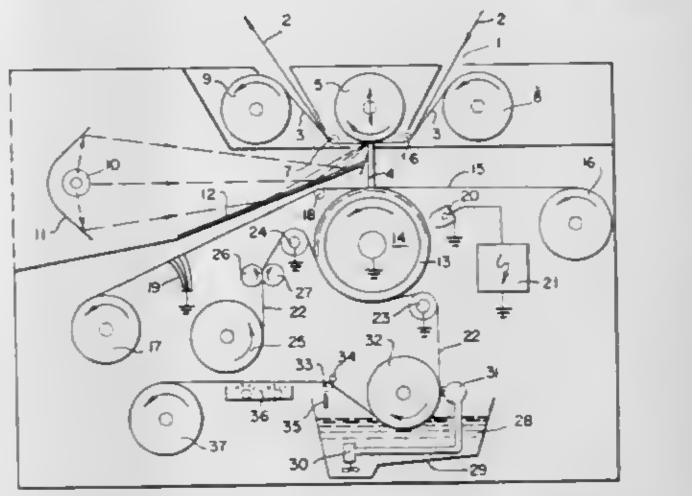
Roland Moraw, Naurod, and Reinhold Arneth, Budenheim, both of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

Filed March 9, 1971, Ser. No. 122,408

Claims priority, application Germany, March 10, 1970, P 20 11 241.8

Int. Cl. G03b *27/48, 27/50*

U.S. Cl. 355—8 **10 Claims**



This invention relates to a copying apparatus employing a reflex exposure device in which a master and a copying material are conducted in the same direction past, and at a short distance from, the opposite ends of a bar-like fiber optic element.

3,705,769

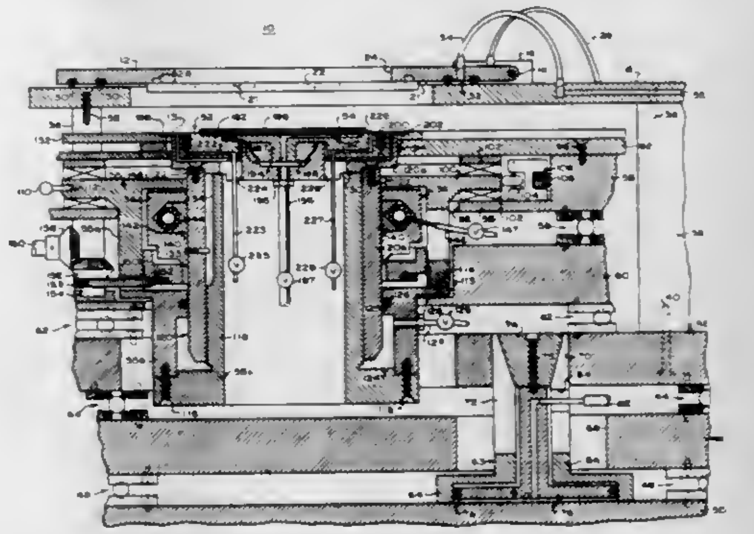
OPTICAL ALIGNMENT AND CONTACT PRINTING SYSTEM WITH IMPROVED CHUCK ASSEMBLY

Karl-Heinz Johannsmeier, 555 W. Middlefield Road, Mountain View, Calif.

Filed Nov. 12, 1970, Ser. No. 88,973

Int. Cl. G03b *27/20*

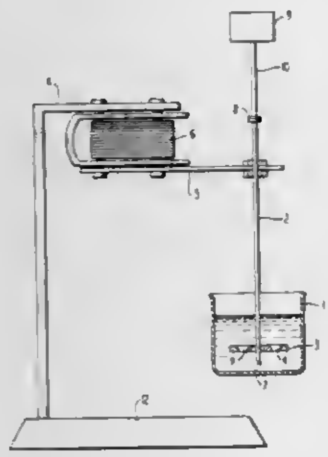
U.S. Cl. 355—91 **30 Claims**



A semiconductor wafer is loaded onto a pivotally-mounted portion of a chuck assembly and held in place by application of a vacuum to the lower surface of the wafer. The chuck assembly is then driven upward under fluid pressure to position the upper surface of the wafer in abutment upon the lower surface of a mask supported on a holder above the chuck assembly and to thereby align these surfaces in parallel planes. After this parallel plane alignment operation, the chuck assembly is lowered and moved relative to the mask holder to align a pattern on the upper surface of the wafer with a corresponding pattern on the lower surface of the mask. Once this pattern alignment operation has been completed, the chuck assembly is again driven upward under fluid pressure to position the upper surface of the wafer in abutment upon the lower surface of the mask. A first normally retracted seal ring supported by the chuck assembly around the wafer is then inflated to sealingly engage the lower surface of the mask. The region enclosed by the mask, the first seal ring, and the chuck assembly is thereupon evacuated clamping the chuck assembly, the wafer, and the mask together and permitting equalization of the pressure applied to the chuck assembly and the mask. A second normally retraced seal ring supported by the chuck assembly within the first seal ring beneath a peripheral portion of the wafer may also be inflated to sealingly engage the lower surface of the wafer. In this case, the region enclosed by the mask, the first seal ring, the portion of the chuck assembly between the first and second seal rings, the second seal ring, and the wafer is evacuated clamping the chuck assembly, the wafer, and the mask together and permitting equalization of the pressure applied to the wafer and the mask. In either case, a photosensitive film on the upper surface of the wafer is then exposed through the mask, the seal or seals deflated, the chuck assembly lowered, and the exposed wafer unloaded.

3,705,770
ATOMIC ABSORPTION SPECTROSCOPIC ANALYTICAL METHOD AND APPARATUS

Masayuki Kashiki, Souka, Japan, assignor to Maruzen Oil Company Limited, Osaka, Japan
Filed Nov. 9, 1970, Ser. No. 87,662
Claims priority, application Japan, Nov. 8, 1969, 44/89599
Int. Cl. G01n *1/00, 1/10*
U.S. Cl. 356—36 **6 Claims**

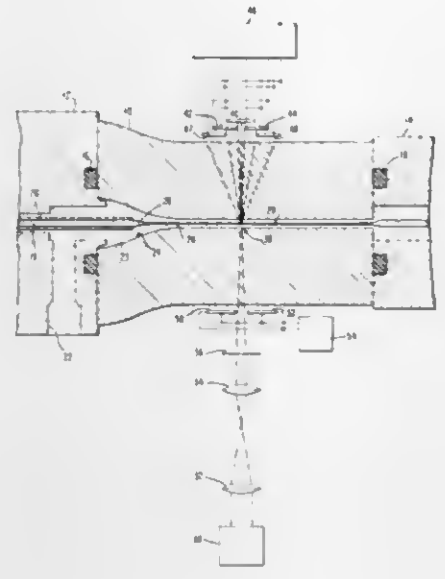


In the atomic absorption spectroscopic analysis of a solid or a sludge-like or a paste-like sample, the sample is fed in a uniformly dispersed and mixed state with a liquid to a flame via an atomizer in an atomic absorption spectroscopic analytical apparatus. Furthermore, there is provided an apparatus suitable for practising this method, which comprises a sample vessel and a stirring means for dispersing and uniformly mixing a solid and liquid and a capillary of which the lower end is inserted in said vessel and the upper end is connected with an atomizer.

3,705,771
PHOTOANALYSIS APPARATUS

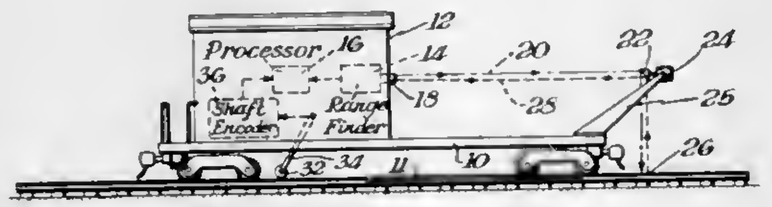
Mitchell Friedman, Yorktown Heights; Louis A. Kamentsky, Briarcliff Manor, and Isaac Klinger, Yorktown Heights, all of N.Y., assignors to Bio/Physics Systems, Inc., Katonah, N.Y.
Filed Jan. 14, 1970, Ser. No. 2,750
Int. Cl. G01n *21/26*
U.S. Cl. 356—39 **38 Claims**

A narrow beam of light is directed through an optical chamber to intersect a thin stream of small particles to be optically analyzed. At least two photoresponsive pick-up elements are positioned at different angular positions with respect to the beam to simultaneously detect different optical reactions of each particle to the beam illumination.



3,705,772
PROFILE DETERMINING METHOD AND SYSTEM

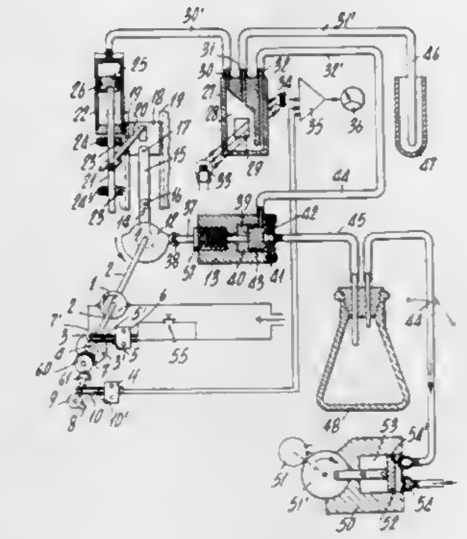
Henry E. Andreas, Wilmington, Del., assignor to Sci-Tek Computer Center, Inc.
Filed April 20, 1971, Ser. No. 135,556
Int. Cl. G01c *3/08*
U.S. Cl. 356—5 **16 Claims**



A distance ranging system of conventional design is utilized to measure radial distances transversely to the direction of motion of a vehicle or other object along a right-of-way. Using a high speed rotating transducer element, successive radial scansions are made during the vehicle movement. Each successive radial scansion or sweep is divided into segments or channels, one for every preselected number of degrees of arc in the swept field under examination. At least one channel covers every portion of the swept field. The range information for corresponding arcuate portions or channels of each succeeding revolution or sweep is compared with that previously stored information for such channel and the minimum range information retained for each of the channels. Thus, with each sweep or revolution of the ranging device, new data for each channel is individually compared with the data already residing in each channel. If the new distance measured is less than the distance previously measured and stored for this channel, this new measurement information is then stored and the old information discarded. Simultaneously therewith, lineal distance information as to the location of each minimum range point can be recorded in separate storage area. The process continues for each right-of-way to be measured at which time the operator transfers the stored information to be transferred to paper tape or other storage.

3,705,773
METHOD AND APPARATUS FOR CONVEYING LIQUIDS TO BE ANALYZED TO AN AUTOMATIC SPECTROPHOTOMETRICAL READING CUVETTE

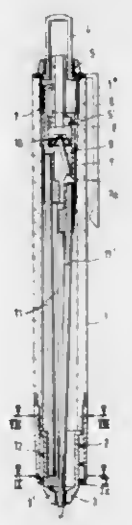
Guido Vicario, Piazza Giulio Cesare, Milan, Italy
Filed Feb. 5, 1971, Ser. No. 112,860
Int. Cl. G01j *3/46*
U.S. Cl. 356—180 **9 Claims**



Method and apparatus for carrying out spectrophotometrical and colormetrical tests, wherein by a syringe a first predetermined amount of liquid is drawn from a first container and introduced into a second analysis container, and then ejected by a vacuum pump to wash said second container, then by said syringe a second metered amount of liquid for test operations is introduced into said second container, then ejecting the analyzed liquid by said vacuum pump. The apparatus comprises means for continuous cyclic operation, for enabling at a desired time the measuring means for the measures to be carried out.

3,705,774
WRITING INSTRUMENT

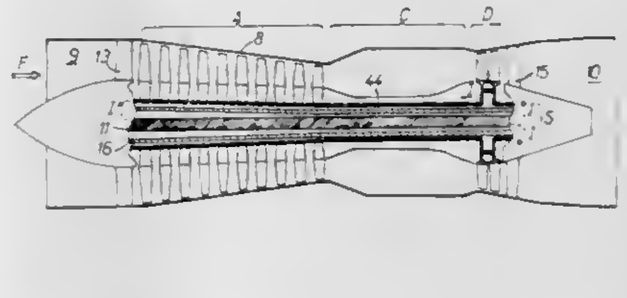
Werner Kranich, Am Hopfengarten 17, D-8501 Rosstal near Nuremberg, Germany
Filed Aug. 30, 1971, Ser. No. 176,032
Claims priority, application Germany, Sept. 2, 1970, P 20 43 495.1; Dec. 3, 1970, P 20 59 456.3
Int. Cl. B43k *27/08*
U.S. Cl. 401—33 **16 Claims**



This invention relates to a writing instrument, particularly a ball point pen having a plurality of writing members. A writing member is selected by depressing a pressure member, inclining the instrument in a certain direction and then releasing the pressure member.

3,705,775
GAS TURBINE POWER PLANTS

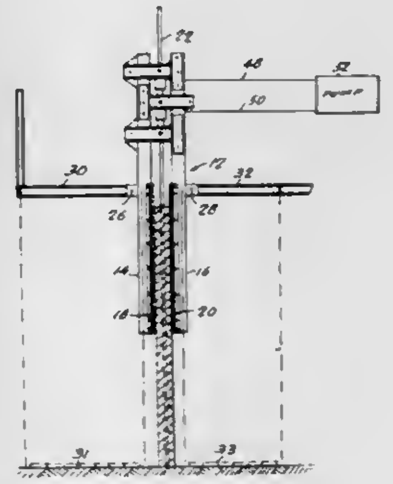
Christian Paul Gilbert Rioux, Antony, France, assignor to Societe Nationale d'Etude et Construction de Moteurs d'Aviation, Paris, France
Filed Jan. 14, 1971, Ser. No. 106,380
Claims priority, application France, Jan. 15, 1970, 7001437
Int. Cl. F04b *17/00, 35/04;* **F02k** *3/00;* **F16c** *35/00*
U.S. Cl. 417—411 **20 Claims**



A gas turbine power plant comprising a compressor, a turbine and a system for transmitting the drive from the turbine to the compressor, wherein the transmission system comprises at least one homopolar electrical machine connected to the turbine and operating as generator, and at least one homopolar electrical machine connected to the compressor and operating as motor, wherein this motor is supplied with electrical current from the said generator.

3,705,776
APPARATUS FOR SLIP-FORMING

Rolf Anders Johansson, 3575 Perron Boulevard, Apt. 8, Chomedey, Laval, Quebec, Canada
Filed Dec. 9, 1970, Ser. No. 96,434
Int. Cl. B28b *1/14*
U.S. Cl. 425—65 **5 Claims**



A mold assembly used in the construction of concrete walls and including two leg members carrying opposing spaced form panels within which concrete is poured. Thinner walls may now be erected by alternately (instead of synchronously) raising the form panels. Jacks operating on transversely extending cross-members secured to the leg members cooperate with gripping members climbing along the vertical rod extending in the concrete to alternately raise the two form panels.

3,705,777

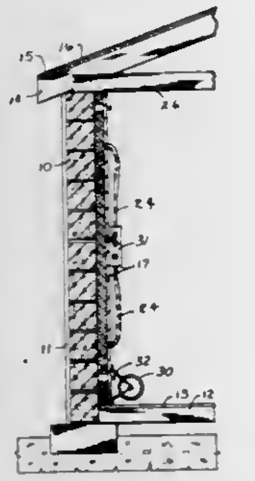
APPARATUS FOR COATING BUILDING WALL WITH FOAM

Henry J. Witkowski, 5625 Each Lake Road, Erie, Pa.

Filed Sept. 4, 1969, Ser. No. 855,210

Int. Cl. B28b *3/10*

U.S. Cl. 425—110 **2 Claims**



This specification discloses an apparatus for coating walls of buildings, The forms are rigid sheets with tubes of exactly the same length as the thickness of the desired coating. Nails driven in the walls extend through these tubes. A wedge placed under the nail head holds the sheets to the walls. The foaming material is sprayed in the space between the sheet and the wall. The foam will adhere to the wall and when the sheet is removed, a smooth plasterlike will remain, or a pattern resembling wood grain, brick or any other desired finish. The foam may be sprayed on the floor and carpet or linoleum placed over it. A drop ceiling may be placed below the roof and the walls painted any color desired.

3,705,778

PLASTIFYING APPARATUS

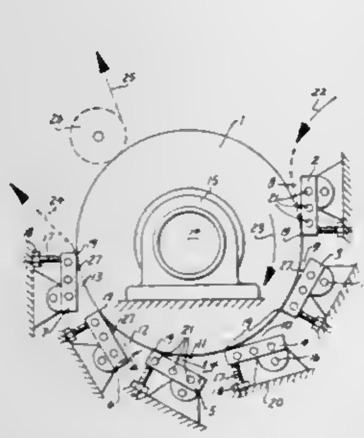
Heinrich Collin, Munich, Germany, assignor to Krauss-Maffei Aktiengesellschaft, Munich, Germany

Filed March 12, 1970, Ser. No. 18,903

Claims priority, application Germany, March 13, 1969, P 19 12 779.8

Int. Cl. B29d *7/02*

U.S. Cl. 425—224 **20 Claims**



A plastifying apparatus is disclosed. A rotatable roller has arranged angularly spaced with reference to its periphery a plurality of gap-forming elements each of which defines with the periphery a wedge-shaped gap which tapers in direction of rotation of the roller. Feed means feeds material to be plastified into the first one of the gaps for successive movement through this and the following gaps as the roller rotates, whereby the material undergoes successive plastification steps.

3,705,779

DEVICE FOR MANUFACTURING A PLASTIC TUBE WITH TRANSVERSE GROOVES

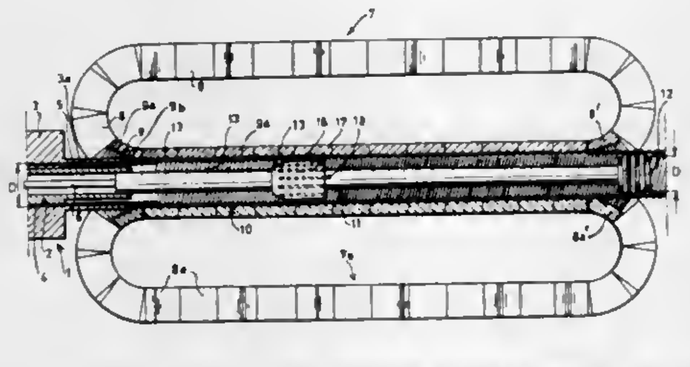
Cornelis van Zon, Zwolle, Netherlands, assignor to Industriele Onderneming Wavin N.V., Zwolle, Netherlands

Filed Dec. 21, 1970, Ser. No. 100,302

Claims priority, application Netherlands, Dec. 22, 1969, 6919232

Int. Cl. B29c *17/07*

U.S. Cl. 425—326 **9 Claims**



A device for continuously manufacturing a plastic tube with helical grooves comprising an extruder with an annular nozzle situated between a casing and a core, and two rows of mould halves, each row being movable along endless guide paths extending parallel to each other in an operative track, opposite mould halves in this track completing one the other by their mould cavities so as to form a hollow mould, the core of the annular nozzle being provided with a continuous bore for introducing a gaseous pressure between the annular nozzle and closing means consisting of a number of discs of flexible material, whereby the discs have a diameter such that helical grooves are closed when a plastic tube is provided with grooves in the moulds.

3,705,780

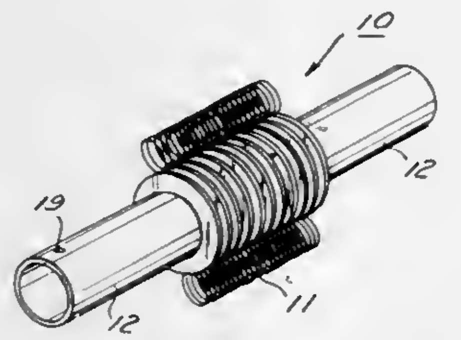
APPARATUS FOR MAKING FLEXIBLE TUBING WITH ANNULAR CORRUGATIONS

Vance M. Kramer, 402 E. Baindary Road, Perrysburg, Ohio, and Lawrence W. Carlton, 354 Seabee Ave., Naples, Fla.

Filed Oct. 9, 1970, Ser. No. 79,394

Int. Cl. B29c *17/07*

U.S. Cl. 425—389 **5 Claims**



Apparatus for making flexible tubing with annular corrugations and uniform wall thickness. The apparatus includes a tubular cylindrical mandrel adapted to receive a sleeve of extruded rubber, and an axially extensible external form adapted to be received over the mandrel and sleeve. The form includes a plurality of axially spaced disk-like elements, each having a circular opening coaxial with the respective circular openings of the other elements, and a plurality of resilient extensible

helical springs spaced about the axis of the openings. Each spring is connected to each disk-like element to support the elements in uniformly spaced parallel relation to one another to accommodate generally uniform increase in the axial spacing between said elements when the springs are axially extended. The mandrel has radial ports so that the sleeve may be expanded by internal pressure to make a preliminary impression in the uncured rubber caused by the edges of the circular openings of the disk-like elements.

3,705,781

PROCESS AND DEVICE FOR IGNITING OXYACETYLENE CUTTING TORCHES

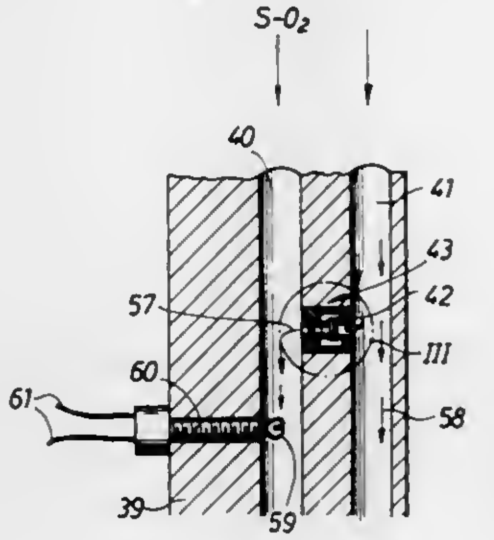
Georg Adam Roder, Frankfurt am Main, Germany, assignor to Messer Griesheim GmbH, Frankfurt/Main, Germany

Division of Ser. No. 801,695, Feb. 24, 1969, Pat. No. 3,627,457. This application Aug. 27, 1971, Ser. No. 175,607

Claims priority, application Germany, Feb. 24, 1968, P 17 29 894.1

Int. Cl. F23q *9/08*

U.S. Cl. 431—6 **6 Claims**



A process and device for igniting autogenous cutting torches, particularly in multi-torch cutting machines, includes conducting the fuel gas mixture into the cutting oxygen canal or into an auxiliary canal connected with the cutting oxygen canal where the ignition takes place.

3,705,782

DESTRUCTION OF OIL SLICKS

Roger F. Rensvold, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed July 22, 1971, Ser. No. 165,354

Int. Cl. F23d *3/18*

U.S. Cl. 431—7 **4 Claims**

An oil slick is destroyed by applying thereto finely divided particles of a compound capable of generating a combustible gas, upon contact with water, allowing the particles to contact the underlying body of water so that bubbles of combustible gas rise through the oil film and admix therewith, so as to enhance the combustibility of the oil, and then igniting the oil-gas mixture to burn and destroy the film, e.g. calcium carbide to form acetylene gas.

3,705,783

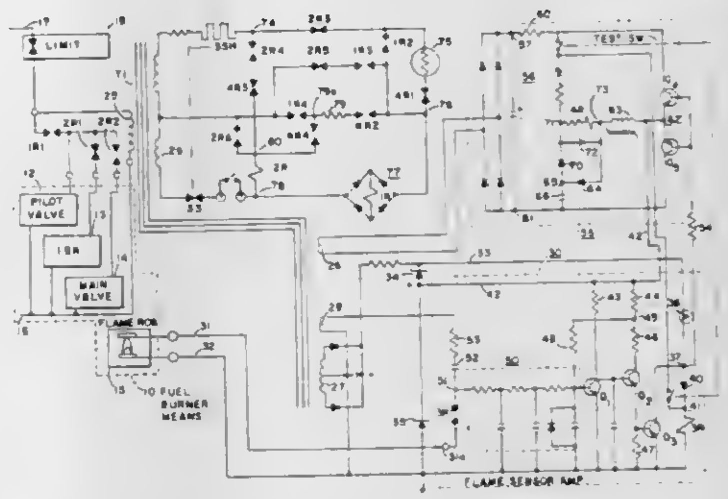
BURNER SAFEGUARD CONTROL APPARATUS

James S. Warren, Minnetonka, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed July 21, 1971, Ser. No. 164,719

Int. Cl. F23q *9/08*

U.S. Cl. 431—46 **4 Claims**



A fuel burner control system which includes a flame detecting unit and an electrically heated safety switch for safety starting and operating a fuel burner. The system includes a control relay connected in a unique and novel way to lock out and not recycle the system in the event of a loss of flame signal after the system has properly been started. The system does, however, recycle in the event of a power failure by using a fast dropout third relay.

3,705,784

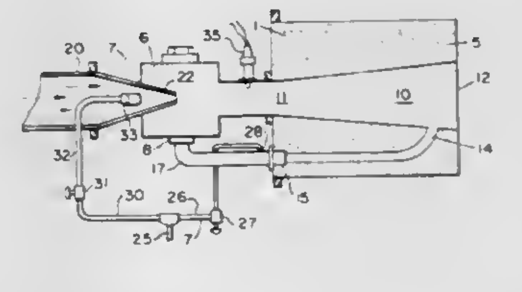
LIQUID FUEL BURNER HAVING REDUCED THERMAL STRESS AND RAPID START-UP TIME

Robert Reichhelm, Lancaster, and Albert Morrison, Jr., Leola, both of Pa., assignors to Burnham Corporation, Irvington-on-Hudson, N.Y.

Filed Jan. 11, 1971, Ser. No. 105,212

Int. Cl. F23m *9/06*

U.S. Cl. 431—116 **14 Claims**



A burner for burning gasified liquid fuel such as oil, in which the fuel is gasified by being mixed with hot burned gases drawn from the combustion chamber, is provided in which the normal thermal stresses found in such burners due to the return of the hot burned gases for gasifying are substantially reduced and, at the same time, start-up time is reduced. Minimization of the thermal stresses is accomplished by utilizing the heat of vaporization of the oil or other fuel to cool the hot returning gases, and so limit thermal expansion, by having the gasification of the fuel commence close to the hot gas outlet of the burner, rather than at a more remote distance, such as a gasification chamber. This permits elimination of the gasification chamber, which normally has been required to provide a preheating area for the oil, and so further reduces stresses. With such elimination, rapid start-up is provided by preliminarily burning ungasified fuel introduced by the air and fuel system of the principal unit.

3,705,785

VALVE FOR USE IN GAS FUELED CIGARETTE LIGHTERS

Kenjiro Goto, Tokyo, Japan, assignor to Mansei Kogyo Kabushiki Kaisbya, Kawaguchi-shi, Japan

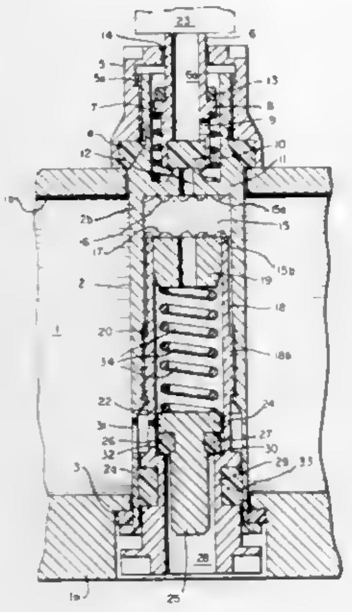
Filed April 14, 1971, Ser. No. 133,889

Claims priority, application Japan, April 14, 1970, 45/035913

Int. Cl. F23d *13/04*

U.S. Cl. 431—344 **6 Claims**

A combined refill and burner valve assembly comprises a main outer cylindrical body including a discharge nozzle cylinder in the upper portion thereof, an adjusting member of porous material under said discharge nozzle cylinder, a regulating tubular means being in rotatably threaded connection with the inner side of said main outer cylindrical body and being in resilient contact with said adjusting member in the tip portion thereof, said regulating tubular means having a valve member adapted to serve as a filling valve in its lower portion near to an opening accommodated to receive a connecting tube of a fuel charging container.



CHEMICAL

3,705,786

CORROSION INHIBITION WITH METHYLENE BIS-BENZOIC ACID

Saul Kaye, Evanston, Ill., assignor to Ventron Corporation, Beverly, Mass.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,174

Int. Cl. C23f *11/12*

U.S. Cl. 21—2.7 **4 Claims**

This application is directed to corrosion inhibition of ferrous materials in an aqueous environment by employing 3,3′-methylene bis-benzoic acid.

3,705,787

METHOD FOR REGULATING THE TEMPERATURE AND THE CONVERSION IN A POLYMERIZATION REACTOR AND APPARATUS SUITABLE TO REALIZE THE SAME

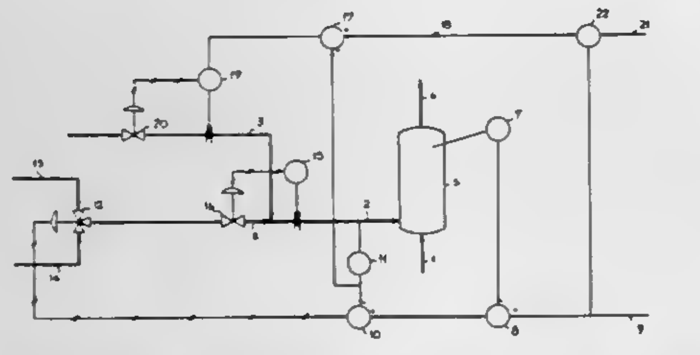
Roberto Carli, Milan, and Silvano Gordini, San Donato Milanese, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

Filed July 21, 1970, Ser. No. 56,896

Claims priority, application Italy, July 21, 1969, 19,900/69

Int. Cl. C08f *1/00, 1/98*

U.S. Cl. 23—230 A **3 Claims**



A continuous polymerization process wherein the process temperatures and conversion are automatically maintained at predetermined values by measuring and comparing the temperatures of the solvent-catalyst feed and the products of reaction to generate signals which actuate control valves for regulating the rate of catalyst feed and the temperature of solvent feed to the reactor.

3,705,788

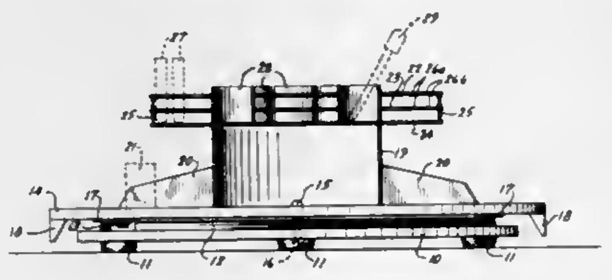
URINALYSIS WORK RACK

Gary A. Kolko, Overland Park, Kans., and Clifford Brown, Kansas City, Mo., assignors to Menorah Medical Center, Kansas City, Mo.

Filed Dec. 21, 1970, Ser. No. 99,923

Int. Cl. G01n *1/16, 1/18*

U.S. Cl. 23—259 **5 Claims**



A laboratory rack to aid in urinalysis sample handling and identification. Radially extending dividers are mounted on a rotatable turntable to provide sample compartments for receiving specimen beakers. Above the dividers, and of lesser diameter than the turntable, is a circular multitier deck having a plurality of holes therein arranged to hold two test tubes in alignment with and above each sample compartment. The central portion of the deck is equipped with cylindrical sleeves for retaining urinalysis test supplies and equipment.

3,705,789

METHOD FOR FLOATING ZONE MELTING

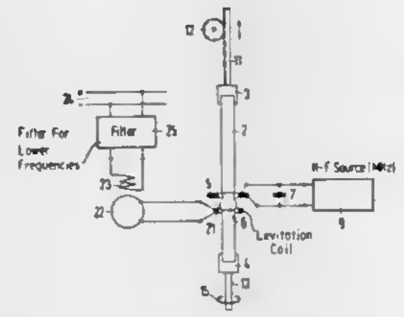
Wolfgang Keller, Pretzfeld, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Apr. 13, 1967, Ser. No. 630,643

Claims priority, application Germany, Apr. 15, 1966, S 103,207

Int. Cl. B01j *17/10*

U.S. Cl. 23—301 SP **1 Claim**



Floating zone melting of a vertically mounted rod is performed while energizing a levitating field winding by alternating current of medium frequency (500 Hz.–500 kHz.) and maintaining the low-frequency (below 300 Hz.) amplitude fluctuations of the energizing current below 5%, preferably below 1%. Used as current source is an alternating-current generator whose excitation or feeder direct current is smoothed by electronic filtering.

3,705,790

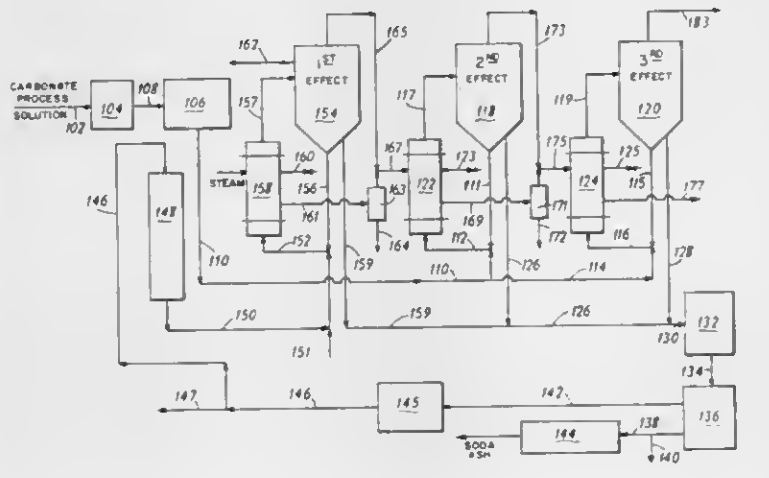
PROCESS FOR INCREASING BULK DENSITY OF SODIUM CARBONATE BY THE ADDITION OF CALCIUM ION

Norman R. Garofano, Syracuse, and Alan G. Follows, Camillus, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Dec. 1, 1970, Ser. No. 94,141

Int. Cl. C01d *7/00*

U.S. Cl. 23—302 **15 Claims**



Invention relates to an improved process for the preparation of sodium carbonate precursor crystals by a crystallization process which involves forming a first crop of said carbonate precursor crystals from a substantially saturated carbonate process solution and providing in the mother liquor separated from said first crop of crystals a sufficient amount of calcium ions such that when the mother liquor is subjected to crystallization at a temperature higher than that employed to obtain the first crop of said precursor crystals, a second crop of sodium carbonate precursor crystals of improved quality is obtained.

3,705,791

CERMET ALLOY COMPOSITION

Nikolajs Bredzs, Detroit, Mich., assignor to Wall Colmonoy Corporation

Filed Sept. 18, 1970, Ser. No. 73,460

Int. Cl. B32b *15/00*

U.S. Cl. 29—195 **16 Claims**

A cermet-type alloy possessing improved sulfidation resistance which is adaptable for forming protective surface coatings on various high-temperature, corrosion-resistant nickel, cobalt and iron base alloys, as well as shaped parts of the alloy per se. The invention also encompasses a novel metallic powder containing nickel and/or cobalt in combination with chromium for forming the continuous matrix of the resultant alloy, as well as titanium and/or zirconium as the reactive metal constituents which are adapted to undergo an exothermic reaction with boron upon fusion of the powder mixture at an elevated temperature in a substantially inert atmosphere, thereby forming the corresponding borides of the reactive metals in situ, which are subsequently precipitated as uniformly dispersed discontinuous phases in the continuous phase of the base alloy matrix. In addition, the particulated mixture further contains a controlled proportion of a finely-particulated refractory oxide comprised of alumina which similarly is dispersed as discrete phases in the continuous base alloy matrix at the completion of the exothermic reaction, forming a cermet-type alloy which possesses exceptional resistance to sulfidation and oxidation attack at elevated temperatures.

3,705,792

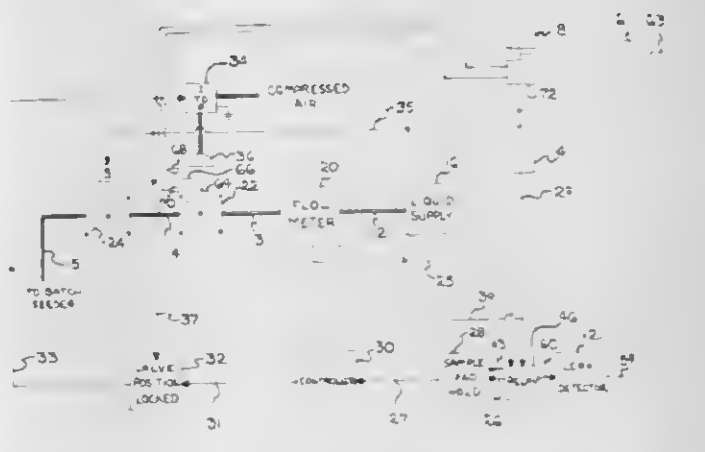
LIQUID FLOW PROPORTIONING SYSTEM FOR METERING INTO A GLASS BATCH

Homer D. F. Peters, Sylvania, Ohio, assignor to Owens-Illinois, Inc.

Filed June 14, 1971, Ser. No. 152,545

Int. Cl. C03b *3/00*

U.S. Cl. 65—134 **13 Claims**



A liquid flow proportioning system, particularly useful for metering caustic soda into a glass batch, in which a flow control valve is held in a fixed position during periods of no flow to avoid transient effects upon the resumption of liquid flow. The control system also holds a set point feedback controller in a fixed operational mode during periods of no flow and additionally includes a system leak detector, a failure of flow alarm and a full flow alarm.

3,705,793

CHEMICAL SOIL IMPROVER

Konstantin Alexandrovich Mikhelis and Alexandr Sergeevna Fomina, Tallin, Kirill Vladimirovich Murumets and Yalmar Semenovich Ulanen, Kiviyli, Anatoly Mikhailovich Kotov, Timofei Mikhailovich Volkov and Boris Semenovich Itsikson, Moscow, Raivo Alexandrovich Suurmaa and Paavo Yaanovich Viks, Kiviyli, and Georgy Grigorievich Berestovsky, Kazakhskaya, U.S.S.R., assignors to Slantsekhimichesky Kombinat "Kiviyli" U.S.S.R., Kiviyli, Estonskoi SSR

No Drawing. Filed Nov. 20, 1969, Ser. No. 878,555

Int. Cl. C05f *11/00*

U.S. Cl. 71—24 **15 Claims**

A chemical soil improver noted for its complex effects and comprising tar obtained by low-temperature carbonization of caustobioliths.

Depending upon climatic conditions and physico-chemical characteristics, the following additives may be incorporated into said soil improver: elemental sulfur, Formalin, wastes of oil shale processing into carboxylic acids, surfactants or pyrite cinder.

The chemical soil improver is primarily intended for soil stabilization or planting, for the control of harmful soil organisms and weeds, for pre-emergence control of weeds, and also for increasing the yields of diverse crops in all soil and climatic zones.

This invention relates to soil improvers of chemical action.

3,705,794

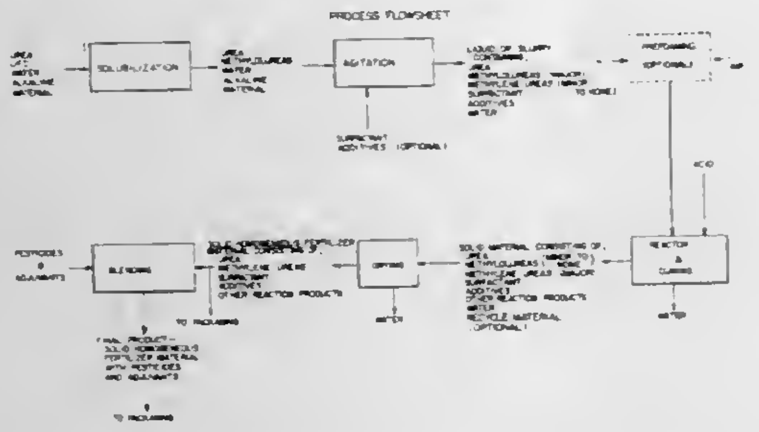
FOAMED FERTILIZERS AND COMBINATION PRODUCTS

Richard H. Czurak, Marysville, and Robert M. Thompson, Richwood, Ohio, assignors to The O. M. Scott and Sons Company, Marysville, Ohio

Filed Aug. 15, 1969, Ser. No. 850,489

Int. Cl. C05b *15/00*

U.S. Cl. 71—29 **23 Claims**



Particulate foamed fertilizers and combination products in which other active ingredients are combined with such fertilizers. Methods and apparatus for making foamed fertilizers and combination products in which provision is made for combining ingredients, curing, drying, and comminuting the material thus obtained, separating and agglomerating fines and adding them to the comminuted product, and incorporating active ingredients into the comminuted product.

3,705,795

PROCESS OF DIRECTLY REDUCING MATERIALS CONTAINING IRON OXIDE IN A ROTARY KILN

Günter Heitmann, Frankfurt am Main, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,905

Claims priority, application Germany, Feb. 9, 1968, P 15 83 955.1

Int. Cl. C21b *13/08*

U.S. Cl. 75—36 **12 Claims**

A process of producing low-sulfur sponge iron by a direct reduction of materials containing iron oxide in a rotary kiln with the aid of solid carbonaceous reducing agent supplied to the rotary kiln at the discharge end thereof, and with the aid of sulfur-combining solids supplied to the reducing zone of the rotary kiln, characterized in that at least part of the sulfur-combining solid which is required is charged directly into the reducing zone of the rotary kiln and the weight of the charged sulfur-combining substance is at most 4% of the weight of the charged ore and in that the particle size of the sulfur-combining solids is up to 2 mm.

3,705,796

CONTACT MATERIAL

Hiroaki Takahashi and Toshito Hara, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sept. 24, 1970, Ser. No. 75,041

Claims priority, application Japan, Sept. 29, 1969, 44/77,616

Int. Cl. C22c *5/00*

U.S. Cl. 75—173 R **2 Claims**

Silver-zinc solid solution alloys used for contact materials have the disadvantage that they form zinc oxide in an oxidizing atmosphere. This disadvantage is obviated by adding aluminum to the solid solution. The atom percentages of zinc and aluminum are 5 to 36% and 0.5 to 5%, respectively, the remainder being silver or an alloy, the main constituent of which is silver.

3,705,797

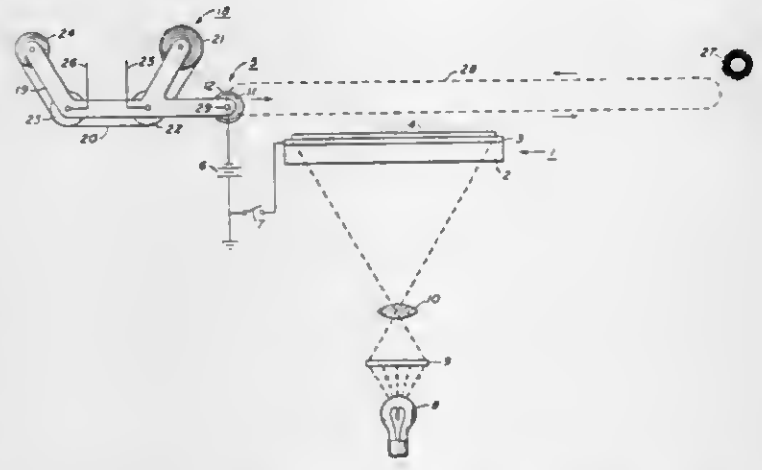
FIXING PROCESS FOR PHOTOELECTROPHORETIC IMAGING

Vsevolod S. Mihajlov and Leonard M. Carreira, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Continuation of application Ser. No. 808,921, Mar. 20, 1969, which is a continuation-in-part of applications Ser. No. 459,860, May 28, 1965, Ser. No. 677,706 and Ser. No. 677,707, both Oct. 24, 1967, all now abandoned. This application Feb. 18, 1970, Ser. No. 12,364

Int. Cl. G03g *13/22*

U.S. Cl. 96—1 R **9 Claims**



Methods and apparatus for photoelectrophoretic imaging utilizing thermo-adhesive layers for image transfer and fixing.

3,705,798

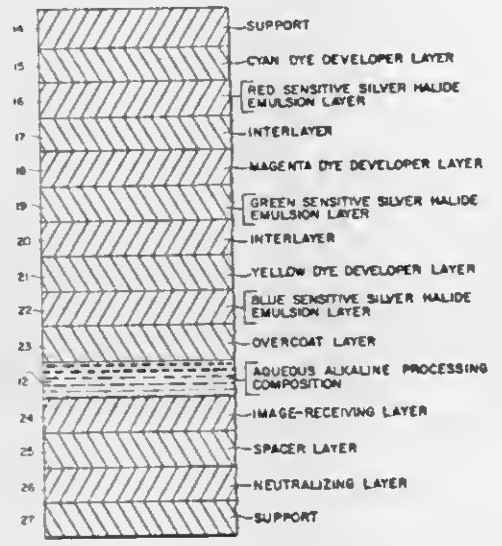
PHOTOGRAPHIC COLOR DIFFUSION TRANSFER UNITARY ELEMENTS COMPRISING AN EMULSION LAYER CONTAINING POLYVINYL-HYDROGEN-PHTHALATE THEREIN

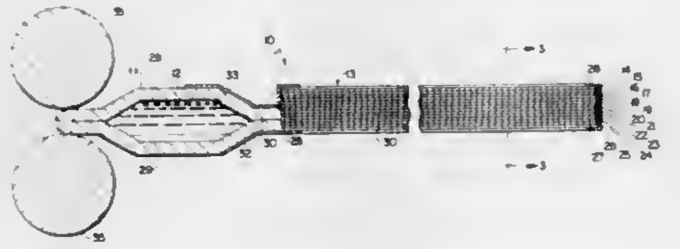
Peter O. Kliem, Weston, and Jerome L. Reid, Natick, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

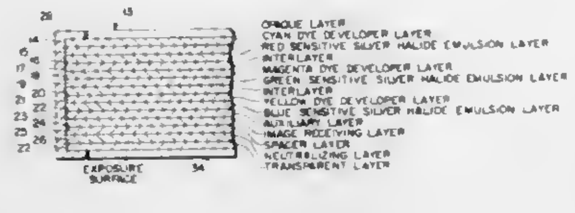
Filed Oct. 6, 1970, Ser. No. 78,408

Int. Cl. G03c *7/00, 5/54, 1/40*

U.S. Cl. 96—3 **4 Claims**


SUPPORT
CYAN DYE DEVELOPER LAYER
RED SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE SENSITIVE SILVER HALIDE EMULSION LAYER
OVERCOAT LAYER
AQUEOUS ALKALINE PROCESSING COMPOSITION
IMAGE-RECEIVING LAYER
SPACER LAYER
NEUTRALIZING LAYER
SUPPORT





Photographic products for forming diffusion transfer images, particularly multicolor transfer images, which products contain one or more gel-containing layers including an anionic polymeric material.

3,705,799

FILM AND PROCESS USING BLEACH INHIBITOR FOR PRODUCING COLOR FILM WITH SILVER SOUND RECORD

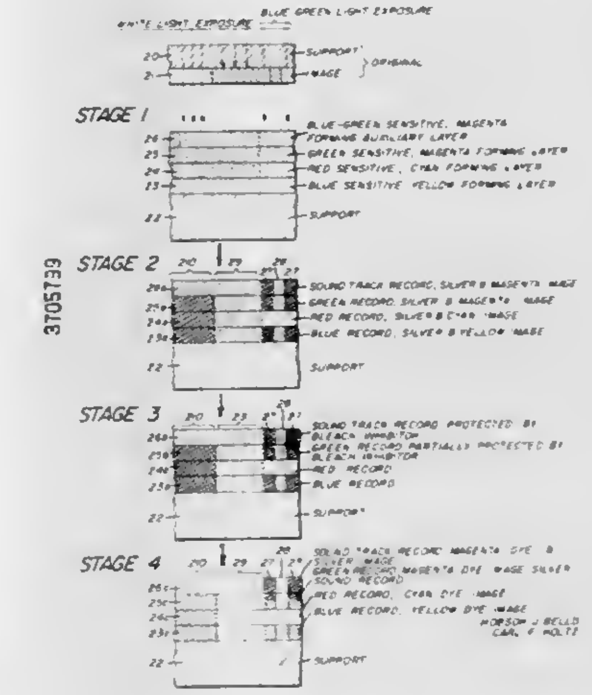
Hobson J. Bello and Carl F. Holtz, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of abandoned application Ser. No. 100,609, Dec. 22, 1970. This application Dec. 17, 1971, Ser. No. 209,362

Int. Cl. G03c *5/44, 7/24*

U.S. Cl. 96—4 **49 Claims**

A novel process of producing a picture record and a silver auxiliary or sound record in an imagewise exposed photographic element comprising a support having coated thereon, on one surface in order from the support, a picture recording photographic image-forming unit comprising silver halide layers and an auxiliary image recording radiation sensitive silver halide layer which does not form an image upon image-forming exposure of the picture recording unit is provided which comprises (A) developing a picture record comprising silver and a nondiffusible dye and an auxiliary image or sound record comprising silver, (B) contacting the auxiliary layer with a ballasted silver bleach inhibitor to adsorb the bleach inhibitor onto at least the silver of the auxiliary image or sound record and (C) removing the bleachable silver images and residual silver halide. Also provided are novel photographic elements similar to the type described above having a plurality of picture recording image-forming units an an auxiliary layer containing a colorless nondiffusible compound which reacts with aromatic primary amine color developing agent and which decreases the rate of diffusion of a ballasted silver bleach inhibitor through the auxiliary layer.



3,705,800

NOVEL PHOTOGRAPHIC PROCESSING COMPOSITIONS AND IMPROVED PROCESSING USING SUCH COMPOSITIONS FOR PREPARING SILVER SOUND TRACKS

William S. Lane, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 100,769, Dec. 22, 1970. This application Dec. 17, 1971, Ser. No. 209,404

Int. Cl. G03c *7/24, 5/44*

U.S. Cl. 96—4 **18 Claims**

Improved photographic processing compositions for preparing silver sound tracks are provided which contain a silver bleach inhibitor and a diffusible onium salt. Also provided is an improved process for producing a silver sound track in an exposed photographic element having at least one silver halide emulsion layer which comprises developing the exposed element to form a picture record comprising silver and dye and a sound record comprising silver and bleaching and fixing the element to remove the silver of the picture record which improvement comprises selectively contacting the sound track record prior to bleaching with a mixture of a silver bleach inhibitor and a diffusible onium salt to retain at least a portion of the silver of the silver sound track during the bleaching.

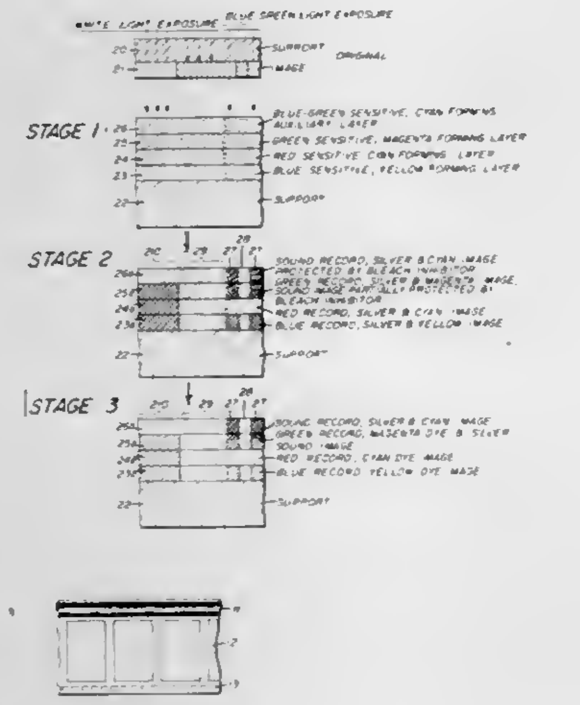
3,705,801
FILM CONTAINING BLEACH-INHIBITOR-RELEASING COMPOUNDS AND PROCESS FOR PREPARING SILVER AUXILIARY AND SOUND RECORDS

Carl F. Holtz, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of abandoned application Ser. No. 100,610, Dec. 22, 1970. This application Dec. 17, 1971, Ser. No. 209,450

Int. Cl. G03c *5/44, 7/24*

U.S. Cl. 96—4 64 Claims


WHITE LIGHT EXPOSURE
BLUE GREEN LIGHT EXPOSURE
SUPPORT
ORIGINAL
IMAGE
STAGE 1
BLUE-GREEN SENSITIVE, CYAN FORMING AUXILIARY LAYER
GREEN SENSITIVE, MAGENTA FORMING LAYER
RED SENSITIVE CYAN FORMING LAYER
BLUE SENSITIVE, YELLOW FORMING LAYER
SUPPORT
STAGE 2
STAGE 3
SUPPORT

Processes and elements are provided for forming separate silver and dye image records, the element comprising a support having coated thereon a picture recording photographic unit comprising at least one silver halide emulsion layer and an auxiliary silver image-producing silver halide emulsion layer, and the process including (1) forming dye and a first silver image in said picture recording unit; (2) reacting the silver halide in said auxiliary layer with a photographic developing agent to form a second silver image and oxidized photographic developing agent; and (3) bleaching and fixing the photographic element to remove the residual silver halide and the first silver image while retaining the second silver image. In accordance with the invention, the auxiliary layer contains at least one nondiffusing compound which releases a ballasted silver bleach inhibitor upon reaction with the oxidized developing agent.

3,705,802
NOVEL PHOTOGRAPHIC PROCESSING COMPOSITIONS AND IMPROVED PROCESSING USING SUCH COMPOSITIONS FOR PREPARING SILVER AUXILIARY AND SOUND RECORDS

John L. Baptista, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 100,776, Dec. 22, 1970. This application Dec. 17, 1971, Ser. No. 209,451

Int. Cl. G03c *5/44, 7/24*

U.S. Cl. 96—4 24 Claims

Novel photographic processing compositions for preparing silver auxiliary images and silver sound tracks are provided which contain a ballasted silver bleach inhibitor and a silver halide solvent. Also provided are improved processes for producing a silver auxiliary image or silver sound record in an exposed photographic element comprising a support having coated thereon at least one picture recording photographic silver halide layer and as the light sensitive layer outermost from the support an auxiliary image-recording silver halide layer which does not form an image upon image-forming exposure of the picture recording layer or layers which comprises (A) developing a picture record comprising silver and dye and an auxiliary or sound record comprising silver, (B) contacting the auxiliary layer which a ballasted silver bleach inhibitor to adsorb the bleach inhibitor onto at least the silver of the auxiliary layer and (C) removing the bleachable silver and the residual silver halide which improvement comprises carrying out step (B) in the presence of a silver halide solvent.

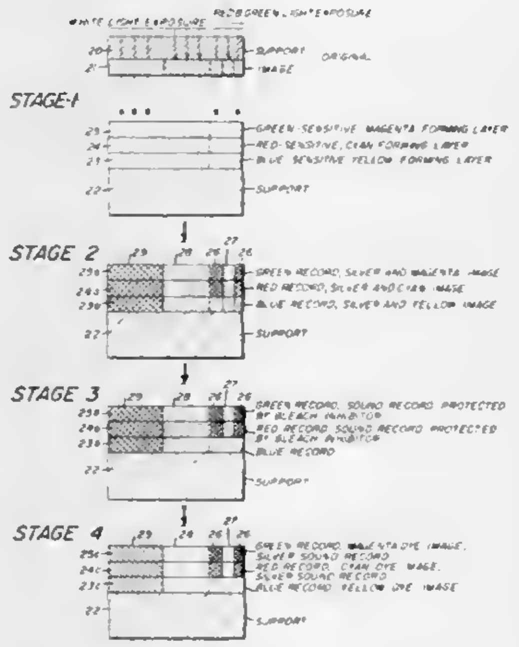
3,705,803
PROCESS FOR PREPARING COLOR FILM WITH AUXILIARY OR SILVER SOUND RECORD USING BLEACH INHIBITOR

Michael J. Bevis, Wealdstone, Harrow, England, and Hobson J. Bello and Carl F. Holtz, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of abandoned application Ser. No. 100,608, Dec. 22, 1970. This application Dec. 17, 1971, Ser. No. 209,459

Int. Cl. G03c *5/44, 7/24*

U.S. Cl. 96—4 31 Claims



A process is provided for preparing color film having a silver auxiliary or sound record which comprises contacting only the auxiliary or sound record area of an exposed film having such a silver image subsequent to initial development, and prior to bleaching with a silver bleach inhibitor.

3,705,804
DIFFUSION TRANSFER PRODUCTION OF REFLECTION POSITIVE WITH MACROSCOPIC PIGMENT IN RECEPTIVE STRATUM

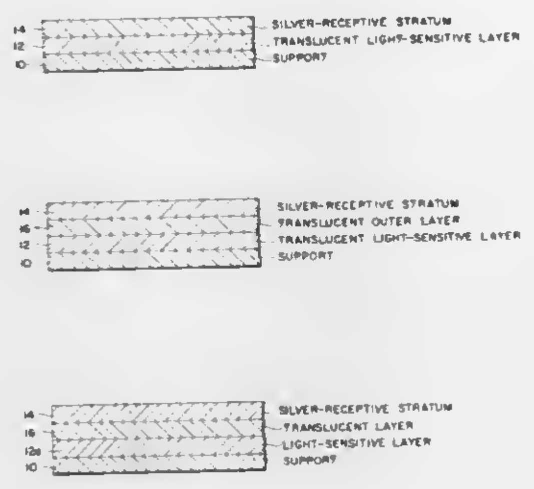
Leonard C. Farney, Melrose, and Richard J. Haberlin, Weston, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation of abandoned application Ser. No. 723,002, Apr. 22, 1968. This application Apr. 7, 1971, Ser. No. 132,081

Int. Cl. G03c *1/48, 5/54*

U.S. Cl. 96—29 R 5 Claims

Photographic products for forming a composite print viewable as a positive silver image, including a silver halide emulsion layer, an opacifying material in the emulsion layer and/or in an overlying layer, and an outer layer comprising a silver-receptive stratum, wherein the silver-receptive stratum includes a macroscopic pigment.



3,705,805
PHOTOGRAPHIC LAYERS CONTAINING COMPOUNDS WHICH ABSORB ULTRAVIOLET LIGHT

Fritz Nittel, Cologne, Johannes Sobel, Leverkusen, and Wolfgang Himmelmann, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 12, 1971, Ser. No. 198,460

Claims priority, application Germany, Nov. 14, 1970, P 20 56 177.7

Int. Cl. G03c *1/84*

U.S. Cl. 96—84 R 10 Claims

A photographic material comprising a mixture of an UV absorbent of a benzotriazole compound and a condensation compound of hydroxybenzaldehydes or alkoxybenzaldehydes or hydroxyketones or alkoxyketones with compounds containing active methylene groups having a melting point below 60° C.

3,705,806
POLYQUATERNARY AMMONIUM BISULFITES, SULFITES AND PYROSULFITES AS DEVELOPER PRESERVATIVES

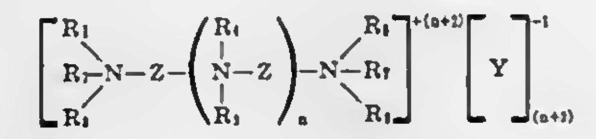
Donald J. Sykes, Upper Saddle River, N.J., Harry Kroll, Warwick, R.I., and Theron R. Finch, Northvale, N.J. (all % Philip A. Hunt Chemical Corp., Palisades Park, N.J. 07650)

No Drawing. Continuation-in-part of application Ser. No. 646,176, June 15, 1967, which is a continuation of abandoned application Ser. No. 596,474, Nov. 23, 1966. This application Nov. 16, 1970, Ser. No. 90,024

Int. Cl. G03c *5/30*

U.S. Cl. 96—66.4 26 Claims

A method of and solution for developing latent images in supported silver halide gelatin layers with the use of an aqueous bath that includes a conventional developing agent or agents and other conventional constituents such as restrainers, anti-foggants, sequestrants, silver halide solvents and gelatin hardeners and which for the developing agent preservative uses a polyquaternary ammonium bisulfite, sulfite or pyrosulfite of the formula



$$\left[\begin{matrix}R_1\\R_2-N-Z-\\R_3\end{matrix}\left(\begin{matrix}R_4\\|\\N-Z\\|\\R_5\end{matrix}\right)_n-N\begin{matrix}R_6\\-R_7\\R_8\end{matrix}\right]^{+(n+2)}\left[\;Y\;\right]^{-1}_{(n+2)}$$

where R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are selected from the class consisting of alkyls having from 1 to 4 carbon atoms and hydroxyalkyls having from 2 to 4 carbon atoms, where Z is selected from the class consisting of alkylenes having from 2 to 6 carbon atoms, hydroxyalkylenes having from 2 to 6 carbon atoms and dialkylene ethers having from 1 to 3 carbon atoms in each alykylene, where Y is selected from the class consisting of HSO_3^-, one-half $SO_3^=$ and one-half $S_2O_5^=$ and where n is an integer from 0 to 4, the bath also including an alkali in an amount sufficient to provide the bath with a pH of at least 8.

3,705,807
PHOTOSENSITIVE MATERIAL FOR RADIOGRAPHY

Vinicio Busatto, Savona, Italy, assignor to Minnesota Mining and Manufacturing Company

Filed Apr. 26, 1971, Ser. No. 137,179

Claims priority, application Italy, Apr. 24, 1970, 50,263/70

Int. Cl. G03c *1/84*

U.S. Cl. 96—84 R 8 Claims

A radiographic element capable of being handled under yellow safelights, the element containing a filter dye which itself imparts to the element a density to yellow light of not less than 0.4 and a density to blue light of not greater than 0.1.

3,705,808
PHOTO-SENSITIVE MATERIAL HAVING UV IRRADIATED POLYSTYRENE SUPPORT

Tsuneo Kasugai, Nobuhiko Minagawa, and Hiroyuki Kurabayashi, Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Sept. 8, 1970, Ser. No. 70,556

Claims priority, application Japan, Sept. 8, 1969, 44/71,120

Int. Cl. G03c *1/80*

U.S. Cl. 96—87 R 5 Claims

A process of preparing a polystyrene support surface for reception of a photographic emulsion layer, comprising applying a sub-coating solution to a surface of a polystyrene support to form a sub-coating layer thereon, said sub-coating solution comprising a solvent or plasticizer for the polystyrene and a resin adherent to the photographic emulsion, and irradiating the support surface with ultra-violet radiation.

3,705,809
SILVER HALIDE SUPERSENSITIZED PHOTOGRAPHIC EMULSION

Yoshiyuki Nakazawa, Yasuharu Nakamura, Haruo Takei, Akira Sato, and Tadashi Ikeda, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

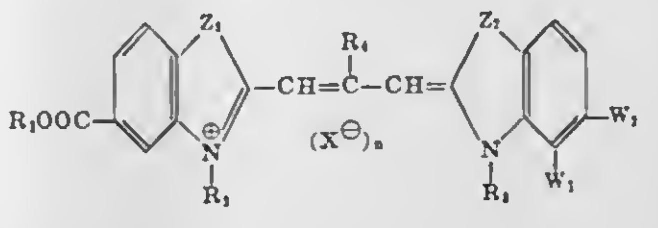
No Drawing. Filed Oct. 20, 1970, Ser. No. 82,537

Claims priority, application Japan, Sept. 26, 1969, 44/76,684

Int. Cl. G03c *1/14*

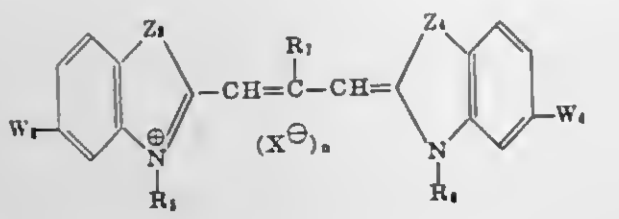
U.S. Cl. 96—124 10 Claims

A silver halide photographic emulsion containing a combination of sensitizing dyes of the formulae:



(I)

and



(II)

Specific compounds are disclosed hereinafter.

3,705,810
COFFEE EXTRACTION

Andrew T. Lendvay, Oakland, N.J.
(2916 Halstead Road, Richmond, Va. 23235)
No Drawing. Continuation of application Ser. No. 653,328, July 14, 1967. This application Aug. 24, 1970, Ser. No. 66,651
Int. Cl. A23f *1/08*
U.S. Cl. 99—71 **13 Claims**

In the production of soluble coffee, the extraction yield of soluble coffee is increased without flavor impairment by extracting roasted coffee after blending with an additional amount of soluble coffee gum.

3,705,811
PROCESS FOR AVOIDING STALING AND IMPROVING THE QUALITY OF BREAD

Mikihiko Yoshida, Masakazu Mitsuhashi, and Mamoru Hidao, Okayama, Japan, assignors to Hayashibara Company, Okayama, Japan
Filed Feb. 3, 1970, Ser. No. 8,337
Claims priority, application Japan, Feb. 4, 1969, 44/8,559
Int. Cl. A21d *2/18*
U.S. Cl. 99—91 **2 Claims**

A process which, in breadmaking, shortens the time required for proofing of the dough, appreciably increases the volume of the product, improves the inner texture and avoids staling of the bread, comprises mixing a small amount of low molecular amylose into the wheat flour.

3,705,812
PROCESS FOR MAKING A FRIED ONION PRODUCT

John Bickford Shields, Blackfoot, Idaho, assignor to American Potato Company, San Francisco, Calif.
No Drawing. Filed July 16, 1969, Ser. No. 842,371
Int. Cl. A23l *1/12*
U.S. Cl. 99—100 P **7 Claims**

This invention relates to a new fried onion product and the process for its production. Recognizable pieces of dehydrated onion are blended with flavorings and inert starchy food substances or other binders. The blend is then mixed with edible liquid to form an extrudable dough which is shaped to the desired form, such as a stick or ring, and then fried in deep fat. The end fried onion product has novel texture and flavor attributes.

3,705,813
MEAT PROCESSING

Paul W. Vogel, Pekin, and John H. Silliker, Park Forest, Ill., assignors to Meat Technology, Inc., Chicago Heights, Ill.
No Drawing. Filed May 12, 1970, Ser. No. 36,684
Int. Cl. A22c *18/00;* **A23b** *1/06*
U.S. Cl. 99—194 **14 Claims**

Methods of processing products to reduce the contamination thereof with microorganisms, especially psychrophilic bacteria, which normally limit shelf storage life of packaged and other meat products under refrigerated conditions.

Special decontamination procedures and apparatus are also provided to decontaminate meat products that have pre-existing population of bacteria on the surfaces thereof. Meat products include both red meats, fish and poultry.

3,705,814
DIRECTLY EDIBLE, COMPACTED AND DEHYDRATED FRUIT BAR

Abdul R. Rahman and Glenn R. Schafer, Natick, Mass., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Aug. 20, 1970, Ser. No. 65,700
Int. Cl. A23b *7/00, 7/16*
U.S. Cl. 99—204 **5 Claims**

Directly edible, compacted, dehydrated fruit bars which are relatively soft and chewy and method of making the same comprising applying from about 1 percent to about 5 percent by weight of lecithin to the surface of comminuted fruit particles after dehydration to a moisture content of from about 7 percent to about 14 percent by weight and prior to compression thereof, to form a compacted fruit bar which is directly edible without prior rehydration.

3,705,815
LIME AND SILICA-RICH HIGH ALUMINA CEMENT, AND PROCESS FOR MANUFACTURING SAME

René Alegre and Raymond Allegre, Montelimar, France, assignors to Societe Anonyme dite Ciments Lafarge, Paris, France
No Drawing. Filed Sept. 15, 1971, Ser. No. 180,855
Claims priority, application France, Nov. 9, 1970, 7040245
Int. Cl. C04b *7/32*
U.S. Cl. 106—104 **3 Claims**

A lime and silica-rich high-alumina cement and the process for manufacturing it.

A lime and silica-rich high alumina cement which consists, in parts by weight, of about:

8 to 10% SiO_2
about 1 to 2% TiO_2
26 to 29% Al_2O_3
14 to 16% Fe_2O_2
0% or traces FeO
45 to 48% CaO

the moduli:

$SiO_2/Al_2O_3+Fe_2O_3$ being in the range of about 0.18 to 0.25
Al_2O_3/CaO from 0.55 to 0.65
Al_2O_2/SiO_2 between about 2.6 and 3.6 and the mineralogical composition containing CA, C_2S, $C_{12}A_7$ and ferrites.

The cement has a broader range of use and its preparation is cheaper.

3,705,816
PIGMENT PREPARATION

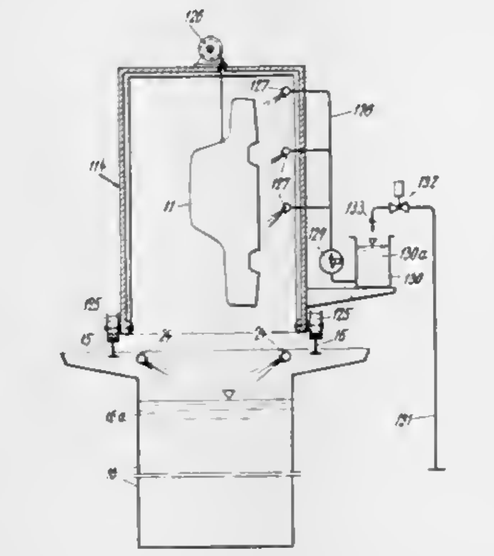
Guenther Zwahlen, Dornach, Ernst Reich, Bettingen, and Karl Ewald Schoohf, Dornach, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Filed June 23, 1970, Ser. No. 49,202
Claims priority, application Switzerland, July 2, 1969, 10,135/69; May 14, 1970, 7,203/70
Int. Cl. C08h *17/02*
U.S. Cl. 106—308 **7 Claims**

Preparations comprising a pigment and/or an optical brightener having pigment characteristics and cellulose which is esterified by both an aliphatic or cycloaliphatic

carboxylic acid and acid selected from benzoic, phenylacetic and cinnamic acids, which cellulose ester may, if desired, contain free hydroxyl groups, are useful for coloring lacquers and plastic masses.

3,705,817
METHOD FOR TREATING THE SURFACES OF VEHICLE BODIES

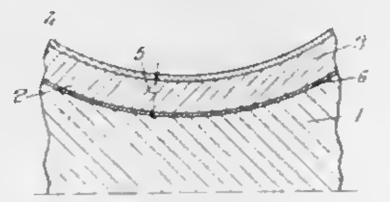
Heinz Dürr, Stuttgart-Feuerbach, Germany, assignor to Otto Dürr, Stuttgart-Zuffenhausen, Germany
Filed July 20, 1970, Ser. No. 56,415
Claims priority, application Germany, July 30, 1969, P 19 38 589.8; June 24, 1970, P 20 31 125.5
Int. Cl. B44d *1/14;* **B05c** *3/02*
U.S. Cl. 117—49 **11 Claims**



A method and an apparatus for treating the surfaces of articles, and especially for painting automobile bodies or other large elongated articles, essentially consisting in passing the articles while their greater length extends in a vertical direction first through a preliminary treating zone, especially a painting zone. The preliminary treatment preferably comprises an electrochemical dipping process and the painting treatment of an electric dipping process according to the electrophoretic principle. The dip tanks are made of a shape in accordance with the vertical position of the articles to be treated which, while being lifted out of the tanks, are preferably kept moist by additionally spraying the treating liquids thereon which are also contained in the respective tanks underneath.

3,705,818
METHODS OF COATING RUBBING SURFACES AND ELEMENTS COMPRISING SUCH SURFACES

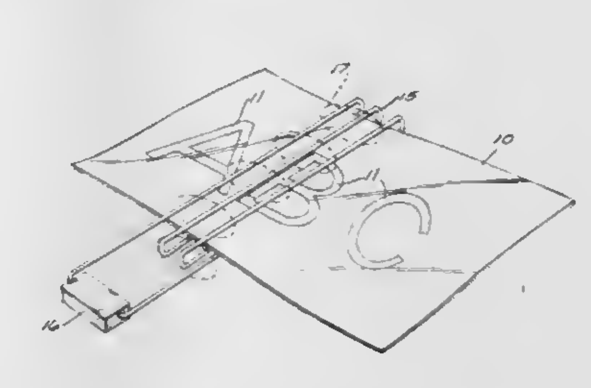
Albert Grosseau, Chaville, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France
Filed Dec. 31, 1969, Ser. No. 889,569
Claims priority, application France, Dec. 31, 1968, 182,897
Int. Cl. C23c *7/00;* **B44d** *1/16*
U.S. Cl. 117—71 M **7 Claims**



To increase the wear resistance of a rotary piston engine casing envelope the inner surface of the envelope is coated by a keying film and then a resistant sub-layer of an alloy of steel and nickel aluminides, then by a thin wear-resistant layer of nickel or cobalt. The sub-layer is formed by flame-spraying simultaneously 90% to 70% by volume carbon steel wtih 10% to 30% of a mixture of equal parts of nickel and aluminium powders.

3,705,819
DRYING BY INDUCTION HEATING

William C. Heller, Jr., 3521 N. Shepard Ave., Milwaukee, Wis. 53211, and Alfred F. Leatherman, Columbus, and Robert L. Christian, Westerville, Ohio; said Leatherman and said Christian assignors to said William C. Heller, Jr., Milwaukee, Wis.
Continuation-in-part of application Ser. No. 690,883, Dec. 15, 1967. This application June 15, 1970, Ser. No. 46,433
Int. Cl. B41m *7/00*
U.S. Cl. 117—93.2 **7 Claims**



The drying of inks or other coatings by high efficiency hysteresis-type induction heating of selected oxide particles therein. The thermohysteretic materials used are gamma Fe_2O_3 and CrO_2 which materials may form at least a portion of the pigment for the ink. These materials exhibit a relatively high magnetic saturation flux density and a relatively high coercive force in the preferred low frequency induction heating range of below 5 megacyclyes per second and thus substantial heat can be generated by magnetic hysteresis loss.

3,705,820
TONGUE FOR WIND INSTRUMENTS AND A METHOD FOR PRODUCING SAME

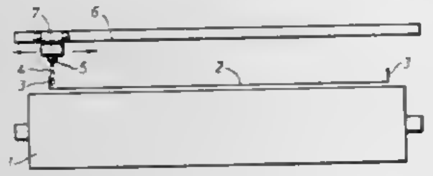
Karl Knotik, Eisenstadt, and Franz Gutlbauer, Baden, Austria, assignors to Osterreichische Studiengesellschaft fur Automenergie Ges. m.b.H., Vienna, Austria
No Drawing. Filed Apr. 20, 1970, Ser. No. 30,220
Claims priority, application Austria, Apr. 21, 1969, 3,840/69
Int. Cl. B44d *1/50*
U.S. Cl. 117—93.31 **5 Claims**

A tongue or reed for a wind instrument, made of cane or another kind of reed is treated with a resin, especially a synthetic resin. After the tongue has been treated with this resin the same is cured.

3,705,821
PROCESS AND APPARATUS FOR APPLYING POLYURETHANE FOAM-FORMING COMPOSITION

Karl Wilhelm Breer, Cologne, and Erwin Welnbrenner, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Continuation-in-part of application Ser. No. 683,370, Nov. 15, 1967. This application Aug. 7, 1970, Ser. No. 70,605
Int. Cl. B44d *1/02*
U.S. Cl. 117—105.3 **3 Claims**

Improved apparatus for spraying a polyurethane foam-forming composition including substrate means onto which the composition is sprayed; means to longitudinally move the substrate so as to continuously receive said composition spray at least partially on a previously uncovered part thereof whereby to form a continuous foam web; transversing means disposed above the substrate transverse to the direction of movement of the substrate; and spraying means on the traversing means; where the spraying means has a chamber from which polyurethane foam-forming composition is sprayed and has two channel means leading from the chamber through which foam-forming composition passes, which channel means have a substantially cornerless cross-section, preferably round, and are disposed in converging relation to each other such that the channels emerge from the spraying means as spaced apart apertures and such that streams issuing from both apertures simultaneously meet to form a fan shaped combined spray a short distance from the apertures.



3,705,822
PROCESS FOR CREASE RESISTANT TEXTILES

John Peter Dundon, Branchburg Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application July 7, 1964, Ser. No. 380,915, now Patent No. 3,465,036, dated Sept. 2, 1969. Divided and this application Mar. 5, 1968, Ser. No. 723,971

Int. Cl. D06m *13/00*

U.S. Cl. 117—139.4 **4 Claims**

Crease resistance is imparted to cellulosic textile materials by applying an aqueous solution of a methylolated amide derivative of the formula

$$(XOOC)_mD[CH_2(Y)CO\cdot NH\cdot CH_2OH]_n$$

wherein Y is $—CH_2—$ or $—OCH_2CH_2—$; D is $—C—$; $—CH_2—O—CH_2—C$ or $—CH_2\cdot N—$, n is 2 or 3 and m is $4-n$, and X is hydrogen, alkyl or a monovalent salt-forming atom or group and then drying and curing by the application of heat.

3,705,823
METHOD OF COATING FIBROUS STRUCTURE WITH A MIXTURE OF POLYURETHANE PREPOLYMER AND POLYORGANOSILOXANE

Kenjiro Hosokawa and Michio Ichikawa, Osaka, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed July 30, 1970, Ser. No. 59,721
Claims priority, application Japan, Aug. 5, 1969, 44/61,804

Int. Cl. D06m *15/52, 15/06;* **B44d** *1/46*

U.S. Cl. 117—161 KP **16 Claims**

Improved fibrous structures such as fibers, yarns, fabrics. made-up clothes and the like, having voluminous hand, durable elasticity, excellent anti-pilling property, shrinkproofness, crease resistance, and other desirable chemical and physical properties, are manufacturable by finishing the fibrous structure with a non-aqueous organic solvent solution of a specified polyurethane prepolymer and a specified polyorganosiloxane together with a polymerization catalyst. Fibers constituting the structure are entirely covered by urethane/organosiloxane copolymer film having an elongation at break of at least 200%, a tensile recovery at 100% elongation of at least 70%, a tensile strength of 1–50 kg./cm.^{2} and a hardness of 5–60°.

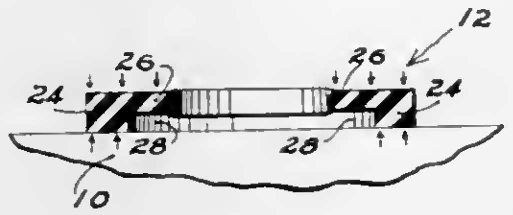
3,705,824
PROTECTIVE SEALING WASHER FOR STORAGE BATTERY

Hugo S. Erickson, 915 Fowler St., Evanston, Ill. 60202

Filed Oct. 5, 1970, Ser. No. 77,872

Int. Cl. H01m *1/02*

U.S. Cl. 136—181 **2 Claims**



The conventional lead plate storage battery in common use for starting motor car engines and similar uses is protected from corrosion where the cable is connected to the tapered lead binding post which projects above the casing of the battery. An annular washer, of rectangular cross section in a radial plane, is set over the lead terminal post and forced down into firm contact with the non-conductive plastic body of the battery casing and simultaneously into tightly compressed relationship between its inner edge and the metal of the battery post. The lower inside corner of the rectangle has a small rabbet to receive viscous oil. This prevents the acid in the battery from corroding the terminal connections.

Flexible polyethylene is one of the best materials for the washer, but conventional molding equipment cannot form the desired final shape without defects in the inner edge, and the pressure needed to force the washer down is likely to break the washer in two.

A blank is molded, which includes the entire washer structure and additional material covering the top of the central opening. Then punching out the additional material leaves a smooth, slippery inner edge that assures easy assembly and a permanent seal that can be opened and reassembled.

3,705,825
GROWTH LAYER OF SEMICONDUCTOR COMPOUNDS PRODUCED BY MELT EPITAXY

Wolfgang Touchy and Eckart Bungenstab, Munich, Germany, assignors to Siemens Aktiengesellschaft

Filed Feb. 10, 1970, Ser. No. 10,234
Claims priority, application Germany, Feb. 19, 1969, F 19 08 277.0

Int. Cl. H01l *7/34, 7/40*

U.S. Cl. 148—1.5 **5 Claims**

Method of producing epitactic growth layers of variable conductance type by use of silicon as the dopant substance with compounds which easily dissociate at the melting point, preferably gallium arsenide, by melt epitaxy. The production of the melt, provided for the growth process, and the growth process per se are effected under vapor pressure of the participating materials in an evacuated reaction vessel.

3,705,826
INSULATING COATING AND METHOD OF MAKING THE SAME

Robert G. Hirst and George J. Desnoyers, Pittsfield, Mass., assignors to General Electric Company

No Drawing. Filed Sept. 23, 1970, Ser. No. 74,509

Int. Cl. C23f *7/26*

U.S. Cl. 148—6.16 **2 Claims**

Electrically insulating coating for strand annealed magnetic silicon steel is composed of an aqueous mixture

of chromium hydroxide, phosphoric acid, and colloidal silica.

3,705,827
NICKEL-IRON BASE ALLOYS AND HEAT TREATMENT THEREFOR

Donald R. Muzyka and Donald K. Schlosser, Reading, Pa., assignors to Carpenter Technology Corporation, Reading, Pa.

Filed May 12, 1971, Ser. No. 142,635

Int. Cl. C21d *1/18, 7/14*

U.S. Cl. 148—142 **4 Claims**

Precipitation hardened nickel-iron base alloys with or without chromium and cobalt containing columbium, titanium and aluminum are provided by heat treatment with a unique combination of room temperature and elevated temperature properties.

3,705,828
PROCESS TO INCREASE FILLER CONTENT OF CASTABLE EXPLOSIVES, PYROTECHNICS, OR PROPELLANTS

H. William Voigt, Jr., Stanhope, and Bernard R. Banker, Dover, N.J., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Apr. 5, 1971, Ser. No. 131,416

Int. Cl. C06d *5/06*

U.S. Cl. 149—19 **15 Claims**

Explosive, propellant and pyrotechnic compositions are provided which contain as high as 95 weight percent filler substances. These compositions have workable melt viscosity, notwithstanding their unusually high filler content, and they are readily amenable to casting, molding and pelletizing operations. Also, a method is provided for making such compositions. This method involves separately dissolving the respective components in a fluorocarbon, mixing the resulting solution and removing the fluorocarbon from the resulting admixture by the application of mild vacuum.

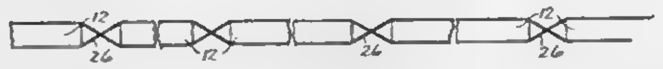
3,705,829
METHOD FOR FASTENING WOOD VENEER SHEETS TOGETHER EDGE TO EDGE

Roderick L. Brenneman, Corvallis, and Daniel M. McLean, Independence, Oreg., assignors to Georgia-Pacific Corporation, Portland, Oreg.

Original application Aug. 13, 1968, Ser. No. 752,285, now Patent No. 3,607,562. Divided and this application Oct. 12, 1970, Ser. No. 80,243

Int. Cl. B32b *21/10*

U.S. Cl. 156—65 **5 Claims**



Substantially rectangular sheets are fastened together edge to edge by arranging the sheets in spaced relation, arranging a pair of continuous strings, one above and one below the sheets, traversing the strings and the spaced sheets relative to each other, crisscrossing the strings sequentially at each between-sheet space, crowding the sheets together edgewise, and fastening the criss-crossed strings to the sheets, thereby fastening the sheets together in a continuous strip.

3,705,830
PROCESS FOR FINISHING THE SURFACE OF A BUILDING

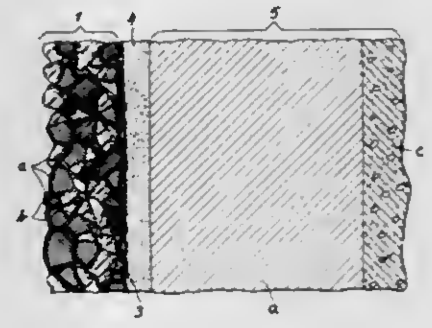
Constantin Gurgul, Vasile Luca, Andrei Eckardt, and Paraschiv Ciulacu, Bucharest, Rumania, assignors to Intreprinderea "Bucuresti" Pentru Extragerea, Prelucrarea si Montarea Marmurei si Pietrei de Constructii, Bucharest, Rumania

Filed Jan. 15, 1969, Ser. No. 791,405

Claims priority, application Rumania, Jan. 20, 1968, 55,669

Int. Cl. E04b *2/10*

U.S. Cl. 156—71 **5 Claims**



The invention concerns a new material for the finishing and the decoration of buildings, as well as a process and an installation for the manufacture of same.

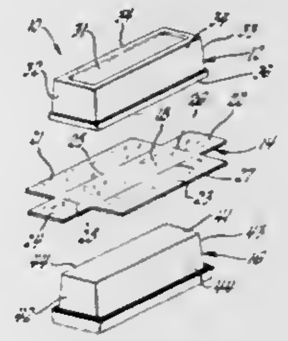
3,705,831
METHOD OF FABRICATING AN INSULATED STORAGE BIN

Robert E. Sayre, Centerville, Lewis B. Campbell, Miamisburg, and Joe P. Pietrzak, Kettering, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed July 9, 1971, Ser. No. 161,056

Int. Cl. B31f *1/00*

U.S. Cl. 156—227 **2 Claims**



A method of making an insulated double walled storage bin including the assembly of insulation material between an inner liner and outer shell of the bin, wherein an insulation batt is precut into a flexible blank to define a rectangular center section having side and end panel extensions. The inner liner of the bin is first inverted and the insulation blank placed with its center section aligned on the bottom wall of the liner such that by telescoping the outer shell over the liner the blank panels are simultaneously folded about imaginary boundaries to a position generally normal to the center section to occupy the space therebetween. The liner and shell have a scarf-like joint on their mating edges which is sealed and bonded by means of a cement material maintaining the insulation blank in its distorted condition therebetween.

3,705,832

PROCESS FOR JOINING CELLULOSE ARTICLES UTILIZING A TWO-PART ADHESIVE, WHEREIN THE FIRST PART IS A PARTIALLY REACTED CONDENSATE OF RESORCINOL AND FORMALDEHYDE, AND THE SECOND PART IS AN OXAZOLIDINE

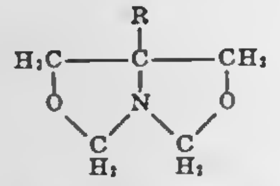
John T. Stephan, Longview, and A. J. Golick, Seattle, Wash., assignors to Commercial Solvents Corporation, New York, N.Y.

No Drawing. Original application Apr. 10, 1969, Ser. No. 815,198. Divided and this application Nov. 12, 1970, Ser. No. 89,142

Int. Cl. C09j *5/04*

U.S. Cl. 156—310 **4 Claims**

An adhesive composition suitable for the manufacture of laminated cellulosic products by joining the surfaces of two or more cellulosic articles comprising a partially fusible resorcinol-formaldehyde resin and an oxazolidine corresponding to the following formula:



where R can be methyl, ethyl or hydroxymethyl.

3,705,833

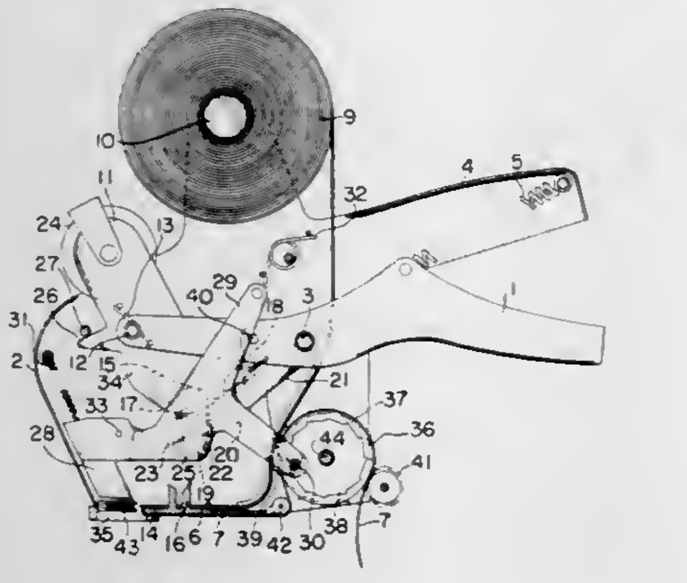
LABELLER

Tokio Wada, 12–15 4-chome Horifune, Kita-ku, Tokyo, Japan

Filed Oct. 2, 1970, Ser. No. 77,420

Int. Cl. B32b *31/00;* **B41f** *1/08*

U.S. Cl. 156—384 **9 Claims**



A labeller comprising a swing lever and a push-out lever mounted to a frame, a stamp pad and tape turning member, a push-out window adjacent to said member, a stamping means provided on the swing lever, a push-out member at the window provided on the push-out lever, a movable rotor for feeding a tape and an engaging means for performing stamping motion and controlling movement of the push-out lever, whereby separation of the label from the tape and pushing out from the label are consecutively performed by one operation of the swing lever.

3,705,834

CARPET WITH A FOAM POLYURETHANE BACKING

Claude E. Terry, Rockmart, Ga., assignor to Textile Rubber and Chemical Company, Inc., Dalton, Ga.

No Drawing. Continuation-in-part of application Ser. No. 111,860, Feb. 2, 1971. This application Feb. 3, 1971, Ser. No. 112,472

Int. Cl. D03d *27/00;* **D04h** *11/00*

U.S. Cl. 161—66 **6 Claims**

A tufted carpet is formed by application of a layer of thixotropic polyurethane adhesive backing composition to a primary backing material so that there is substantially complete saturation of the bundle wrap without penetration of the composition through the primary backing to the exposed portion of the tufted material. The polyurethane composition is prepared by mixing together under polymerization conditions water, a polyol with a hydroxyl number less than one hundred, a diisocyanate, a filler and a catalyst, and optionally a surfactant. The polyurethane obtained has a viscosity of between 30,000 and 100,000 cps. at 10 r.p.m. No. 7 spindle Brookfield RVF Viscometer, a pot life of between 20 to 60 seconds and is expandable from about 100 percent to about 400 percent when completely reacted. The polyurethane backing composition is applied to the underside of the primary backing with a doctor blade. Upon heating or allowing to stand at room temperature, the adhesive composition jells and expands. Subsequent to expansion and prior to curing, compressive pressure is applied to the expanded polyurethane backing composition to selectively disintegrate at least a portion of the foamed cells in the polyurethane and optionally form a pattern or design.

3,705,835

COATED FABRICS OF THERMOPLASTIC MATERIALS

Willy H. J. Badrian, Delft, Netherlands, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed May 26, 1971, Ser. No. 147,182

Claims priority, application Great Britain, June 2, 1970, 26,529/70

Int. Cl. B32f *27/12;* **B65d** *31/02*

U.S. Cl. 161—90 **9 Claims**

This invention relates to a fabric, particularly suitable for sacks, comprising:

(a) a weave of multicomponent tapes having a low-melting thermoplastic component, such as low density polyethylene, as a surface layer of the tape at one or both faces of the weave, in addition to one or more higher-melting thermoplastic components, particularly propylene, and

(b) a coating layer comprising the low-melting component adhering to the weave at one or both faces. The invention also includes a process for the preparation of the fabric.

3,705,836

FABRIC-CARRIED PLASTIC ARTICLE

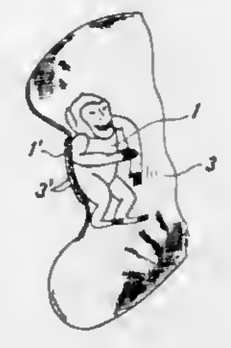
James G. Francis, Hialeah, and Robert H. Pasley, Sr., Coral Gables, Fla., assignors to Royalty Designs of Florida, Hialeah, Fla.

Continuation of application Ser. No. 625,214, Mar. 22, 1967. This application June 19, 1970, Ser. No. 64,000

Int. Cl. B32b *3/00;* **D06g** *1/00*

U.S. Cl. 161—94 **3 Claims**

The invention relates to a novel quivery resilient plastic article locked to a fabric carrier and extending forward in relief beyond one side of said fabric, said plastic comprising highly plasticized polyvinyl chloride with substantially 400 parts plasticizer to substantially 600 parts plasticizer for each 100 parts of said polyvinyl chloride.



3,705,837

WOODFLAKE COMPOSITION FOR PANELS AND METHOD OF MAKING SAME

Charles S. Breslauer, Brunswick, Ga., assignor to W. R. Grace & Co., Cambridge, Mass.

No Drawing. Filed June 16, 1970, Ser. No. 46,809

Int. Cl. B32b *5/16, 21/02;* **B29j** *5/04*

U.S. Cl. 161—168 **11 Claims**

A specialized wood flake size is described which may be coated with a binder such as portland cement, cast and bonded together to form a lightweight cemented product. The woodflake size and shape provides advantages in making the cemented product. The product itself is especially attractive for use in the construction industry because of its strength and economy and the fact that it is nailable, has good thermal insulation and acoustical properties, responds well to milling and cutting and is attractive in appearance. A novel method is also described for making the product.

3,705,838

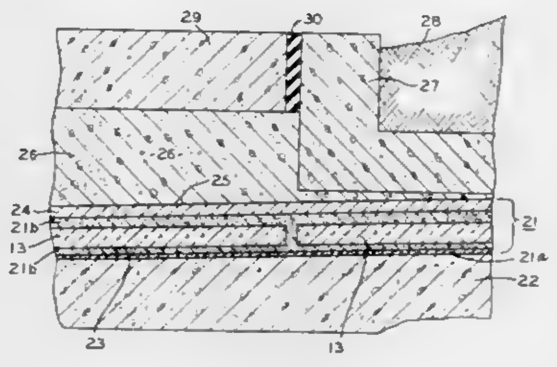
WATER-PROOFING BARRIER

Robert N. Olton, Cleveland Heights, Ohio, and Bernard C. Berney, Indianapolis, Ind., assignors to Mineral Products Corporation, Cleveland, Ohio

Original application Dec. 29, 1969, Ser. No. 888,235, now Patent No. 3,630,762. Divided and this application Apr. 2, 1971, Ser. No. 130,683

Int. Cl. B32b *9/00*

U.S. Cl. 161—206 **6 Claims**



A water-proofing barrier characterized by its controlled swelling when wet and comprising in admixture a water-swellable colloidal clay, such as bentonite, and a particulate, inorganic metal salt treated with an oleaginous carboxylic acid. Preferably, the metal salt is calcium carbonate, such as amorphous chalk, treated with an acid like oleic or stearic acids. The mixture is particularly adapted as a protective layer in a below grade concrete roof system, or the like, above which a pavement, earth, walks, etc., are to be laid. The present mixture may be used alone as in layer form or in conjunction with an adjoining layer of water-swellable clay to form a multi-layer barrier. Optionally, the mixture may include a finely divided siliceous mineral such as perlite as an additional ingredient.

3,705,839

AUTOMATIC SIGNAL REGISTRATION IN COLOUR TELEVISION CAMERAS

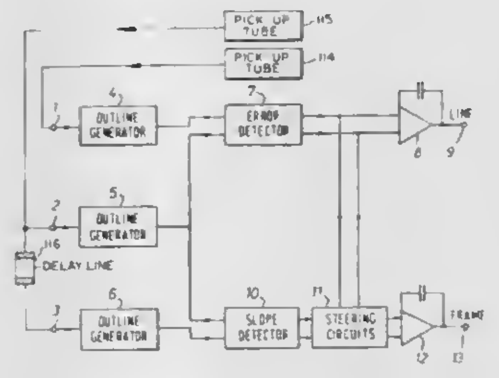
Richard John Taylor, London, England, assignor to Electric & Musical Industries Limited, Middlesex, England

Filed Dec. 8, 1970, Ser. No. 96,075

Claims priority, application Great Britain, Dec. 16, 1969, 61,127/69

Int. Cl. H04n *9/08*

U.S. Cl. 178—5.4 M **8 Claims**



A colour television camera including first and second pick-up tubes is disclosed, which camera includes automatic means for ensuring registration of the video signals derived from said tubes. The video signals derived from said tubes and relating respectively to different spectral components of a scene to be televised are passed through respective outline generator means to produce respective identification signals which are indicative of selected edges in the scene. The identification signals are applied to an error detecting circuit which is arranged to generate a correction signal dependent on the degree of misregistration between the video signals, and the correction signals are utilised, either directly or indirectly, to tend to reduce the misregistration.

3,705,840

ROTATION SERVO SYSTEM WITH FREQUENCY AND PHASE ERROR CORRECTION

Tsuneo Kosugi, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Kanagawa-ken, Japan

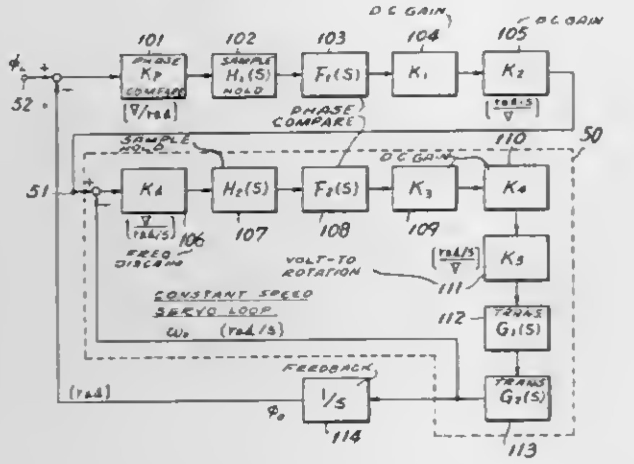
Filed Aug. 26, 1970, Ser. No. 67,118

Claims priority, application Japan, Aug. 27, 1969, 44/67,151

Int. Cl. G05d *13/62;* **G11b** *15/52;* **H02p** *7/06*

U.S. Cl. 178—6.6 P **11 Claims**

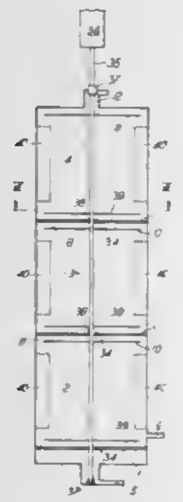
A rotation servo system controls a rotation of a motor by a closed servo loop. The closed servo loop includes means for comparing the phase of a signal which is generated responsive to the rotation of the motor with the phase of a reference signal, and means for frequency discriminating. The frequency discriminating means receives an output error signal from the phase comparing means and the rotation signal, and produces an output error



signal responsive to the difference between the rotation signal and a presetting frequency.

3,705,841
FERMENTATION PROCESSES AND APPARATUS

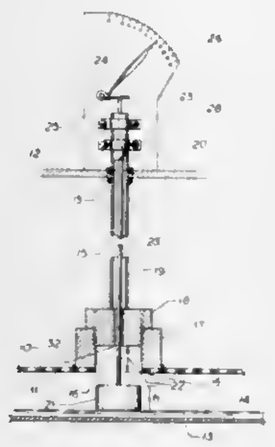
Melvyn Lumb, Peter Edward Macey, Richard Donald Wright, and Roy Kenneth Petchell, Nottingham, England, assignors to Boots Pure Drug Company Limited, Nottingham, England
Filed Dec. 8, 1967, Ser. No. 689,019
Claims priority, application Great Britain, Dec. 9, 1966, 55,329/66
Int. Cl. C12b *1/00;* C12d *9/14*
U.S. Cl. 195—80 R **11 Claims**



A continuous fermentation process for the cultivation of living cells which consists of the steps of continuously supplying a stream of gas and a supply of fermentable liquid to the first of a plurality of interconnected fermentation zones containing living cells capable of fermenting said fermentable liquid, said plurality of fermentation zones being interconnected through partition members defining interconnections which allow only a restricted flow of said gas therethrough, flowing said stream of gas upwards through each of said plurality of fermentation zones in the same direction as the flow of said fermentable liquid and thereafter to the bottom of the next adjacent fermentation zone, whereby products of fermentation are formed in said plurality of fermentation zones, withdrawing said stream of gas and said fermentable liquid containing said products of fermentation from the last of said plurality of fermentation zones, said restricted flow of gas between said interconnected fermentation zones forming a gas pocket in the upper part of each of said fermentation zones thus causing the liquid phase in said interconnected fermentation zones to be discontinuous from one zone to the next, said restricted flow of said gas being sufficient to transfer said fermentable liquid and products of fermentation by entrainment from the top of each of said fermentation zones to the bottom of the next adjacent fermentation zone.

3,705,842
FLOAT MEASURING DEVICE FOR MERCURY CELLS

Alexander L. Barbato, deceased, by Patricia J. Barbato, executrix, Perry, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio
Filed Nov. 16, 1970, Ser. No. 89,643
Int. Cl. C01d *1/08;* C22d *1/04*
U.S. Cl. 204—99 **17 Claims**

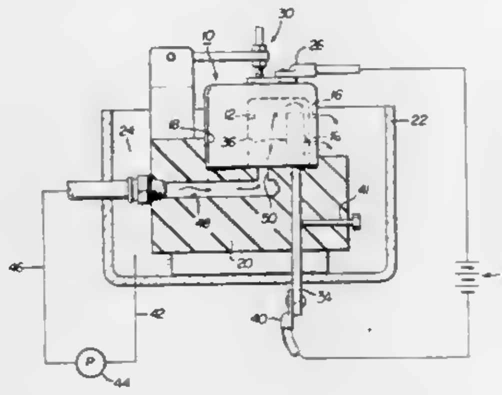


Method for determining the distance between the working face of an anode and a reservoir of mercury beneath the anode in a substantially enclosed electrolytic cell has a value established for the position of the working face of the anode in the cell on an external scale means and another value established for the surface of the mercury reservoir in the cell on the external scale means. The depth of the mercury reservoir can also be determined. A measuring device in an electrolytic cell has a tube attached to a cage on an anode near an opening in the anode. The cage forms a chamber above the opening in the anode and the other end of the tube is connected with an opening in the cover of the electrolytic cell. A float is movably disposed between the chamber and the mercury reservoir. The float fits into the chamber and preferably has a height equal to the height of the chamber above the working face of the anode. The float has a rod attached which extends through the tube to give readings on a scale means located outside the electrolytic cell.

3,705,843
METHOD FOR ELECTROCHEMICAL DEBURRING

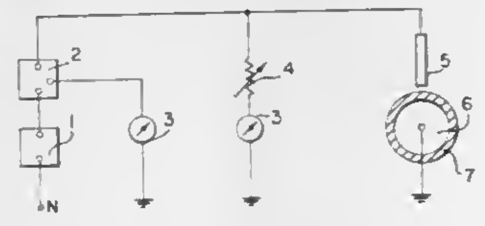
David W. Sickels, Plymouth, Mich., assignor to Electrogenics, Inc., Wayne County, Mich.
Filed July 27, 1970, Ser. No. 58,399
Int. Cl. B23p *1/00*
U.S. Cl. 204—129.5 **6 Claims**

A method and apparatus to electro-chemically machine apertures of a work piece which may be a cup-like structure such as the cover of a carburetor or the like. The apertures may (1) open to the atmosphere or (2) intersect with other apertures of greater combined size or (3) have portions of increased diameter. When electrolyte under pressure is introduced between the negative electrode positioned adjacent the aperture of the work piece and the positively charged work piece, due to the increased area beyond the aperture, the flow of the electrolyte under pressure causes turbulence or temporary eddy currents from a first laminar flow of the electrolyte through the aperture to either the unrestricted flow to the atmosphere or to a second laminar flow of the electrolyte through the increased diameter portion of the aperture, due to the reduced pressure. The resultant turbulence efficiently scrubs the anodic film and effectively removes burrs around the edges of the exit end of the aperture with minimal stock removal along the wall of the apertures.



3,705,844
APPARATUS FOR THE CORONA TREATMENT OF PLASTICS

Günter Haas, Wiesbaden-Biebrich, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Dec. 21, 1970, Ser. No. 100,259
Claims priority, application Germany, Dec. 22, 1969, P 19 64 068.7
Int. Cl. B01k *1/00*
U.S. Cl. 204—312 **4 Claims**

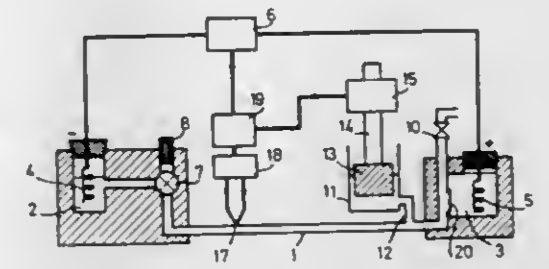


This invention relates to an apparatus for the corona treatment of shaped articles of plastic comprising a circuit including a generator for generating a voltage of appropriate frequency, a high-voltage transformer for producig a suitable operating voltage, a grounded electrode provided with a dielectric, at least one counter-electrode and an inductance coil of variable inductivity.

3,705,845
METHOD IN COUNTERFLOW ISOTACHOPHORESIS

Frans Everaerts, Weert, Netherlands, assignor to LKB-Produkter AB, Bromma, Sweden
Filed June 1, 1971, Ser. No. 148,657
Int. Cl. B01k *5/00*
U.S. Cl. 204—180 R **4 Claims**

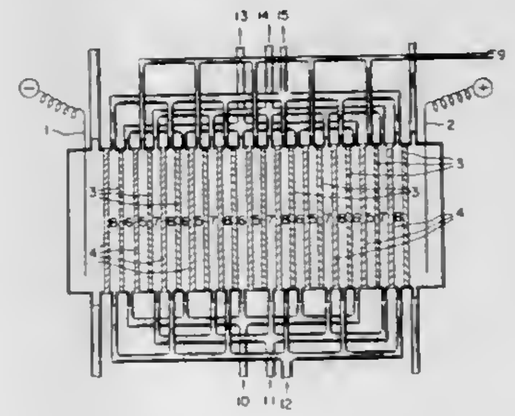
Method in counterflow isotachophoresis. Into a column provided with two electrodes a sample comprising ions of different mobility to be separated is introduced together with a first electrolyte between the sample and one of the electrodes and a second electrolyte between the sample and the other electrode. These first and second electrolytes comprise ions of higher and lower mobility respectively than the ions of said sample. A voltage is applied to the electrodes and a pressure is applied to one of said electrolytes. A boundary between zones of ions having different mobilities is detected and from this detection



a control signal is generated, said control signal controlling said pressure and/or said voltage.

3,705,846
PRODUCTION OF HYDROGEN IONS AND HYDROXYL IONS BY DECOMPOSITION OF WATER

Masaaki Kato and Sigeta Sato, Kanagawa-ken, Japan, assignors to Asahi Chemical Industry Co., Ltd., Chiyoda-ku, Tokyo, Japan
Filed Dec. 9, 1969, Ser. No. 883,530
Claims priority, application Japan, Dec. 16, 1968, 43/91,561
Int. Cl. B01d *13/02*
U.S. Cl. 204—180 P **6 Claims**

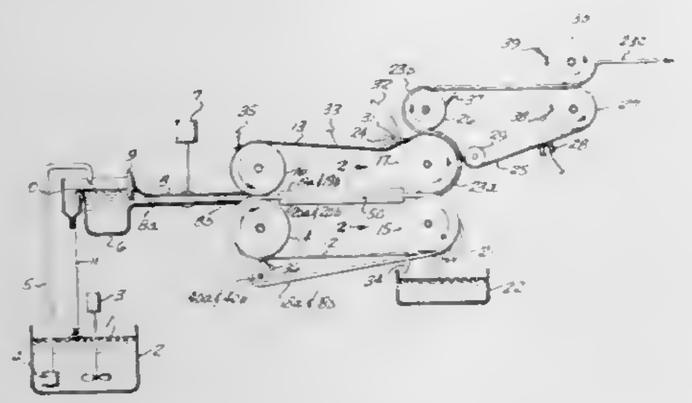


Hydrogen ions and hydroxyl ions are generated economically in an electrodialysis cell comprised of a plurality of anion exchange membranes and cation exchange membranes alternately juxtaposed between a pair of an anode and a cathode by filling aqueous solution or suspension containing at least one electrolyte which is incapable of passing through the ion exchange membrane and is selected from the group consisting of (1) water soluble polyelectrolytes (polymeric electrolytes) having positively charged fixed groups and (2) finely pulverized water insoluble solid electrolytes having positively charged fixed groups, and passing a direct electric current between the electrodes.

3,705,847
METHOD FOR FORMING A UNIFORM CONTINUOUS WEB OF PAPER

Lester W. Stiles, Longview, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed Sept. 21, 1970, Ser. No. 73,779
Int. Cl. B01k *5/02*
U.S. Cl. 204—181 **4 Claims**

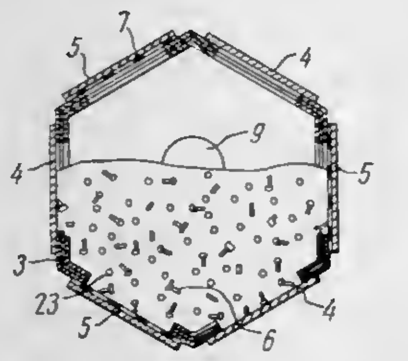
A method and apparatus are disclosed for forming a continuous web of paper utilizing the principles of electrophoresis and electro-osmosis. A uniform aqueous dispersion of paper-making fibers is flowed between a pair of horizontal, spaced-apart, electrically charged endless belts which serve as electrodes forming a deposition zone. The paper-making fibers are attracted to one electrode by electrophoresis and water to the other electrode by electroosmosis. An electromechanical vibrator vibrates the trough just prior to entry of the aqueous dispersion between the electrodes to maintain the fibers in suspension and uniformly disperse them without flocculation. Electrically nonconducting guide blocks are mounted in contact with the edges of the endless belts in the area of the electrostatic field to maintain the proper electrode spacing. After the electrode and fiber mat are removed from the deposition zone, the fiber mat is separated from the electrode surface by an adjacent electrically charged surface which transfers the mat. Residual water in the mat is removed simultaneously with the transfer by electroosmosis. The cellulose fiber mats, particularly useful as capacitor tissue, have better electrical properties than can be obtained on conventional paper-making machines.



3,705,848
APPARATUS FOR ELECTROCHEMICAL BURRING AND BLUNTING SHARP EDGES OF CURRENT-CONDUCTING ARTICLES

Alexandr Lazarevich Vishnitsky, Grazhdansky prospekt 15, korpus 1, kv. 27; Lev Mironovich Shapiro, Ulitsa Karbysheva 6, korpus 2, kv. 95; Evgeny Andreevich Kazantsev, Ulitsa Sofii Kovalevskol 14, korpus 2, kv. 19; Benyamin Markovich Shvartsman, Juzhnoe shosse 76, kv. 14; Georgy Petrovich Shilov, Bolshaya Pushkarskaya Ulitsa 23, kv. 28; Evgeny Fedorovich Nemilov, Grazhdansky prospekt 96, korpus 4, kv. 66; Izmail Abdulovich Baisupov, Nevsky prospekt 134, kv. 88; Vasily Fomich Masterov, Ulitsa Krasnaya 41, kv. 10; and Alexandr Stepanovich Rumyantsev, Bukharestskaya Ulitsa 94/1, kv. 287, all of Leningrad, U.S.S.R.

Filed July 22, 1970, Ser. No. 57,167
Int. Cl. C23b *5/78*
U.S. Cl. 204—213 **2 Claims**



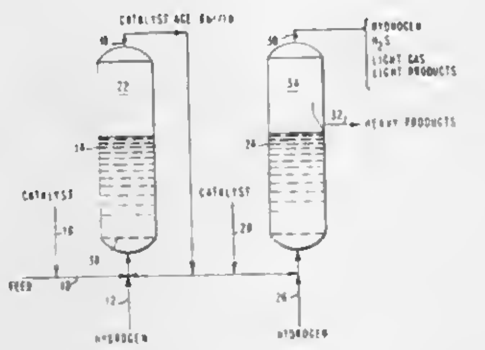
The present invention relates to apparatus designed for electrochemical burring and blunting sharp edges on current-conducting articles.

The invention consists in an apparatus comprising a cylinder with electrolyte, in which articles to be treated are placed, and electrodes which form a closed electric circuit through the articles and electrolyte, said electric circuit having, according to the invention, at least two pairs of heteropolar electrodes.

3,705,849
FUEL OIL DESULFURIZATION

Seymour B. Alpert, Princeton, and Michael C. Chervenak, Pennington, N.J., assignors to Hydrocarbon Research, Inc., New York, N.Y.

Continuation of abandoned application Ser. No. 746,419, July 22, 1968. This application Feb. 22, 1971, Ser. No. 117,725
Int. Cl. C08g *13/02, 23/02, 37/02*
U.S. Cl. 208—59 **3 Claims**

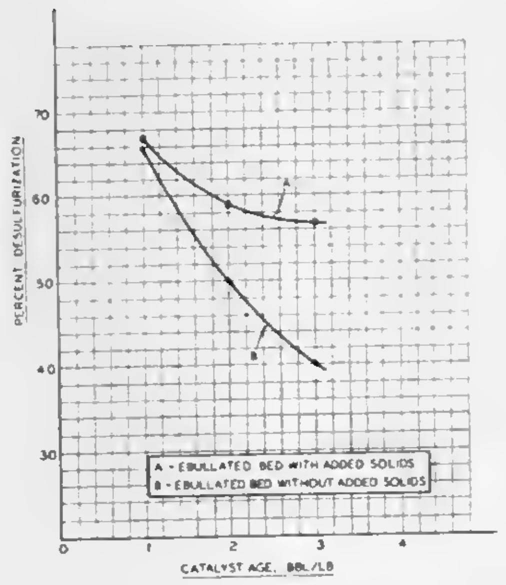


A process for desulfurization of a residuum feed material at low severities wherein the conversion of 975° F.+ materials in the feed is less than 50%, utilizing a series of ebullated catalytic bed hydrogenation reactors.

3,705,850
MULTIFUNCTION CONTACTING PROCESS

Ronald H. Wolk, Lawrence Township, Mercer County, N.J., assignor to Hydrocarbon Research, Inc., New York, N.Y.

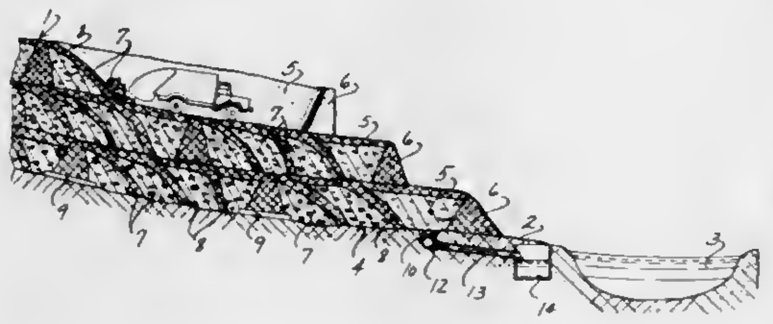
Continuation of abandoned application Ser. No. 742,785, July 5, 1968. This application Jan. 8, 1971, Ser. No. 105,115
Int. Cl. C10g *13/18, 23/02, 25/06*
U.S. Cl. 208—127 **6 Claims**



A process for contacting liquid and gaseous reactants with two different particulate contact solids, each having a different specific physiochemical function relative to said reactants. The reactants are passed upwardly through a bed of one of the solids which is composed of particles having sizes greater than 40 mesh, U.S., at velocities whereby the bed is expanded and designated as ebullated. The second solid is a powder, the particles of which are in a size range less than 40 mesh, U.S., and has a transport velocity equivalent to that required for 20 to 100% expansion of the larger solids which constitute the ebullated bed. The powder is introduced to the liquid feed prior to its entering the contact zone and the powder transverses through and is removed from the contact zone along with the reaction products, while the larger contact solids are retained in the zone.

3,705,851
WASTE DISPOSAL SYSTEM

Robert C. Brauer, 2123 N. 89th St., Wauwatosa, Wis. 53226
Filed Nov. 15, 1971, Ser. No. 198,549
Int. Cl. C02b *9/00*
U.S. Cl. 210—1 **12 Claims**



An above-grade waste disposal system in which refuse is utilized in combination with earth fill to provide an elevated recreational site. The ground area or base is initially graded and sloped, if necessary, toward a low zone and the graded surface is made substantially impervious to the penetration of liquid. Earth fill, preferably obtained by excavating a lake adjacent the low zone of the base, is utilized to construct berms or dikes on the base which define a series of cells. The cells are individually filled with refuse, and earth fill from the excavation of the lake is employed to cover the refuse. As the cells of one tier are progressively filled, additional tiers of cells are formed on the filled cells to ultimately form a hill or small mountain for use as a recreational facility. All leachate from the fill is collected by a drainage system at the low zone of the base for subsequent disposal.

3,705,852
STABLE SOLUTIONS OF CALCIUM SALTS

Alfred Fischer, Bronx, N.Y., assignor to Tenneco Chemicals, Inc.
No Drawing. Filed Dec. 1, 1970, Ser. No. 95,423
Int. Cl. C10m *1/24, 3/18, 5/16*
U.S. Cl. 252—1 **17 Claims**

Stable solutions of calcium salts are provided containing a first calcium salt of a branched chain aliphatic monocarboxylic acid and a second calcium salt of a branched-chain aliphatic monocarboxylic acid or of a cycloaliphatic monocarboxylic acid.

3,705,853
GREASE COMPOSITIONS

Paul Fan, Cherry Hill, and Richard J. Petrucco, Laurel Springs, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed Sept. 23, 1970, Ser. No. 74,849
Int. Cl. C10m *5/20, 5/12*
U.S. Cl. 252—36 **15 Claims**

Grease compositions are provided comprising a lubricating vehicle, a grease-forming quantity of a thickening agent and a minor amount of an improving agent comprising an ethylene-vinyl ester-organic acid terpolymer.

3,705,854
DEICER COMPOSITION

Paul E. Gunning, Kenmore, N.Y., assignor to Osmose Wood Preserving Co. of America Inc., Buffalo, N.Y.
No Drawing. Filed Feb. 12, 1970, Ser. No. 11,002
Int. Cl. C09k *3/18*
U.S. Cl. 252—70 **4 Claims**

A deicer composition consisting essentially of 5 to 50 weight percent of a mixed ether of the type having only one free hydroxyl group, preferably propylene glycol methyl ether, 25 to 95 weight percent water soluble alcohol, and the remainder water. Ethylene glycol methyl ether and ethylene glycol ethyl ether each can be substituted for propylene glycol methyl ether in the same weight percent. The water soluble alcohol preferably is normal propyl or isopropyl alcohol. The deicer composition can be packaged in an aerosol spray container, in which case a suitable gaseous propellant, such as carbon dioxide or nitrous oxide, is added.

3,705,855
REVERSIBLE-EMULSION AEROSOL SYSTEM

Frank William Marschner, Whitehouse Station, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 472,014, July 14, 1965. This application July 24, 1970, Ser. No. 58,197
Int. Cl. C11d *17/04*
U.S. Cl. 252—90 **7 Claims**

A pressurized water-in-oil emulsion which reverses to a stable oil-in-water emulsion and can foam a finite time after discharge from aerosol container, comprising two immiscible liquids in emulsified form, said emulsion having water in the dispersed phase, and propellant being the continuous phase.

3,705,856
ADDITIVES FOR ALKALI CLEANING SYSTEMS

Ronald M. Sedliar, Grosse Ile, Otto T. Aepli, Southgate, and Perle N. Burkard, Wyandotte, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Filed Sept. 1, 1970, Ser. No. 68,760
Int. Cl. C11d *7/06*
U.S. Cl. 252—156 **5 Claims**

Low foaming, copper corrosion inhibiting, all temperature additives for alkali cleaning systems consists of: (a) a mixture of sequestering agents, (b) a mixture of nonionic surfactants, (c) an anionic surface active agent as a hydrotrope, and (d) water. These additives when employed in typical use solutions exhibit synergism in regard to low foam characteristics and copper corrosion inhibition.

3,705,857
COMPOSITION AND METHOD FOR STRIPPING POLYVINYL BUTYRAL PRIMED COATINGS

Gail H. Clarke, Jr., Guilford, and Henry G. Barnowski, Jr., Durham, Conn., assignors to Olin Corporation
No Drawing. Filed Jan. 25, 1971, Ser. No. 109,701
Int. Cl. C09d *9/00;* **C11d** *7/50;* **C23g** *5/02*
U.S. Cl. 252—170 **7 Claims**

A fast-acting stripping composition is employed to strip a variety of coatings, including polyurethane and polyepoxide coatings, from substrates which had been primed with polyvinyl butyral. The stripping composition comprises a mixture of a dialkyl ketone and a solvent selected from the group consisting of dimethyl formamide, tetrahydrofuran, and mixtures thereof.

3,705,858

PREPARATION OF RARE-EARTH-ACTIVATED OXYSULFIDE PHOSPHORS

George William Luckey and Charles Frederick Sherwood, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 12, 1971, Ser. No. 105,888

Int. Cl. C09k *1/14;* **C22b** *59/00*

U.S. Cl. 252—301.4 S **14 Claims**

Novel processes for preparing inorganic rare-earth-activated phosphors and various compositions containing these phosphors are disclosed. Radiographic elements such as intensifying screens containing these phosphors, exhibit high image quality. Rare earth activated lanthanide oxysulfides can be prepared by heating and firing the first-formed sulfite precursors in fluxless, non-chalcogenating reducing atmospheres.

3,705,859

METHOD OF ABATING FOAM FORMATION IN AQUEOUS SYSTEMS

Francis J. Boylan, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 746,771, July 23, 1968, which is a continuation-in-part of application Ser. No. 667,376, Sept. 13, 1967, both now abandoned. This application Dec. 30, 1970, Ser. No. 102,954

Int. Cl. B01d *17/00*

U.S. Cl. 252—321 **10 Claims**

Foam formation in aqueous systems is abated by adding thereto a foam abating amount of a stable dispersion comprised of finely divided particles of a normally solid hydrophobic synthetic polymer as the dispersed phase and a liquid organic non-solvent diluent as the continuous phase.

3,705,860

ANTIFOAM AGENT

Jacque L. Duvall, San Clemente, Calif., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed Sept. 23, 1970, Ser. No. 74,925

Int. Cl. B01d *17/00*

U.S. Cl. 252—358 **11 Claims**

Improved antifoam agents particularly adapted for use in paper and pulp manufacturing processes are prepared from a mixture of non-polar oil, precipitated silica, metallo-organic catalyst, polymethylsiloxane and microcrystalline paraffin wax. These antifoam agents are useful also in latex paint manufacture and the like.

3,705,861

CATALYST FOR THE HYDROGENATION OF DISTILLATION RESIDUUM-CONTAINING PETROLEUM HYDROCARBONS

Yutaka Oguchi, Tokyo, and Hirotsugu Nomura, Kawasaki, Japan, assignors to Nippon Oil Company, Ltd., Tokyo, Japan

No Drawing. Filed June 1, 1970, Ser. No. 42,463

Claims priority, application Japan, June 3, 1969, 44/42,906

Int. Cl. B01j *11/40, 11/44*

U.S. Cl. 252—448 **9 Claims**

Distillation residuum-containing petroleum hydrocarbons are hydrogenated stably by using a catalyst composed of a hydrogenatingly active metal compound, such as nitrates and ammonium salts of cobalt-molybdenum, nickel-molybdenum, nickel-cobalt-molybdenum and nickel-tungsten, supported on a carrier derived from a gelled dispersion mixture comprising a hydrosol of basic aluminum sulfate or a mixed hydrosol of basic aluminum sulfate and silica and particles of a water-insoluble inorganic solid, such as aluminum hydroxide, silica gel, or kaolinite, or its hydrogel. The excellent activity of the catalyst is maintained for a prolonged period of time.

3,705,862

WATER-SOLUBLE BINDERS PREPARED FROM PHENOLIC RESIN AND MONO-OLEFINICALLY UNSATURATED ACID

Gerhard Stieger, Wiesbaden, and Josef Flasch, Mainz-Bischofsheim, Germany, assignors to Reichhold-Albert-Chemie AG, Hamburg, Germany

No Drawing. Filed Nov. 10, 1969, Ser. No. 875,569

Claims priority, application Germany, Nov. 13, 1968, P 18 08 503.5

Int. Cl. C09d *3/54, 5/24*

U.S. Cl. 260—19 UA **10 Claims**

A composition suitable for use as a water-soluble binder comprising the product obtained by reacting a mono-olefinically unsaturated at most dicarboxylic acid having not more than 6 carbon atoms with a phenolic resin, said phenolic resin being obtained by condensing, in the presence of an acid catalyst, (1) an at most trihydric phenol containing not more than one phenolic hydroxy group per benzene nucleus and containing at least one hydrocarbon substituent the substituents having altogether up to 12 carbon atoms, (2) formaldehyde and (3) an ester of (3a) a fatty acid having from 12 to 30 carbon atoms and (3b) a polyhydric aliphatic alcohol having 2 to 14 carbon atoms, an aqueous solution for use in electrophoretic coating containing an amine or quaternary ammonium neutralization product of said reaction product and a process for preparing said reaction product.

3,705,863

MOLDING CORE GRIT

Thomas D. Hicks, 5206 Portland Ave., White Bear Lake, Minn. 55110

Filed Oct. 13, 1970, Ser. No. 80,387

Int. Cl. C08g *22/04, 51/04*

U.S. Cl. 260—22 TN **5 Claims**

A foundry mold and core are prepared using comminuted wet bottom boiler slag and a binder.

3,705,864

ELECTROPHORETIC DEPOSITION

Gerhard Stieger, Wiesbaden, and Josef Flasch, Mainz-Bischofsheim, Germany, assignors to Reichhold-Albert-Chemie AG, Hamburg, Germany

No Drawing. Filed Oct. 22, 1969, Ser. No. 868,628

Claims priority, application Germany, Oct. 23, 1968, P 18 04 555.1; Apr. 12, 1969, P 19 18 630.2

Int. Cl. C09d *3/48, 5/24;* **C23b** *13/00*

U.S. Cl. 260—22 R **11 Claims**

A composition suitable as a binder in electrophoretic coating comprising an ammonium or amine salt of a partial esterification product of a telogen containing low-molecular weight polymer of (A) at least one compound containing a polymerizable olefinic bond and being free from hydroxy groups and (B) at least one olefinically unsaturated carboxylic acid or functional derivative thereof with a member selected from the group consisting of

- (a)(1) at least one unsaturated long-chain monohydric alcohol,
- (a)(2) at least one unsaturated fatty acid derivative selected from hydroxyalkyl esters, alkanolamides and oxazolines,
- (a)(3) a combination of (a)(1) and (a)(2) and
- (b) with an at least trihydric alcohol,

a process for the preparation of the esterification product and a process for electrophoretically depositing said composition.

3,705,865

THERMOSTABLE MOULDING MATERIAL BASED ON VINYL CHLORIDE OR VINYLIDENE CHLORIDE POLYMERS

Joachim Kandler and Franz-Josef Dany, Lechenich, Klaus Komorniczyk, Turnich, and Peter Munch, Hurth-Burbach, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

No Drawing. Filed Sept. 10, 1970, Ser. No. 71,212

Claims priority, application Germany, Oct. 18, 1969, P 19 52 624.0

Int. Cl. C08f *45/62*

U.S. Cl. 260—23 XA **2 Claims**

Stabilization of moulding material based on vinyl chloride or vinylidene chloride polymers or copolymers, against the action of heat and light by means of lead compounds. The moulding material is more particularly stabilized with the use of a stabilizer mixture comprising a lead-dialkyl-dithiophosphate, of which the alkyl radicals contain between 1 and 18 carbon atoms, and one or more conventional thermostabilizers for vinyl chloride or vinylidene chloride polymers or copolymers.

3,705,866

AQUEOUS COATING COMPOSITIONS

Minoru Shibata and Makoto Yusa, Hiratsuka-shi, and Hisao Nakata and Michisuke Harada, Nigata-ken, Japan, assignors to Kansai Paint Company Limited, Amagasaki-shi, Hyogo-ken, and Nippon Soda Company Limited, Tokyo-to, Japan

No Drawing. Filed Dec. 3, 1969, Ser. No. 881,859

Claims priority, application Japan, Dec. 9, 1968, 43/90.336

Int. Cl. C09d *3/00*

U.S. Cl. 260—23.7 A **15 Claims**

An aqueous coating composition contains as a binder a saponified product of a modified diene polymer which is a condensation product of a pyridine acid value of 30 to 200 of a hydroxyl terminated polymer of an aliphatic conjugated diene of 4 to 8 carbon atoms and at least one of polybasic acids or anhydrides thereof having 8 to 26 carbon atoms in the carbon-carbon skeletal chain thereof.

3,705,867

REDUCED SLUDGE FORMATION IN LARGE PARTICLE TETRAFLUOROETHYLENE POLYMER AQUEOUS DISPERSION

David Alan Holmes, Vienna, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 72,498, Sept. 15, 1970. This application Dec. 23, 1970, Ser. No. 101,105

Int. Cl. C08f *45/24*

U.S. Cl. 260—29.6 F **5 Claims**

Sludge formation in large particle, i.e., average particle diameter of at least 0.25 micron, tetrafluoroethylene polymer aqueous dispersion is reduced by adding ethoxylated aliphatic alcohol nonionic surfactant to the dispersion to reach a concentration of at least 7.0 percent based on the weight of the polymer solids in the dispersion. At a dispersion pH of greater than 7 and surfactant content sufficient to give the dispersion a viscosity of at least 30 centipoises, the formation of brown scum on the surface of the dispersion is eliminated.

3,705,868

ADHESIVE FOR ADHERING A POLYESTER FIBROUS MATERIAL OR AN INORGANIC MATERIAL WITH A RUBBER AND METHOD THEREOF

Toshio Honda, Eishi Kubota, Yukio Fukuura, and Yoneji Kobayashi, Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

No Drawing. Filed Nov. 16, 1970, Ser. No. 90,158

Claims priority, application Japan, Nov. 19, 1969, 44/92,069; Feb. 28, 1970, 45/16,868

Int. Cl. C08d *9/10;* **C08g** *5/10*

U.S. Cl. 260—29.7 R **6 Claims**

An aqueous adhesive for adhering a polyester fibrous material or an inorganic material to a rubber consists of a mixture of a liquid adhesive base consisting mainly of a solution of a polyhydric phenol polysulfide dissolved in a resorcin excess resorcin-formaldehyde condensate and RFL solution consisting of a resorcin-formaldehyde resin and a rubber latex. The polyester fibrous material or inorganic material is adhered to the rubber by treating said material with the aqueous adhesive, drying the thus treated material at a high temperature and compressing the dried material to an unvulcanized rubber and then vulcanizing the rubber.

3,705,869

SOLUBLE POLYIMIDES

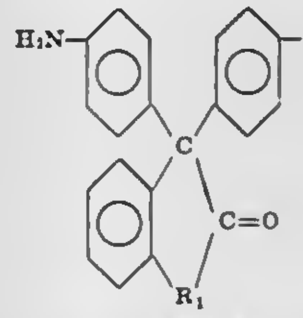
Franklin P. Darmory and Marianne Di Benedetto, Ardsley, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,469

Int. Cl. C08g *51/26, 51/44*

U.S. Cl. 260—30.2 R **25 Claims**

Polyimides are prepared by reacting an aromatic tetracarboxylic acid dianhydride with a diamine having the formula



wherein R_1 is S, N—H, N-lower alkyl, N-aryl. These polyimides are soluble in certain organic solvents whereby they can be fabricated into films, coatings, laminates and the like. The polyimides are also fusible and moldings thus obtained are low in void content.

3,705,870

SOLUBLE POLYIMIDES FROM AROMATIC DIANHYDRIDES AND 2,4-DIAMINODIPHENYLAMINES AND 2,4-DIAMINODIPHENYL SULFIDES

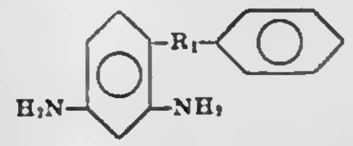
Franklin P. Darmory and Marianne Di Benedetto, Ardsley, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,679

Int. Cl. C08g *51/26, 51/44*

U.S. Cl. 260—30.2 R **29 Claims**

Polyimides are prepared by reacting an aromatic tetracarboxylic acid dianhydride with a diamine having the formula



wherein R_1 is S, N—H, N-lower alkyl, N-aryl. These polyimides are soluble in certain organic solvents whereby they can be fabricated into films, coatings, laminates and the like. The polyimides are also fusible and moldings thus obtained are low in void content.

3,705,871
PROCESS FOR OBTAINING POLYLACTAM POWDERS

Michel Biensan, Billere, and Philippe Bruant, Pau, France, assignors to Societe Nationale des Petroles d'Aquitaine Tour Aquitaine, Courbevole, France
No Drawing. Filed Dec. 23, 1969, Ser. No. 887,762
Claims priority, application France, Dec. 31, 1968, 182,520
Int. Cl. C08c *11/22*
U.S. Cl. 260—33.6 R 9 Claims

A process for the production of polylactams in pulverulent form without the formation of lumps is provided in which the catalyst and/or activator is introduced into the solution of the monomeric lactam continuously during an initial period of the polymerization until at least 20% of the lactam has been converted to polylactam.

3,705,872
PROCESS FOR THE PRODUCTION OF BONDED PARTICLES AS A MATERIAL OF CONSTRUCTION

Clifford V. Wittenwyler, Union, N.J., assignor to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 792,163, Jan. 17, 1969. This application Apr. 5, 1971, Ser. No. 131,460
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 EP 8 Claims

Foundry cores are prepared by (1) mixing from about 90 to 99 parts by weight of foundry sand with from 1 to 10 parts by weight of a polyepoxide binder, (2) mixing said blend with a curing amount of a boron trihalide complex, especially boron trifluoride dihydrate, in an oxygenated hydrocarbon, (3) packing the blend into suitable forms and (4) allowing the polyepoxide to cure with or without heating.

3,705,873
POLY-GAMMA-SUBSTITUTED GLUTAMATE SOLUTIONS CONTAINING ALCOHOLS

Yasuo Fujimoto, Yokohama, Masayuki Teranishi, Tokyo, and Toshihiko Tezuka, Yokohama, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Filed Apr. 30, 1971, Ser. No. 139,199
Claims priority, application Japan, May 11, 1970, 45/39,355
Int. Cl. C08g *51/34, 51/30*
U.S. Cl. 260—33.4 R 18 Claims

Poly-γ-substituted glutamate solutions comprising the polymerization product of a N-carboxy anhydride of a γ-substituted glutamate, a suitable polymerization solvent and an alcohol, characterized by high molecular weight and concentration and low viscosity; and processes for their preparation.

3,705,874
PROCESS FOR THE PRODUCTION OF POLYHYDANTOIN PLASTICS CONTAINING IMIDE GROUPS

Rudolf Merten, Leverkusen, and Wilfried Zecher, Cologne, Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation of application Ser. No. 748,596, July 30, 1968. This application June 8, 1971, Ser. No. 151,135
Claims priority, application Germany, Aug. 7, 1967, F 53,158
Int. Cl. C08g *20/32, 33/02*
U.S. Cl. 260—47 CP 7 Claims

Polyhydantoin plastics containing imide-units and a process for their production by reaction of in a first stage a polyvalent glycine ester derivative with an excess of a polyisocyanate and in a second stage the preadduct thus obtained with a polyvalent compound containing at least one cyclic carboxylic acid anhydride group.

3,705,875
THERMALLY STABLE POLYIMIDES

Charles E. Browning, New Carlisle, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Aug. 11, 1971, Ser. No. 170,966
Int. Cl. C08g *20/32*
U.S. Cl. 260—63 N 6 Claims

Aromatic heterocyclic polyimides, thermally stable at high temperatures, are produced by the condensation of 2,6-diaminoanthraquinone and an aromatic tetracarboxylic dianhydride such as 1,4,5,8-naphthalenetetracarboxylic dianhydride. Because of the high thermal stability of the polyimides, they are eminently suitable for use in various aerospace applications where high temperatures are encountered. In particular, the polymers are useful for producing films, fibers, laminates, molded articles and ablative materials.

3,705,876
METHOD OF MAKING POLYOXYMETHYLENES

Herbert Amann, Grossauheim, and Erich Bäder, Hanau, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed June 25, 1970, Ser. No. 49,973
Claims priority, application Germany, June 28, 1969, P 19 32 866.6
Int. Cl. C08g *1/04, 1/20*
U.S. Cl. 260—67 FP 9 Claims

Cyclic oligomers of formaldehyde, specifically trioxane and tetroxane, are polymerized in the presence of radical generators to reduce the polymerization temperature peak and loss by evaporation.

3,705,877
ANTISTATIC SYNTHETIC RESIN COMPOSITIONS CONTAINING TRAZINE DERIVATIVES

; Tatsuo Ishikawa, 6-3, Kitashinkoji; Shiro Hiruta, 4770, Yamatsukicho; Teruomi Wahabayashi, 1, Sakurazonocho; Yoshihiko Inamoto, 3-1, Nakagawaracho-2-chome; Tetsuhiro Kusunose, 4850, Nakagawaracho-2-chome; Tatsuichi Tsumaki, 4920, Nakagawaracho-2-chome, and Masami Ota, 4993-374, Shimonagahamacho, all of Nobeokashi, Miyazakiken, Japan
Division of Ser. No. 755,875, Aug. 28, 1968. This application June 8, 1970, Ser. No. 44,283
Claims priority, application Japan, Aug. 30, 1967, 42/55188; Aug. 30, 1967, 42/55189
Int. Cl. C08g *17/14*
U.S. Cl. 260—75 N 7 Claims

Antistatic compositions comprising polymer materials, such as polyamides, polyesters, polyolefins, polystyrenes, polyvinyl chloride, polyvinylidene chloride, polymethylmethacrylate or polyacrylonitrile butadiene styrene terpolymer and triazine derivatives as an antistatic agent.

3,705,878
DYEABLE POLYESTERS CONTAINING BRANCHED ALKYL BENZENE SULFONATES

Stanley David Lazarus, Petersburg, Va., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 869,911, Oct. 27, 1969. This application Apr. 6, 1971, Ser. No. 131,829
Int. Cl. C08g *17/14*
U.S. Cl. 260—75 S 16 Claims

Polyesters useful for making films and filaments having incorporated therein based upon the total amount of the

dicarboxylic acid used in preparing said polyesters from about 0.006 to about 3.0 mole percent of a compound of the formula:

$$R—Z—Y—X$$

wherein:

R is a branched alkyl chain having at least 12 and not more than 30 carbon atoms,
Z is an aromatic ring selected from the group consisting of benzene, naphthalene and biphenyl,
Y is a sulfonate radical, and
X is selected from the group consisting of ammonium, sodium, zinc, calcium, chromium, potassium and magnesium

for improved dye receptivity for disperse and basic dyes.

3,705,879
URETHANE COATING COMPOSITIONS

Bernardas Brizgys, Southgate, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Filed Dec. 4, 1970, Ser. No. 95,395
Int. Cl. C08g *22/36*
U.S. Cl. 260—77.5 AC 5 Claims

A single package, moisture-curable, stabilized, urethane coating composition containing unreacted isocyanate groups and capable of curing to a hard surface film at ambient temperature in about two to eight hours comprises an isocyanate-terminated prepolymer prepared by reacting (1) an organic polyol with (2) a stoichiometric excess of an organic polyisocyanate in the presence of an inert solvent and optionally in the presence of a tetravalent metallo organic salt catalyst. The resulting prepolymer is then admixed with a boron trifluoride compound, a selected amine and a tetravalent metallo-organic salt. Optionally, the boron trifluoride compound may be added to either (a) the organic polyol, (b) the organic polyisocyanate prior to the preparation of the isocyanate-terminated prepolymer, or (c) to the reaction mixture during the preparation.

3,705,880
PROCESS FOR THE PREPARATION OF ALKYLENE OXIDE COPOLYMERS

Toshiaki Matsuo, Yokohama, Koji Chono, Kawasaki, Tadahiro Go, Yokohama, and Hirotaka Komai, Kamakura, Japan, assignors to The Japanese Geon Company Ltd., Tokyo, Japan
Filed Dec. 23, 1970, Ser. No. 101,002
Claims priority, application Japan, Dec. 27, 1969, 45/104,820
Int. Cl. C08g *22/00*
U.S. Cl. 260—77.5 R 11 Claims

A process for the preparation of alkylene oxide-isocyanate copolymers, which comprises polymerizing an alkylene oxide in the presence of at least one isocyanate compound, with the action of a catalyst formed of at least one compound containing a phosphorus-oxygen linkage and at least one compound of a metal of Group III and IV of the Periodic Table.

3,705,881
CATALYSIS OF POLYAMIDE FORMATION

Steven Edward Schonfeld, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,780
Int. Cl. C08g *20/10*
U.S. Cl. 260—78 L 3 Claims

There has been provided a method of catalyzing polyamide formation in which the catalyst is a mixture of acids of phosphorus and sulfur.

3,705,882
LIQUID THIOESTER-TERMINATED POLYMERS

Douglas E. Skillicorn, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
No Drawing. Filed June 28, 1971, Ser. No. 157,601
Int. Cl. C08g *23/00*
U.S. Cl. 260—79 12 Claims

Liquid thioester-terminated polymers are prepared by reacting liquid mercaptan-terminated polymers with anhydrides, esters, or carboxylic acids. The polymers are readily cured to form solid elastomers, and are useful base polymers for sealants, caulks, and like formulations. These polymers do not have the typical offensive odor of mercaptan-containing polymers, and so they are especially useful in applications where the odor of mercaptan-containing polymers prohibits their use.

3,705,883
THERMALLY STABLE VINYL CHLORIDE COPOLYMERS

Frank Wingler and Karola Brudermanns, Leverkusen, and Herbert Bartl, Odenthal-Hahnenberg, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 2, 1971, Ser. No. 112,066
Claims priority, application Germany, Feb. 14, 1970, P 20 06 775.8
Int. Cl. C08f *15/40*
U.S. Cl. 260—80.75 3 Claims

Thermally stable vinyl chloride copolymers are obtained by copolymerising from 65 to 98.9 parts by weight of vinyl chloride, from 3 to 210 parts by weight of at least one α-olefin and from 0.5 to 5 parts by weight of a monoallyl or diallyl ether of a polyhydric alcohol; said ether contains at least one hydroxyl group.

Polymerising occurs in bulk, emulsion or suspension at a temperature of from 0 to 60° C. and at a pressure of from 5 to 200 atms. and in the presence of a radical initiator.

3,705,884
VISCOUS COMPOSITIONS AND PROCESS FOR THE PRODUCTION THEREOF

Albert Frese, Marl, Germany, assignor to Chemische Werke Huels, Aktiengesellschaft, Marl, Germany
No Drawing. Filed June 19, 1970, Ser. No. 47,868
Claims priority, application Germany, June 20, 1969, P 19 31 421.7
Int. Cl. C08f *15/40;* **C10m** *1/18*
U.S. Cl. 260—80.78 11 Claims

Viscous atactic polyolefin compositions having viscosities which are less temperature dependent and which have relatively low viscosities at 100° C., which are useful as lubricating oils, cable filling compounds and in the manufacture of roofing board and sealing compounds, are produced from a mixture of polyolefins produced with a Ziegler catalyst and polyolefin produced with a Friedel-Crafts catalyst, preferably produced by successively polymerizing an olefin mixture comprising butene-1, first with the Ziegler catalyst and then with the Friedel-Crafts catalyst.

3,705,885
PROCESS FOR THE RECOVERY OF ESSENTIALLY PURE AMORPHOUS POLYOLEFINS

Elmer J. Hollstein, Wilmington, Del., and Lewis W. Hall, Jr., Chadds Ford, Pa., assignors to Standard Oil Company, Chicago, Ill.
Continuation-in-part of applications Ser. No. 558,495, June 17, 1966, and Ser. No. 703,831, Jan. 16, 1968. This application Dec. 2, 1969, Ser. No. 881,601
Int. Cl. C08f *15/00, 3/02, 1/94*
U.S. Cl. 260—93.7 1 Claim

A process for the separation of alpha-olefin polymers having different steric structures which comprises adjusting the concentration of a solution of amorphous polymer containing in suspension stereo-regular crystalline polymer and semicrystalline stereoblock polymer to 10–40 weight percent of polymer, centrifuging and recovering a substantially pure stereoregular polymer, and a solution of amorphous polymer containing in suspension stereoblock polymer, adjusting, if necessary, the concentration of the latter solution to 5–15 weight percent polymer, filtering the solution to recover substantially pure stereoblock polymer, and a filtrate containing amorphous polymer, and recovering substantially pure amorphous polymer from the filtrate.

3,705,886
PROCESS FOR POLYMERIZATION OR COPOLYMERIZATION OF ETHYLENE

Norio Kashiwa, Otake, Tohoru Tomoshige, Iwakuni, and Toshio Kobayashi and Shiro Honma, Otake, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,251
Claims priority, application Japan, Nov. 29, 1969, 44/95,396
Int. Cl. C08f *1/56, 3/06*
U.S. Cl. 260—85.3 11 Claims

In the process for polymerizing ethylene or copolymerizing ethylene with a comonomer selected from the group consisting of 1-olefines having from 3 to 8 carbon atoms and diolefines having from 4 to 10 carbon atoms, in an inert solvent in the presence of a catalyst comprising a titanium or vanadium halogen compound bonded onto the surface of inorganic solid particles, and an organoaluminum compound or a dialkyl zinc; an improvement wherein said inorganic solid particles are particles of a synthetic double oxide of magnesium and aluminum, and said synthetic double oxide has the atomic ratio of Mg/Al in the range of from 0.02 to 100.

3,705,887
CYCLIC DECAPEPTIDES AND METHODS OF SYNTHESIZING THE SAME

Theodor Wieland, Mainz (Rhine), Wilhelm Konz, Ingelheim (Rhine), and Jnrgen Faesel and Jurgen Lewalter, Frankfurt am Main, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

No Drawing. Filed Oct. 9, 1968, Ser. No. 766,312
Int. Cl. C07c *103/52;* **C07g** *7/00*
U.S. Cl. 260—112.5 1 Claim

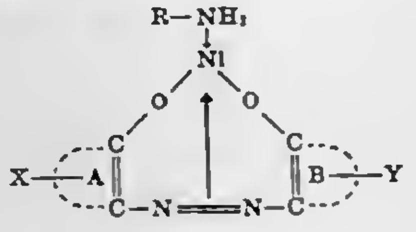
The compounds are derivatives of antamanide, and their synthesis involves the cyclization of the corresponding acyclic decapeptide.

3,705,888
NON-IONIC, NICKEL n-ALKYLAMINE ARYLAZOARYL COMPOUNDS

Charles Edward Lewis, 404 William St., Somerville, N.J. 08876

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,920
Int. Cl. C09b *45/22;* **D06p** *3/00, 1/10*
U.S. Cl. 260—151 4 Claims

Non-ionic, heavy metal (Ni'II) amine arylazoaryl compounds of the formula:



wherein R is an n-alkyl of from 4 to 18 carbon atoms, A and B are each aryl and X and Y, individually, are H, OH, Cl, Br, NO_3, CN, SO_2-alkyl of from 1 to about 4 carbons or alkoxy of from 1 to about 4 carbons, useful in dyeing either nylon or polypropylene fibers, are provided as well as a method for dyeing therewith. A preferred compound for dyeing nylon is the nickel-n-butylamine complex of 1-(2-hydroxyphenylazo)-2-naphthol. A preferred compound for dyeing polypropylene is the nickel-n-decylamine complex of 1-(5-chloro-2-hydroxyphenylazo)-2-naphthol. The dyeings provided by the compounds on nylon and polypropylene are of high tinctorial strength, good light-fastness and uniform shade.

3,705,889
LINCOMYCIN ANALOGS AND PROCESS

Brian Bannister, Kalamazoo, and Barney J. Magerlein, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Apr. 28, 1970, Ser. No. 32,752
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 R 8 Claims

The antibiotic 7-O-(lower-alkyl)-8-norlincomycin and its S-analogs are prepared by alkylating 8-norlincomycin and its S-analogs or by acylating lower-alkyl 7-O-(lower-alkyl)-8-nor-α-thiolincosaminide. Novel intermediates include lower-alkyl N - acetyl - 8 - nor - α - thiolincosaminide; 6 - deamino - 6 - nitro - 8 - nor-α-thiolincosaminide, its peracylate and its 7-O-(lower-alkyl) derivatives; and lower-alkyl 6 - deoxy - 6-methylene - 6-nitro-1-thio-α-D-galactopyranoside peracylate.

3,705,890
CELLULOSE CARBONATES AND METHODS FOR THEIR PREPARATION

Sidney Alan Barker, John Frederick Kennedy, and Charles John Gray, Birmingham, England, assignors to Ranks Hovis McDougall Limited, London, England

No Drawing. Filed Dec. 14, 1970, Ser. No. 98,214
Claims priority, application Great Britain, Dec. 18, 1969, 61,701/69
Int. Cl. C08b *3/04*
U.S. Cl. 260—228 9 Claims

Cellulose carbonate is prepared by reacting cellulose or a 6-substituted cellulose, e.g. methyl cellulose, hydroxyethyl cellulose, carbomethyl cellulose and diethylaminoethyl with an alkyl or aryl chloroformate.

3,705,891
METHOD FOR PRODUCING UNGELATINIZED STARCH DERIVATIVES

John V. Tuschhoff and Cleo E. Hanson, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Continuation-in-part of application Ser. No. 696,110, Jan. 8, 1968. This application Nov. 4, 1970, Ser. No. 86,994
Int. Cl. C08b *19/06*
U.S. Cl. 260—233.3 R 4 Claims

Ungelatinized cold-water-swelling hydroxypropylated starch materials produced by reacting a dry granular starch material directly with propylene oxide in the presence of a polybasic, water-soluble salt of phosphoric acid. The starch derivatives produced by this method are useful as food additives, for cement binders, and for similar uses in which a cold-water-swelling starch derivative is useful.

3,705,892
REARRANGEMENT OF PENICILLIN

Robin D. G. Cooper, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of application Ser. No. 832,836, June 12, 1969. This application Sept. 14, 1970, Ser. No. 72,213
Int. Cl. C07d *91/14*
U.S. Cl. 260—239.1 22 Claims

Treatment of a penicillin sulfoxide with a triphenyl phosphine or trialkyl phosphite results in rearrangement to a thiazoline azetidinone. This rearrangement product can then be converted to a cephalosporin or to a different penicillin.

3,705,893
PROCESS FOR THE 9(11)-ENOLISATION OF A STEROID 1,4-DIENE-3,11-DIONE

Derek Harold Richard Barton, London, England, assignor to Research Institute for Medicine and Chemistry Inc.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,216
Claims priority, application Great Britain, Nov. 24, 1969, 57,425/69
Int. Cl. C07c *173/06*
U.S. Cl. 260—239.55 D 15 Claims

A process for the selective 3- or 9(11)-enolisation of a steroid 1,4-diene-3,11-dione wherein the 1,4-diene-3,11-dione is treated under substantially oxygen-free and anhydrous conditions in a non-hydroxylic solvent with an alkali metal base, other than a lithium base, which is soluble in the solvent. Where the 9(11)-enolate is desired, the dione in non-enolized form is allowed to react with the 3-enolate initially formed, and when the 3-enolate is required the reaction is either carried out below —50° C., or the reaction is carried out in such a manner that contact between the 3-enolate and unreacted dione is reduced or avoided. The resulting 3- or 9(11)-enolates can be converted to the corresponding esters, and either the enolates or the corresponding esters can be halogenated whereby a halogen is introduced at the 6- or 9-position respectively.

3,705,894
MYCOPHENOLIC ACID DERIVATIVES

Koert Gerzon and Richard E. Holmes, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of abandoned application Ser. No. 734,253, June 4, 1968. This application Sept. 24, 1970, Ser. No. 75,281
Int. Cl. C07d *5/34*
U.S. Cl. 260—240 R 6 Claims

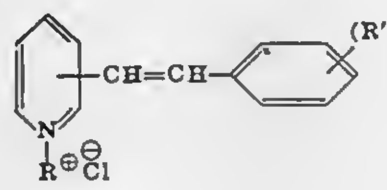
Derivatives of mycophenolic acid having antiviral activity are described. These derivatives are obtained by modification of mycophenolic acid at the carboxyl group, the phenolic hydroxyl group, or both.

3,705,895
PROCESS FOR THE DIRECT SYNTHESIS OF STYRYLPYRIDINIUM CHLORIDES

Stephen David Levy and Richard Steven Wayne, Trenton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Nov. 4, 1970, Ser. No. 86,779
Int. Cl. C09b *23/14*
U.S. Cl. 260—240 D 6 Claims

A novel process for the direct preparation of o- and p-styrylpyridinium chlorides of the formula:



in which R is lower alkyl of from 1 to 6 carbon atoms, R' is selected from the group consisting of hydrogen, lower alkyl (C_1–C_4), alkoxy (C_1–C_6), nitro, lower alkylamino (C_1–C_4) and halogen, and *n* is an integer selected from 1 and 2, by reacting a dialkylpyridinium chloride in a polar solvent with a weak base or in a non-polar solvent with a strong base is disclosed.

3,705,896
PYRAZOLO[3,2-c]-s-TRIAZOLES AND PROCESS FOR THE MANUFACTURE THEREOF

Joseph Bailey, Bushey Heath, England, assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Jan. 15, 1971, Ser. No. 106,891
Claims priority, application Great Britain, Jan. 15, 1970, 1,957/70
Int. Cl. C09b *23/00;* **C07d** *55/06*
U.S. Cl. 260—240 E 11 Claims

A process for producing 1H-pyrazolo[3,2-c]-s-triazoles by fusing the reaction product of a thiocarbohydrazide and an alkylhalide with a keto-ester. The product has utility as a photographic coupler compound for producing magenta dyes and also as an intermediate for synthesizing various azamethine dyes, azo dyes, and cyanine-sensitizing dyes found useful in the photographic art.

3,705,897
METHOD FOR CONVERTING Δ^2 CEPHALOSPORIN TO Δ^3 CEPHALOSPORIN

Charles F. Murphy, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed July 7, 1970, Ser. No. 53,017
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C 7 Claims

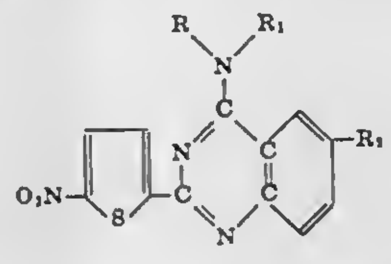
A 3-halomethyl Δ^2 cephalosporin is isomerized to the corresponding 3-halomethyl Δ^3 cephalosporin by oxidation of the Δ^2 compound to the sulfoxide, isomerization of the double bond from the 2- to the 3-position by treatment with a tertiary amine, and reduction of the sulfoxide to the sulfide. These 3-halomethyl Δ^3 cephalosporins are readily converted to 3-functionalizedmethyl Δ^3 cephalosporins, especially to the 3-alkylthiomethyl Δ^3 cephalosporins.

3,705,898
CERTAIN 4 - AMINO - 2-(5-NITRO-2-THIENYL) QUINAZOLINES AND THE INTERMEDIATE 4 - CHLORO-(5 - NITRO-2-THIENYL)QUINAZOLINES THEREFOR

Robert J. Alaimo, Norwich, N.Y., assignor to Morton-Norwich Products, Inc.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,924
Int. Cl. C07d *99/06*
U.S. Cl. 260—247.1 14 Claims

A series of 4-amino-2-(5-nitro-2-thienyl)quinazolines of the formula:

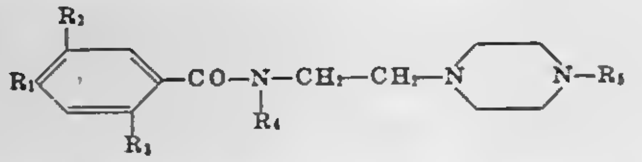


wherein R is hydroxy (lower) alkyl, dihydroxy (lower) or morpholinopropyl; R_1 is hydrogen, amino, or hydroxy (lower alkyl); R_2 is hydrogen or chloro; and R and R_1 taken together with —N is N-hydroxyethylpiperazino possess anthelmintic activity against *Ascaris suum* and *Syphacia obvelata* when perorally administered to infected mice. The members of the series are readily prepared by reacting 4-chloro-2-(5-nitro-2-thienyl)quinazoline with the appropriate amine.

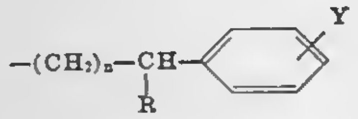
3,705,899
BENZAMIDOETHYL PIPERAZINES

Gilbert Regnier, Chatenay Malabry; Roger Canevari, Clamart, and Jacques Dubault, Chatou, all of France, assignors to Societe en nom collectif "SCIENCE UNION ET Cie"
Filed May 11, 1970, Ser. No. 36,486
Claims priority, application Great Britain, May 23, 1969, 26,437/69
Int. Cl. C07d *57/24*
U.S. Cl. 260—256.4 N **7 Claims**

Benzamidoethyl piperazines of the formula :



wherein R_1 is lower alkoxy, amino or acylamino ; R_2 is hydrogen, halogen, lower alkyl or amino, or $R_1 + R_2$ are methylenedioxy ; R_3 is hydrogen, halogen, lower alkoxy, hydroxy or amino ; R_4 is hydrogen, lower alkyl or lower alkenyl ; R_5 is



wherein n is 0, 1, 2 or 3, R is hydrogen, phenyl or halo-phenyl and Y is hydrogen, halogen, lower alkoxy or methylenedioxy, and R_5 is also pyrimidyl, pyrazinyl, and optionally substituted 2-pyridyl, 4-pyridyl, 2-pyridyl N-oxide and 4-pyridyl N-oxide.

These compounds possess broncholytic, antianaphylactic and gastric anti-secretory properties.

3,705,900
ISOMER RESOLUTION

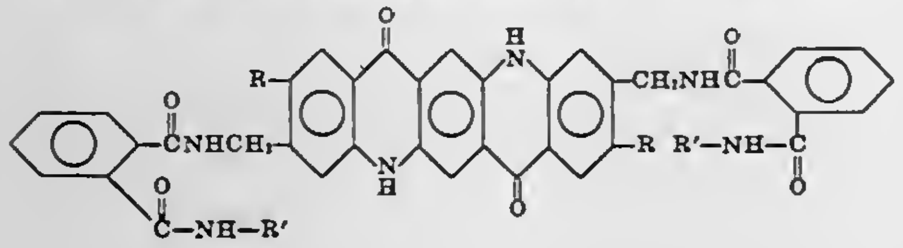
Charles W. Ryan, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Filed Mar. 9, 1970, Ser. No. 17,924
Int. Cl. C07d *43/24*
U.S. Cl. 260—284 **9 Claims**

A mixture of the D and L isomers of an N-protected substituted glycine is resolved into the separate isomer fractions by first treating with cinchonine to precipitate the cinchonine salt of the L isomer followed by treatment with quinine to precipitate the quinine salt of the D isomer. The D isomer is useful in the preparation of cephalosporin antibiotics.

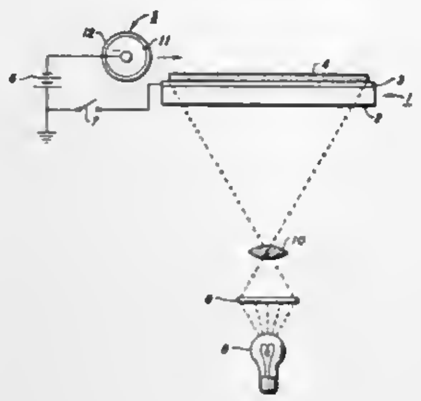
3,705,901
PHOTOELECTROPHORETIC IMAGING COMPOSITIONS

Lester Weinberger, Mount View, Calif., assignor to Xerox Corporation, Stamford, Conn.
Continuation-in-part of application Ser. No. 754,634, Aug. 22, 1968. This application Mar. 29, 1971, Ser. No. 129,078
Int. Cl. C07d *37/00*
U.S. Cl. 260—279 R **2 Claims**

A novel composition having the formula:



wherein R=CH_3, C_2H_5, OCH_3, OC_2H_5 or a halogen and wherein R′=an aromatic, heterocyclic, alicyclic or aliphatic group is disclosed. Methods of preparing said composition and of using said composition in electrophoretic imaging processes are also disclosed.



3,705,902
CERTAIN 2 - ARALKYL - 8-FLUORO-1,2,3,4-TETRAHYDRO-5-PROPIONYL-PYRIDO[3,4-b]INDOLES

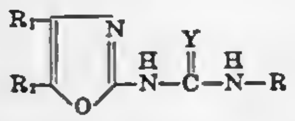
David Lyon Garmaise, Montreal, and Gerard Yvon Paris, Duvernay, Canada, and Nicholas Peter Plotnikoff, Lake Bluff, Ill., assignors to Abbott Laboratories, North Chicago, Ill.
No Drawing. Filed May 3, 1971, Ser. No. 139,901
Int. Cl. C07d *31/44*
U.S. Cl. 260—295 C **3 Claims**

2 - aralkyl-8-fluoro-1,2,3,4-tetrahydro - 5 - propionyl-pyrido[4,3-b]indoles have been found to be powerful antidepressants when administered to warm-blooded animals.

3,705,903
2-CARBAMIDO AND THIOCARBAMIDO OXAZOLES

George Crank, Engadine, New South Wales, Australia, assignor to Lilly Industries, Ltd.
No Drawing. Continuation-in-part of abandoned application Ser. No. 53,982, July 10, 1970. This application Nov. 9, 1970, Ser. No. 88,085
Claims priority, application Great Britain, July 22, 1969, 36,859/69; Nov. 5, 1969, 54,290/69
Int. Cl. C07d *85/44*
U.S. Cl. 260—307 R **12 Claims**

2-carbamido and thiocarbamidooxazoles of the formula



where Y is O or S and R is hydrogen, alkyl or aryl and R_1 and R_2 are H, alkyl, aryl, CF_3, carbalkoxy or carboxamido; are prepared by reacting a 2-aminooxazole with an aryl or alkyl isocyanate or isothiocyanate. The carbamido and thiocarbamidooxazoles are useful in alleviating inflammation in warm-blooded mammals and the thiocarbamidooxazoles are particularly useful in method for controlling fungus infections in plants.

3,705,904
VINYL PHOSPHATES, PROCESS FOR THEIR PREPARATION AND PESTICIDAL PREPARATIONS CONTAINING THEM

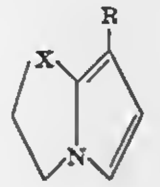
Henry Martin and Josef Drabek, Basel, Switzerland, assignors to Ciba-Geigy AG
No Drawing. Filed May 18, 1970, Ser. No. 38,570
Claims priority, application Switzerland, May 19, 1969, 7,679/69; July 22, 1969, 11,193/69
Int. Cl. C07d *27/08*
U.S. Cl. 260—326.5 A **2 Claims**

The present invention relates to new, broad-spectrum phosphates, their process for the manufacture and their use, either per se or in preparations in the control of nematodes, insects and pests belonging to the order of acarina at all stages of development. These compounds are also effective against undesired plant growth, bacteria and fungi, and also against gastropods. They also have a chemosterilizing action on insects.

3,705,905
6,7-DIHYDRO-5H-PYRROLIZINES AND METHOD OF PREPARATION

Claude Charles Joseph Culvenor, Mitcham, Victoria, John Alexander Edgar, Blackburn, Victoria, Leslie Walter Smith, Mitcham, Victoria, Helen Joan Tweeddale, East Kew, Victoria, Marjorie Vivienne Jago, Blackburn, Victoria, and Eric Lancelot French, Mount Eliza, Victoria, Australia, assignors to Commonwealth Scientific and Industrial Research Organisation, East Melbourne, Victoria, Australia
No Drawing. Filed Aug. 8, 1969, Ser. No. 848,711
Claims priority, application Australia, Aug. 8, 1968, 41,864/68
Int. Cl. C07d *27/28*
U.S. Cl. 260—326.5 R **8 Claims**

The invention provides new compounds having antiviral, anti-tumour or immunosuppressive activity having the general formula



wherein X represents a methylene, α-hydroxymethylene, β-hydroxymethylene or carbonyl group and R represents a hydroxymethyl or formyl group. It also provides a method for the preparation of these compounds from heliotridine, retronecine or supinidine by oxidation followed, if desired, by reduction.

3,705,906
ADAMANTANOPYRROLIDINES

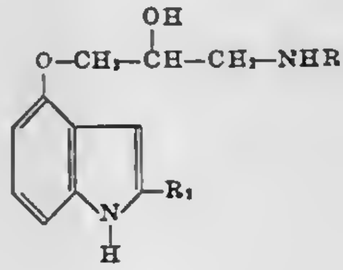
Venkatachala Lakshmi Narayanan and Joseph Edward Dolfini, North Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed July 24, 1968, Ser. No. 747,097
Int. Cl. C07d *27/30*
U.S. Cl. 260—326.11 **4 Claims**

Novel N-substituted adamantano[2,1-b]-pyrrolidines and salts thereof which are useful as antiviral agents.

3,705,907
4-(2-HYDROXY)-3-AMINOPROPOXY)-INDOLE DERIVATIVES

Franz Troxler, Bottmingen, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Continuation-in-part of application Ser. No. 860,397, Sept. 23, 1969. This application June 15, 1970, Ser. No. 46,478
Claims priority, application Switzerland, Feb. 19, 1970, 2,400/70
Int. Cl. C07d *27/56*
U.S. Cl. 260—326.14 R **18 Claims**

The invention concerns novel compounds of formula:



in which R_1 is lower alkyl, cycloalkyl having 3 to 4 carbon atoms, phenylalkyl of 8 to 10 carbon atoms or 1-adamantyl, and R_2 is hydroxymethyl or $COOR_5$, where R_5 is a hydrogen atom or lower alkyl radical, which are useful as β-adrenergic blocking agents. Processes for the production of the compounds of the invention and intermediates for the use therein are described.

3,705,908
PROCESS FOR PREPARING 2-FORMYL-2-LOWER ALKYL 1,3-DITHIOLANES AND 1,3-DITHIANES

Charles M. Leir, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Filed June 28, 1971, Ser. No. 157,719
Int. Cl. C07d *71/00, 73/00*
U.S. Cl. 260—327 M **3 Claims**

Process for the preparation of a dithiolane or dithiane compound substituted at the 2 carbon atom by both an aldehyde group and a lower alkyl group, which comprises converting an alkylene dithiol or alkylene dithiol di- or monoacetate to an alkylene disulfenyl halide then reacting the halide with an aldehyde of 3 to 6 carbon atoms in a suitable solvent.

3,705,909
DIBENZOTHIOPHENE SULFONYL HALIDES

William Bruce Scott, Vancouver, British Columbia, and Peter Laurence Simpson, Clarkson, Ontario, Canada, assignors to Gulf Oil Canada Limited, Toronto, Ontario, Canada
Filed Dec. 24, 1970, Ser. No. 101,350
Int. Cl. C07d *63/24*
U.S. Cl. 260—329.3 **11 Claims**

This invention relates to new dibenzothiophene sulfonyl halides, their preparation, and novel polymers derived therefrom. The thermosplastic thermally stable polymers so formed are aromatic polysulfones, aromatic polysulfonamides, and aromatic polysulfonates useful as thermal insulating coatings for electrical wiring and circuitry.

3,705,910

N-(2-[4,5,6,7-TETRAHYDROBENZOTHIENYL])-PROPIONAMIDES

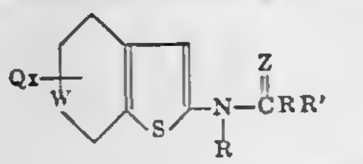
Charles A. Lundberg, Jr., Colonia, and John E. Engelhart, Westfield, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed May 20, 1970, Ser. No. 39,153

Int. Cl. C07d *63/18, 65/08*

U.S. Cl. 260—332.2 R **4 Claims**

Compounds having the following structural formula:



wherein W is CH_2 or CH—Q or a heteroatom selected from the group consisting of O,S(O)*n*, (where *n* equals 0–2) and N—R; Q can be hydrogen, C_1–C_{15} alkyl optionally substituted by chlorine, bromine, cyano, C_1–C_4 alkoxy, C_1–C_4 alkylthio and nitro; C_3–C_{30} cycloalkyl optionally substituted by chlorine, bromine, cyano, C_1–C_4 alkoxy, C_1–C_4 alkylthio and nitro; C_1–C_{20} alkoxy, C_3–C_{30} cycloalkoxy, C_1–C_{20} alkylthio, C_2–C_{20} dialkylamino, C_6–C_{30} dicycloalkylamino, cyano, chlorine, bromine, C_2–C_5 alkyl carboxy, C_1–C_5 carboalkoxy, C_1–C_4 perfluoroalkyl, thiocyano, C_1–C_8 alkylsulfoxide, C_1–C_8 alkylsulfone, C_6–C_{10} aryl and C_5–C_{20} heterocyclic; X ranges from 0–6 when Q is a C_1–C_{15} optionally substituted alkyl group but for all other values of Q, X is no greater than 2; R is selected from the group consisting of hydrogen, C_1–C_{16} alkyl, C_3–C_{10} cycloalkyl, C_1–C_{10} alkoxy, C_3–C_{12} cycloalkoxy and C_1–C_{10} alkylthio. Each of the above enumerated R groups may be optionally substituted by chlorine, bromine, cyano, C_1–C_4 alkoxy, C_1–C_4 alkylthio and nitro; R' is selected from the group consisting of; hydrogen, C_1–C_{15} alkyl optionally substituted by C_1–C_4 alkylthio, chloro, bromo, cyano, C_1–C_4 alkoxy and nitro, C_3–C_{10} cycloalkyl optionally substituted by C_1–C_4 alkyl, chloro, bromo and C_1–C_4 alkylthio, C_6–C_{10} aryl, C_6–C_{10} aryloxy, C_6–C_{10} arylthio, C_6–C_{10} arylamino, C_{12}–C_{20} diarylamino, hydrazino, C_1–C_6 monoalkyl hydrazino, C_2–C_{12} dialkylhydrazino, and C_3–C_{12} trialkylhydrazino, C_1–C_{10} alkylamino, C_2–C_{20} dialkylamino, C_2–C_8 alkoxyalkylamino; Z is either O or S. These compounds have been found to possess post emergent herbicidal activity.

3,705,911

SILYL-AZIDOFORMATES

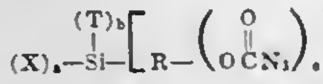
J. Brent Thomson, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Application Sept. 30, 1969, Ser. No. 862,531, which is a continuation-in-part of application Ser. No. 789,974, Dec. 31, 1968. Divided and this application Nov. 16, 1971, Ser. No. 199,300

Int. Cl. C07c *117/00;* **C07d** *109/00*

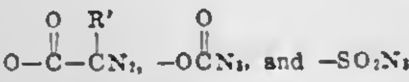
U.S. Cl. 260—349 **2 Claims**

Disclosed are nitrogen containing silane compounds of the formula



$$(X)_a-\overset{(T)_b}{\overset{|}{Si}}-\left[R-\left(O\overset{O}{\overset{\|}{C}}N_3\right)_c\right]_d$$

where R is an organic radical, X is selected from halo, hydroxy, alkoxy, aryloxy, organo oxycarbonyl, azido, amine, and amide radicals; T is selected from alkyl, cycloalkyl, aryl, alkaryl, and aralkyl radicals; *a* is an integer from 1 to 3; *b* is an integer from 0 to 2; *c* is an integer from 1 to 10; *d* is an integer from 1 to 3; and $a+b+d$ equals 4;



$$-O-\overset{O}{\overset{\|}{C}}-\overset{R'}{\overset{|}{C}}N_2,\ -O\overset{O}{\overset{\|}{C}}N_3,\ \text{and}\ -SO_2N_3$$

where R' is selected from hydrogen, alkyl, cycloalkyl, aryl and —COOR" radicals; where R" is selected from alkyl, cycloalkyl, and aryl radicals.

3,705,912

PREPARATION OF ALCOHOLS

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Mar. 22, 1971, Ser. No. 127,030

Int. Cl. C07c *169/54*

U.S. Cl. 260—397.2 **9 Claims**

Alcohols may be prepared by the hydration of olefinic compounds utilizing a catalyst comprising a hexavalent molybdenum compound.

3,705,913

ELECTROPHOTOGRAPHIC SENSITIZERS

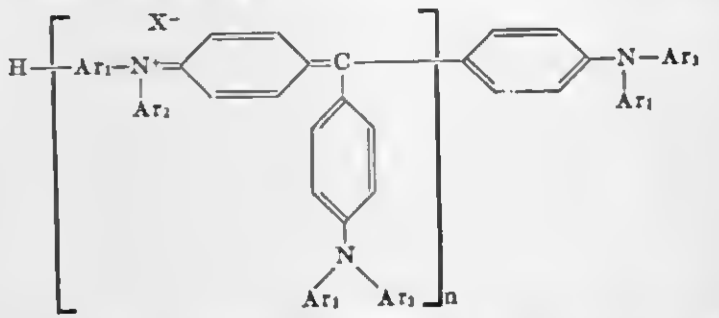
Charles J. Fox and Arthur L. Johnson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application Mar. 18, 1968, Ser. No. 714,091, now Patent No. 3,589,897. Divided and this application Nov. 27, 1970, Ser. No. 93,509

Int. Cl. C07c *87/50, 87/64*

U.S. Cl. 260—391 **20 Claims**

Compounds having the structure



are sensitizers for photoconductors in electrophotographic elements.

3,705,914

PESTICIDAL CARBAMATE DERIVATIVES OF NAPHTHAQUINONES

Cynthia Joan Pickles, Reading, and Nigel Douglas Bishop, Wokingham, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed June 8, 1970, Ser. No. 44,643

Claims priority, application Great Britain, June 25, 1969, 32,069/69

Int. Cl. C07c *125/04, 125/06*

U.S. Cl. 260—396 R **2 Claims**

This invention relates to naphthaquinonyl and anthraquinonyl carbamates and processes for preparing them. The invention also relates to pesticidal compositions containing the above carbamates.

3,705,915

3-METHYL-17α-ETHYNYL-19-NOR-3,5-ANDROSTADIENE-17β-OL

Klaus Irmscher and Klaus Bruckner, Darmstadt, Germany, assignors to E. Merck A.G., Darmstadt, Germany

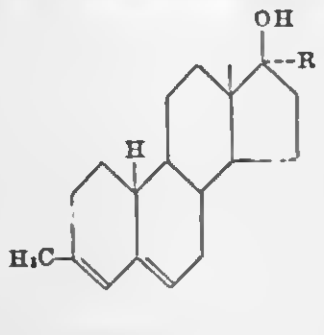
No Drawing. Continuation of abandoned application Ser. No. 744,683, July 15, 1968. This application Nov. 24, 1970, Ser. No. 92,175

Claims priority, application Germany, July 15, 1967, M 74,767

Int. Cl. C07c *169/20*

U.S. Cl. 260—397.5 **1 Claim**

The following compounds function as ovulation-inhibitors in rats but exhibit substantially no progestational activity in the Clauberg test on rabbits:



wherein

R represents allyl or ethynyl.

3,705,916

TETRA(BICYCLOHEPTYL) TRANSITION METAL COMPOUNDS

Barton K. Bower, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Feb. 2, 1971, Ser. No. 112,024

Int. Cl. C07f *7/00*

U.S. Cl. 260—429.3 **3 Claims**

Tetravalent organometallic compounds of transition metals are described wherein the metal is attached to the bridge-head carbon of four bicyclic radicals, namely, a 1-bicyclo-[2·2·1]-heptyl radical that contains not more than one methyl group on a carbon adjacent to the bridge-head carbon. Typical compounds are tetrakis(1-norbornyl)titanium and the corresponding zirconium, hafnium, vanadium, chromium, manganese, iron and cobalt compounds. These organometallic compounds have many uses including their use as catalysts for the polymerization of vinyl monomers.

3,705,917

PROCESS FOR PREPARING FLUOROPERHALO-ALKYL ISOCYANATES

Cyril Woolf, Morristown, Bryce C. Oxenrider, Florham Park, and Wilhelmus M. Beyleveld, Whippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Feb. 26, 1970, Ser. No. 14,652

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 P **24 Claims**

Fluoroperhaloalkyl isocyanates and fluoroperhaloazaolefins are prepared by reacting a fluoroperhalogenated carbonyl compound with a cyanogen halide and an ionizable fluoride salt in the presence of an aprotic, polar liquid reaction medium. For example, $(CF_3)_2CFNO$ and

$$(CF_3)_2CFN{=}C(CF_3)_2$$

are prepared by reacting hexafluoroacetone with cyanogen chloride and potassium fluoride in the presence of acetonitrile. A separate mixture of the isocyanate and the azaolefin is normally obtained, but the reaction conditions can be controlled to favor formation of either product.

3,705,918

POLYSUBSTITUTED DIHYDROPYRENES

Luther A. R. Hall, Woodcliff Lake, N.J.; John A. Gurney, Tarrytown, N.Y., and Harris B. Renfroe, Montvale, N.J., assignors to Geigy Chemical Corporation, Ardsley, N.Y.

Division of Ser. No. 635,287, April 7, 1967, Pat. No. 3,557,218, which is a continuation-in-part of Ser. No. 499,064, Oct. 20, 1965, abandoned. This application Oct. 16, 1970, Ser. No. 81,580

Int. Cl. C07c *121/48*

U.S. Cl. 260—464 **1 Claim**

Photochromic 1,3,6,8-tetra(lower)alkyl-15,16-dimethyl-15,16-dihydropyrenes, 15,16-methylene-15,16-dihydropyrenes, 15,16-methylene-15,16-dihydropyrenes and 1,3,6,8-tetra(lower)alkyl-15,16-methylene-15,16-dihydropyrenes substituted in one or both of the 2- and 7-positions benzoyl, alkanoyl, alkanoyloxy, cyano, nitro, alkyl, α-hydroxyalkyl, α-acyloxyalkyl, α-isonitrosoalkyl, or acylamido groups are prepared via substitution of the parent hydrocarbon. A typical embodiment is 2-acetamido-7-nitro-1,3,6,8,15,16-hexamethyl-15,16-dihydropyrene.

3,705,919

REACTIONS OF ORGANO-METALLIC COMPOUNDS OF PLATINUM AND PALLADIUM GROUP VIII METALS WITH ETHYLENICALLY UNSATURATED COMPOUNDS

Richard F. Heck, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation of application Ser. No. 659,899, Aug. 11, 1967, now abandoned, which is a continuation-in-part of applications Ser. No. 479,665, now Patent No. 3,527,794, Ser. No. 479,649, now Patent No. 3,413,352, and Ser. No. 479,605, now abandoned, all Aug. 13, 1965, and application Ser. No. 520,677, now abandoned, Jan. 14, 1966, which in turn is a continuation-in-part of said application Ser. No. 479,665. This application Feb. 8, 1971, Ser. No. 113,706

Int. Cl. C07c *67/00*

U.S. Cl. 260—491 **6 Claims**

Useful organic compounds are produced by contacting an ethylenically unsaturated organic compound with an organometallic compound of a Group VIII metal having an atomic number in the range of 44–78 in the presence or absence of a cupric salt, and the organic compounds produced are condensation products of the organo group with the unsaturated organic compound.

3,705,920

SULFONYLPHENYLPHOSPHONIC ACIDS

Arthur A. Patchett, Cranford, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Dec. 10, 1969, Ser. No. 883,992

Int. Cl. A61k *27/00;* **C07f** *9/38*

U.S. Cl. 260—502.5 **8 Claims**

Sulfonylphenylphosphonic acids and salts, esters and amides thereof wherein the benzene ring may be substituted by halo, alkyl, trihalomethyl, nitro, carboxy or a hydrocarbylene moiety. The products are prepared by treating a sulfonylbenzene diazonium salt with a cuprous halide and a phosphorous trihalide followed by hydrolysis of the resulting intermediate. The products are uricosuric agents useful in the treatment of gout and gouty arthritis.

3,705,921

METHOD OF PREPARING β-METHYL ADIPIC ACID

Jorg Strickrodt, Laatzen; Gotthard Engemann, Salzgitter-Bad, and Hans-Gerd Eulenhofer, Salzgitter-Lebenstedt, all of Germany, assignors to Veba-Chemie Nord GmbH, Gelsenkirchen-Buer, Germany

Filed March 13, 1970, Ser. No. 19,494

Claims priority, application Germany, April 26, 1970, P 19 21 441.6

Int. Cl. C07c *55/04*

U.S. Cl. 260—531 R **5 Claims**

In the process of producing β-methyl adipic acid from a mixture of para and meta methylcyclohexanol by oxidation with nitric acid for a time and at a temperature sufficient for production of the β-methyl adipic acid, and cooling of the reaction product for precipitation of the β-methyl adipic acid and formation of a mother liquor, the improvement which comprises utilizing in the reaction as the source of para and meta methylcyclohexanol a hydrogenated crude cresol mixture which contains as well as para and meta methylcyclohexanol, up to 20 percent of ortho methylcyclohexanol or cyclohexanol or ortho methylcyclohexanol and cyclohexanol.

3,705,922
PROCESS FOR THE PREPARATION OF GLYOXYLIC ACID METHYL HEMIACETAL

Robert H. Callighan, Penn Hills Township, Allegheny County, and Philip X. Masciantonio, Penn Township, Westmoreland County, Pa., assignors to United States Steel Corporation
No Drawing. Filed Aug. 11, 1970, Ser. No. 63,006
Int. Cl. C07c *59/22*
U.S. Cl. 260—535 R 8 Claims

This invention relates to an improved process for obtaining essentially quantitative yields of glyoxylic acid methyl hemiacetal by ozonolysis of maleic acid in methanol, followed by catalytic hydrogenation of the ozonolysis products. The hemiacetal may then be readily hydrolyzed to produce glyoxylic acid monohydrate.

3,705,923
METHOD FOR PREPARATION OF ORGANIC POLYSULFIDES

Alfred Bay Sullivan, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 28, 1969, Ser. No. 880,893
Int. Cl. C07c *149/32*
U.S. Cl. 260—608 16 Claims

A process for the preparation of organic polysulfides which comprises reacting a compound containing one or more —SH radicals with a sulfenamide characterized by the presence of a carbonyl group adjacent to the sulfenamide nitrogen.

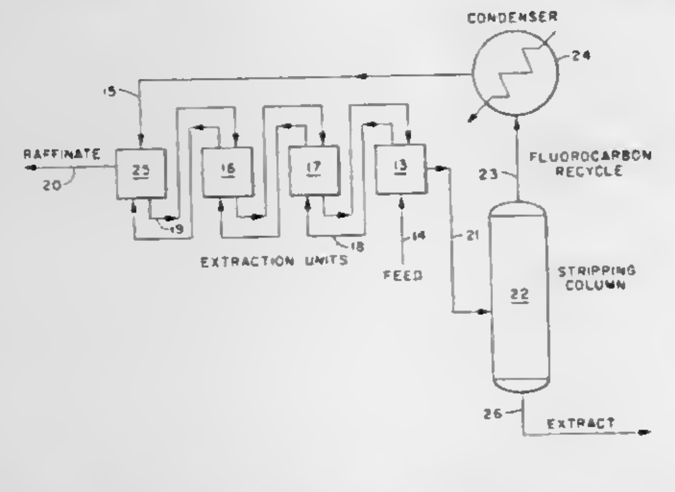
3,705,924
VAPOR PHASE PROCESS FOR PRODUCING VINYL ALLYL ETHER

Robert A. Smith, Anaheim, and Ting-I Wang, Fullerton, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.
Filed July 15, 1969, Ser. No. 841,735
Int. Cl. C07c *43/00, 43/16*
U.S. Cl. 260—614 R 1 Claim

Vinyl allyl ether is produced by the vapor phase catalytic conversion of diallyl acetal to allyl vinyl ether using selected catalysts including silica gel, molecular sieves, aluminum phosphate, charcoal, alumina, and disodium phosphate. Certain catalysts including glass beads, Alundum, H_2SO_4 on silica gel and NaOH on silica gel do not produce the allyl vinyl ether in the process disclosed.

3,705,925
METHOD FOR SEPARATION OF FATTY ALCOHOLS FROM HYDROCARBONS

Charles M. Starks and Gifford G. McClaflin, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
Filed Mar. 19, 1969, Ser. No. 808,486
Int. Cl. C07c *29/24, 7/00*
U.S. Cl. 260—643 D 5 Claims



Fluorocarbons are disclosed as selective solvents for separating alcohols from hydrocarbons.

3,705,926
MANUFACTURE OF LONG CHAIN ALPHA-OLEFINES FROM MIXTURES OF HEAVY PARAFFINS

Paul Rumpf, 23 rue Gazan, Paris, and Byouk Blouri, 70 Avenue des Vergers, Bourg la Reine, both of France
Filed Feb. 20, 1970, Ser. No. 13,049
Int. Cl. C07c *11/12*
U.S. Cl. 260—683 R 4 Claims

The invention relates to a process for preparing long-chain α-olefins from mixtures of heavy paraffins.

The starting mixture is liquified, it is preheated with an inert carrier gas such as nitrogen, to a temperature of about 400° to 500° C, in its partially vaporized and partially pulverized state it is then passed into the gas stream, first in a zone heated to between about 600° and 800° C, then for a longer time in at least one lower temperature zone advantageously in the range of 400° to 500° C and finally the products of the reaction or reactions are recovered for subsequent use or conversion.

Paraffinic products which were unusable in practice can thus be vaporized.

3,705,927
ALKYL- OR ARYL-THIOLPHOSPHONIC ACID O-ALKYL-S-(N,N-DI-SUBSTITUTED AMINO CARBAMYL)-METHYL ESTERS

Claus Stolzer, Wuppertal-Elberfeld; Igeborg Hammann, and Gunther Unterstenhofer, both of Leverkusen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed April 20, 1970, Ser. No. 30,311
Claims priority, application Germany, April 23, 1970, P 19 20 504.0
Int. Cl. C07f *9/40;* **A01n** *9/36*
U.S. Cl. 260—923 8 Claims

Alkyl- or aryl-thiolphosphonic acid O-alkyl-S-(N,N-di-substituted amino carbamyl)-methyl esters, which possess arthropodicidal, especially acaricidal and insecticidal, properties, and which may be produced by conventional methods.

3,705,928
O-ALKYL-N-MONOALKYLAMIDO-(THIONO)THIOLPHOSPHORIC ACID S-(N',N'-DIALKYLAMINO-CARBAMYL)-METHYL ESTERS

Claus Stolzer, Wuppertal-Elberfeld; Ingeborg Hammann, Koeln, and Gunter Unterstenhofer, Opladen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed April 20, 1970, Ser. No. 30,357
Claims priority, application Germany, April 23, 1969, P 19 20 503.9
Int. Cl. C07f *9/24;* **A01n** *9/36*
U.S. Cl. 260—923 11 Claims

O-alkyl-N-monoalkylamido-(thiono)thiolphosphoric acid S-(N', N'-dialkylaminocarbamyl)-methyl esters, which may be substituted on the methyl ester group and which possess arthropodicidal, especially acaricidal and insecticidal, properties, and a process for their production.

3,705,929
N-ISOPROPYL-PHOSPHORO-AMIDO-THIOATES

Gerhard Schrader, Wuppertal-Cronenberg, Ludwig Eue, Cologne-Stammheim, and Helmuth Hack, Cologne-Buchheim, Germany, and Seiichi Hirane, Masahiro Aya, Shigeo Kishino, and Nobuo Fukazawa, Tokyo, Japan, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 20, 1969, Ser. No. 867,875
Claims priority, application Japan, Oct. 28, 1968, 43/78,424
Int. Cl. A01n *9/36;* **C07f** *9/24, 9/26*
U.S. Cl. 260—951 10 Claims

N-isopropyl-phosphoro - amido - thioates, i.e. O - (2-nitro - 4 - alkoxy - phenyl) - O - alkyl-N-isopropyl-phosphoro-amido-thioates or O - (2 - nitro - 4-alkoxy-phenyl)-O - alkyl - N - isopropyl - amido-thionophosphates, which possess herbicidal properties and which may be produced by conventional methods.

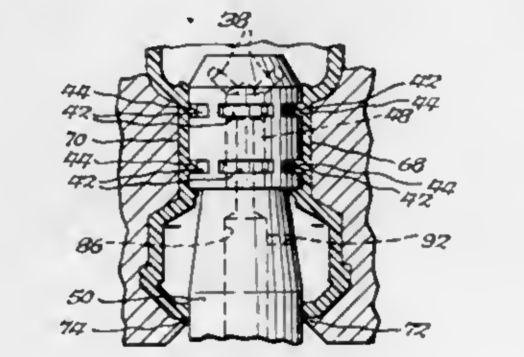
3,705,930
TRITHIOLPHOSPHORIC ACID ESTERS

Hanshelmut Schlor and Hellmut Hoffmann, Wuppertal-Elberfeld, Erik Regel, Wuppertal-Cronenberg, and Hans Scheinpflug, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 22, 1970, Ser. No. 30,965
Claims priority, application Germany, May 6, 1969, P 19 22 928.8
Int. Cl. A01n *9/36;* **C07f** *9/16*
U.S. Cl. 260—964 8 Claims

S-monoalkyl-S,S-diphenyl- or S,S-dialkyl-S-phenyl-trithiolphosphoric acid esters in which each alkyl group has from 1 to 4 carbon atoms, e.g., S-methyl (or -ethyl, -propyl, -butyl)-S,S-diphenyltrithiolphosphoric acid ester, S,S-dimethyl (or -diethyl, -di-propyl, di-butyl-)phenyltrithiolphosphoric acid ester, have exceptional fungicidal activity, especially against rice pathogens, and further exhibit insecticidal and acaricidal effectiveness.

3,705,931
METHOD FOR BLOW MOLDING AND COMPRESSION MOLDING THERMOPLASTIC MATERIAL

Raymond C. Confer, Gasport, N.Y., and Floyd H. Talmon, Fairview Park, Ohio, assignors to Air-Lock Plastic, Inc., Tonawanda, N.Y.
Filed Mar. 23, 1970, Ser. No. 21,945
Int. Cl. B29c *17/07;* **B29d** *3/00*
U.S. Cl. 264—89 5 Claims

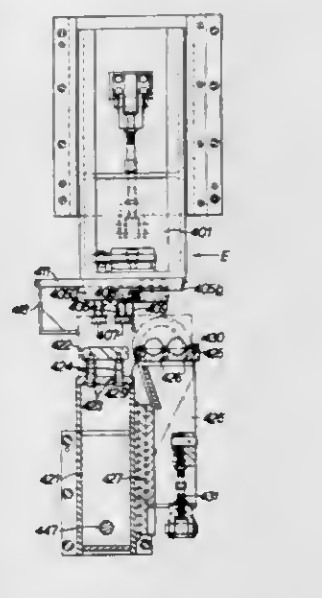


A method of blow molding an article having an insert permanently affixed thereto. The insert is placed on a mounting fixture between complementary mold sections. An extruded parison is fed around the insert and the mold sections are closed about the parison for enclosing a portion of the same. Opposed lands on the mold sections compress a portion of the enclosed parison against the insert and separate the enclosed parison into two hollow sections. Air is introduced into the two hollow sections to expand the same into conformity with the cavity defined by the mold sections.

3,705,932
METHOD FOR THE MANUFACTURE OF HOLLOW PLASTIC ARTICLES

Norman Ashcroft Hurst, 8 Russell Bank Road, Four Oaks; Thomas Edward Horace Gray, 54 Mayfair Road, Wylde Green, and James Jones-Hinton, 11 The Bell Field, Tanworth-in-Arden, all of England
Continuation-in-part of Ser. Nos. 601,591, Dec. 14, 1966, abandoned, and Ser. No. 601,592, Dec. 14, 1966, abandoned. This application May 12, 1970, Ser. No. 36,507
Int. Cl. B29c *17/04, 17/08, 17/14;* **B32b** *1/10*
U.S. Cl. 264—89 7 Claims

A method for manufacturing table tennis balls. The halves of a ball are formed in a single sheet and the sheet is separated to separate the formed halves of the ball. One of the portions of the sheet containing a ball half is inverted relative to the other and the portions are aligned so as to align the ball halves the rein. The sheet portions are then welded together to join the ball halves and the completed ball is removed from the joined sheet portions.



3,705,933
AGGLOMERATION OF PHOSPHOR MATERIALS PRIOR TO CALCINATION TO ELIMINATE CALCINING IN RECEPTACLES

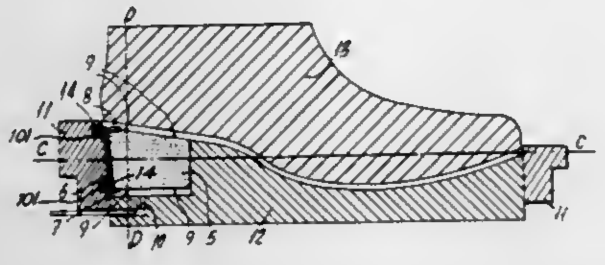
William C. Perry, Jennings, and Eugene F. Puttock and Ronald S. Schreiber, St. Louis, Mo., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.
Continuation-in-part of application Ser. No. 15,922, Mar. 2, 1970. This application Mar. 26, 1971, Ser. No. 128,443
Int. Cl. C09k *1/36;* **B01j** *2/00*
U.S. Cl. 264—117 13 Claims

Thermally refined phosphor material, such as alkaline earth haloapatite phosphor material, in the form of finely divided particles may be produced on a continuous basis in a furnace, without sticking of phosphor material to the furnace walls and without significant loss by volatilization of activator elements, by initially forming particles of precursor phosphor material capable of producing the desired phosphor material into coherent but still friable bodies. The compacted bodies are then continuously fed to a furnace, such as an inclined tubular furnace, where they are heated to incandescence to form and/or thermally refine the phosphor material. The compacted, thermally refined bodies of activated phosphors emanating from the furnace are easily crushed or rolled to yield activated phosphor granules in their original particulate form ready for use in fluorescent lamp coatings and the like.

3,705,934
METHOD FOR THE COVERING OF MOLDABLE ARTICLES (IN PARTICULAR, THE HEELS AND SOLES OF SHOES) AND MOLD FOR APPLICATION OF SAID METHOD

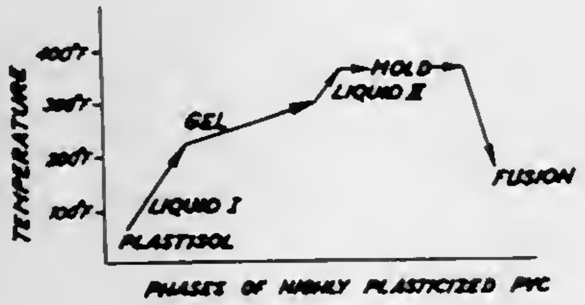
Michele Giannini, Via Imbriani, 81, Barletta, Italy
Filed July 14, 1969, Ser. No. 841,536
Claims priority, application Italy, July 12, 1968, 916/68; Feb. 17, 1969, 905/69; June 16, 1969, 914/69
Int. Cl. A43d *65/00*
U.S. Cl. 264—219 3 Claims

A method for the partial or total covering of any moldable article (particularly suitable for the heel and soles of shoes), characterized by the fact that the said covering is carried out during the molding, by placing the covering, which has previously been cut out or sliced off in the desired shape, against the surface of the mold, in areas corresponding to those of the molded piece that have to be covered, the limits of the said areas having been at least partly marked by protruding parts located on the walls of the mold itself.



3,705,935
PROCESS FOR FORMING FABRIC-CARRIED PLASTIC ARTICLE

James G. Francis, Hialeah, and Robert H. Pasley, Sr., Coral Gables, Fla., assignors to Royalty Designs of Florida, Hialeah, Fla.
Original application Mar. 22, 1967, Ser. No. 625,214. Divided and this application Feb. 6, 1970, Ser. No. 13,216
Int. Cl. B29h *9/02*
U.S. Cl. 264—257 **7 Claims**

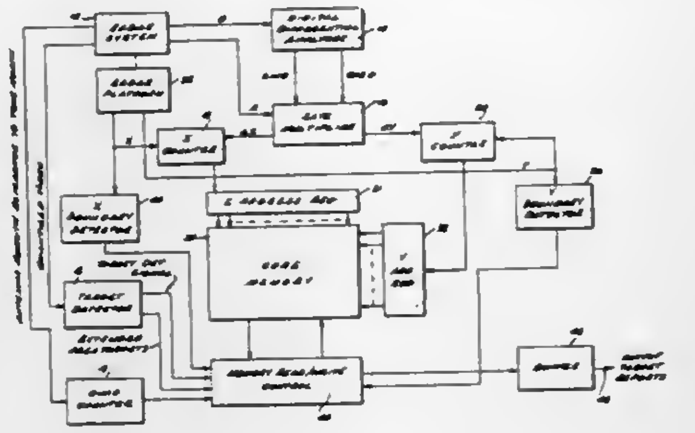


A fabric-carried solid resilient quivery mass of plastic is made by molding a polyvinyl chloride plastisol against a fabric. The plastisol comprises at least substantially 400 parts of plasticizer for each 100 parts of resin and is heated to about 340 degrees F. through a gel state to a liquid state before molding.

3,705,936
MOVING TARGET PLATFORM DIGITAL VIDEO MAPPER

Richard D. Wilmot, Brea, and Jack R. Ballantyne, Santa Ana, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed May 18, 1970, Ser. No. 38,463
Int. Cl. G01s *9/42*
U.S. Cl. 343—7.7 **6 Claims**

The apparatus of the present invention provides a digital video mapper for use on a moving radar platform. Contemporary video mappers will not function properly if the radar platform is moving, because under these circumstances a stationary return will, in general, have a different range and bearing measurement at every scan. With the range and azimuth of stationary targets changing as the radar platform moves, it is no longer possible to address the memory with the radar's range and azimuth counters, since a stationary return will not normally fall into the same memory cell when the memory is synchronized to the radar in this manner. In accordance with the present invention, a digital video mapper is provided wherein the digital mapper memory is automatically controlled with respect to a fixed reference, rather than to the moving radar. In addition, account is taken of new areas which continually enter the radar's coverage while other areas are being left behind.



3,705,937
PRODUCING DIAMONDS SYNTHETICALLY

Boris Eduardovich Dzevitsky, Tsentralny proezd 9, kv. 8, Krasnogorsk Moskovskoi Oblasti, U.S.S.R.; and Boris Vladimirovich Spitsyn, ulitsa Vavilova 37a, kv. 54; Dmitry Alexandrovich Kochkin, ulitsa Dmitria Ulyanova 4/34, korpus A, kv. 33; and Boris Vladimirovich Deryagin, ulitsa Vavilova 37a, kv. 47, all of Moscow, U.S.S.R.
No Drawing. Filed May 1, 1970, Ser. No. 33,919
Int. Cl. C01b *31/06*
U.S. Cl. 423—446 **4 Claims**

The invention relates to methods of producing diamond synthetically with the use of seed crystals.

According to the invention, the method of synthesizing diamond consists in contacting diamond seed crystals with an organometal compound containing at least one easily broken metal carbon bond, and is carried out at a temperature selected from the range of 300 to 1800° K. and at the resulting partial pressure of said organometal compound.

ERRATUM

For Class 424—256 see:
Patent No. 3,705,989

3,705,938
ACTIVATED POLYMER MATERIALS AND PROCESS FOR MAKING SAME

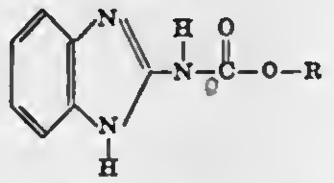
Seymour Hyman, New York, N.Y., Bruce S. Bernstein, Somerville, N.J., and Ramesh Kapoor, Seaford, Del.; said Bernstein and said Kapoor assignors to Hercules Protective Fabric Corporation
No Drawing. Continuation-in-part of abandoned application Ser. No. 593,267, Nov. 10, 1966. This application Feb. 2, 1971, Ser. No. 112,053
Int. Cl. A01n *17/12;* **A61j** *3/00*
U.S. Cl. 424—19 **97 Claims**

This invention concerns non-porous, polymeric articles having active antibacterial, antifungal and combinations of antibacterial and antifungal properties. Said article comprises a preformed, solid, non-porous, polymeric substrate, and a solid non-porous layer of a polymeric composition adherently applied to at least on surface of said substrate, said composition containing at least one activating agent selected from the group consisting of antibacterial, antifungal, and combinations of antibacterial and antifungal activating agents. Said agent is distributed within said polymeric composition of said layer and being capable of migrating from said layer into and throughout said substrate. Said agent is present in said layer in sufficient amount so that upon migration from said layer into said substrate, an effective level of antibacterial, antifungal or a combination of antifungal and antibacterial activity is provided throughout said substrate, and on at least one other surface of said substrate which is not in direct contact with said layer.

3,705,939
FUNGICIDAL COMPOSITIONS AND METHODS UTILIZING METAL COMPLEXES

Hein L. Klopping, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 777,171, Nov. 19, 1968. This application Oct. 21, 1969, Ser. No. 868,233
Int. Cl. C01d *49/38*
U.S. Cl. 424—245 **8 Claims**

Metal complexes prepared by reacting (1) organic compounds having the formula



wherein R is lower alkyl, and (2) metal salts, such as zinc chloride or copper acetate, are useful as fungicides.

3,705,940
SILICIC ACID-CONTAINING DENTIFRICE

Hedwig Kirchgassner, Frankfurt am Main, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed Feb. 7, 1969, Ser. No. 797,710
Int. Cl. A61k *7/16*
U.S. Cl. 424—49 **9 Claims**

A dentifrice comprises a suspension in water, glycerine or a combination of both of (a) a hydrophobic silicic acid obtained by a pyrogenic process and (b) paraffin oil or a vegetable oil or vegetable fat or mixture of these oils and fats. The dentifrice may also include finely dispersed hydrophilic silicic acid or precipitated silicic acid as a thickener and polish.

3,705,941
VAPORIZABLE INSECTICIDE COMPOSITION

Claude Hennart, Seraincourt, Georges Martin, Saint-Benoit, Jean-Pierre Mandon, Poitiers, and Bernard Rabussier, Avanton, France, assignors to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Filed June 16, 1969, Ser. No. 833,665
Claims priority, application France, June 21, 1968, 156,025; Feb. 12, 1969, 6903313; Mar. 12, 1969, 6906859, 6906860, 6906861, 6906862
Int. Cl. A01n *9/36*
U.S. Cl. 424—219 **28 Claims**

Liquid hydrophobic compositions usable in an evaporator for diffusing vapors of active insecticidal substances into the atmosphere are described. The compositions comprise

(A) at least one phosphoric acid ester- or thionophosphoric acid ester-insecticide as active ingredient,
(B) at least one saturated hydrocarbon which is liquid at ambient temperature, as principal solvent, and
(C) at least one organic co-solvent which is soluble in the principal solvent and is capable of dissolving per liter an insecticidally effective amount of component (A);

the amounts of (A, (B) and (C) being so proportioned that they are equal or approximately equal to the proportions of these components which exist in the vapor mixture which evaporates from the composition by way of an evaporator into the surrounding atmosphere, the co-solvent being chosen from solid materials of low melting point and liquid materials, both being soluble in the principal solvent and possessing a boiling point at atmospheric pressure of 100–320° C. and each of the principal solvent and the co-solvent having a vapor pressure at 20° C. of 0.01–30 torr. 2,2-dichlorovinyl dimethyl phosphate (DDVP) is a preferred insecticide in these compositions.

3,705,942
TREATMENT OF GLAUCOMA EMPLOYING IMIPRAMINE OR DESMETHYLIMIPRAMINE

Edgar Grunwaldt, New York, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Sept. 29, 1969, Ser. No. 862,054
Int. Cl. A61k *27/00*
U.S. Cl. 424—244 **7 Claims**

Glaucoma is treated with compositions containing desmethylimipramine or imipramine optionally in the presence of an alkyl gallate and/or a sympathetic or sympathomimetic amine. A typical embodiment is an ophthalmic pharmaceutical composition containing desmethylimipramine and epinephrine.

3,705,943
DIALKYLTIN SALTS OF SUBSTITUTED PYRIDINE-1-OXIDES AS FUNGICIDES AND BACTERICIDES

Charles W. Kaufman, Hamden, Conn., assignor to Olin Corporation, New Haven, Conn.
No Drawing. Continuation-in-part of application Ser. No. 596,801, Nov. 25, 1966. This application July 18, 1969, Ser. No. 843,218
Int. Cl. A01n *9/22*
U.S. Cl. 424—245 **7 Claims**

Certain dialkyltin salts of 2-mercaptopyridine-1-oxide and 2-hydroxypyridine-1-oxide are prepared by reacting the respective oxides with a dialkyltin salt of a low molecular weight organic or inorganic acid. The resulting salts are highly effective bactericides and fungicides which have especially low toxicity to higher animals.

3,705,944
INSECTICIDAL AND ACARICIDAL COMPOSITIONS AND METHODS USING 2-PHENYL-BENZIMIDAZOLES

Wilhelm E. Frick, Pfeffingen, Basel-Land, Horst Harle, Allschwil, Thomas Wenger, Rieben, and Anton Weiss, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Original application Apr. 27, 1967, Ser. No. 634,092, now Patent No. 3,624,100. Divided and this application Mar. 18, 1971, Ser. No. 125,830
Claims priority, application Switzerland, May 6, 1966, 6,667/66
Int. Cl. A01n 9/22
U.S. Cl. 424—273 **9 Claims**

New 2-phenyl-benzimidazoles which are substituted by at least three halogen and/or trifluoromethyl radicals none of which, however, is present at the phenyl radical in an ortho-position relative to the link to the benzimidazole moiety, and optionally by further substituents; as well as their alkali metal and alkaline earth metal salts; which compounds are useful as insecticides and acaricides; and insecticidal and acaricidal compositions containing such compounds as active ingredients; a method of controlling insects and acarinae, and of protecting keratinous material from damage by insects or their larvae, with the aid of such novel compounds; as well as keratinous materials protected with the aid of the said compounds.

3,705,945
PHARMACEUTICALLY ACTIVE COMPOUNDS

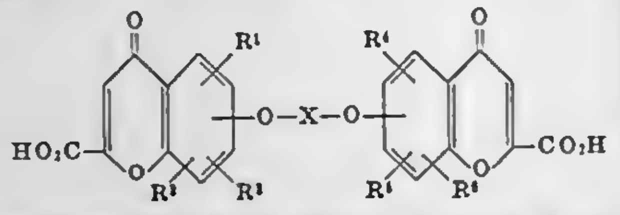
Colin Fitzmaurice and Thomas Brian Lee, Holmes Chapel, England, assignors to Fisons Pharmaceuticals Limited, Loughborough, England

No Drawing. Original application July 3, 1967, Ser. No. 650,627, now Patent No. 3,519,652. Divided and this application May 7, 1970, Ser. No. 47,923

Int. Cl. A61k *27/00*

U.S. Cl. 424—283 **13 Claims**

Compositions containing new compounds of the formula



and functional derivatives thereof, in which at least one of R^1, R^2, R^3, R^4, R^5 and R^6 is a substituent other than a hydrogen atom, halogen atom or alkyl or substituted alkyl group, and the remainders of R^1, R^2, R^3, R^4, R^5 and R^6 are the same or are different and each is hydrogen or a substituent other than hydrogen, and X is a straight or branched polymethylene chain which may be interrupted by one or more carbocyclic or heterocyclic rings, oxygen atoms or carbonyl groups, possess special activities as inhibitors of the effects of certain types of antigen-antibody reaction.

3,705,946
METHOD OF TREATING HYPERURICEMIA

Richard W. Dyke and Martin J. Sweeney, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed May 25, 1971, Ser. No. 146,817

Int. Cl. A61k *27/00*

U.S. Cl. 424—279 **3 Claims**

Mycophenolic acid employed in the treatment of hyperuricemia.

ELECTRICAL

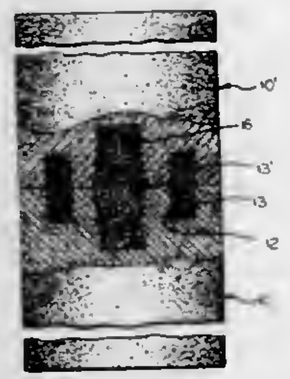
3,705,947
JOINING OF PREBAKED ELECTRODES

John A. Persson, 1411 Woodhill Drive, Gibsonia, Allegheny County, Pa. 15044

Filed Oct. 18, 1971, Ser. No. 190,065

Int. Cl. H05b *7/14*

U.S. Cl. 13—18 **2 Claims**



Prebaked carbon or graphite electric arc furnace electrodes have one or more concentric annular grooves formed in their end faces. The grooves are filled with uncured self-baking carbon or graphite paste such as is used to form electrodes which are entirely self-baked. A new electrode is joined to the stub of an operating electrode by pressing their end faces together, causing the paste in the respective ends to merge. The electrodes are connected mechanically by a conventional threaded nipple. Heat derived from the stub electrode and from resistive heating of the paste cures the paste and effects a sound joint which has good thermal and electric conductivity.

3,705,948
SYSTEM FOR CONTROLLING TONE-MODIFYING CIRCUITS BY MUSCULAR VOLTAGE IN ELECTRONIC MUSICAL INSTRUMENT

Norio Tomisawa, Hamamatsu, Japan, assignor to Nippon Jakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

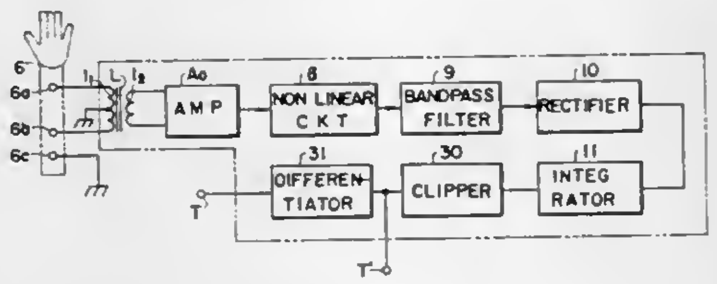
Filed March 8, 1971, Ser. No. 121,969

Claims priority, application Japan, March 9, 1970, 45/19946; March 9, 1970, 45/22748; April 1, 1970, 45/27545; April 1, 1970, 45/27546; April 4, 1970, 45/28744; April 4, 1970, 45/28745; April 17, 1970, 45/32807

Int. Cl. G10h *1/02*

U.S. Cl. 84—1.24 **14 Claims**

An electronic musical instrument which is controlled of its tonal effect by utilizing the muscular voltages of the player generated at his will across his muscles, in addition to the control by the usual manual operation of the playing keys. To this end, a pair of muscular voltage pickup electrodes are attached to at least one selected portion of the player's skin under which a muscular voltage appears upon contraction of the related muscle. Between the pickup electrodes and various tone-modifying circuits are provided circuits for processing the picked-up muscular voltage and for producing control signals to the modifying circuits in specific digital or analog form based on this processed voltage, to accomplish the desired tonal effect control. A wireless transmission means may be provided between the player and the instrument to transmit the picked-up voltage or the control signals to the tone-modifying circuits for more convenient and easier control.



3,705,949
WIREWAY STRUCTURE

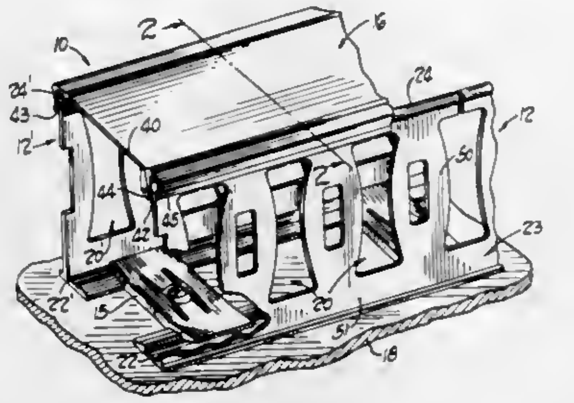
Irving F. Weiss, University Heights, Ohio, assignor to ECP Manufacturing Co., Cleveland, Ohio

Filed Sept. 29, 1970, Ser. No. 76,507

Int. Cl. H02g *3/00*

U.S. Cl. 174—101 **10 Claims**

A wireway to be mounted on an electrical panelboard or the like to retain electrical wires in an orderly and accessible arrangement among electrical devices. An elongated wall that in part comprises the wireway has transverse, elongated, openings through which wires may extend. The openings in the principal embodiments are formed by fingers and are substantially wider at the ends than at the middle. Narrow passageways between the ends of the fingers permit lateral insertion of wires. Rectangular apertures in each finger, or parallel edge portions along opposite sides of the openings at midportions, are adapted to receive a retainer used to temporarily hold wires in place during wiring.



3,705,950
SEALED CONNECTOR BOX FOR ELECTRICAL CABLES

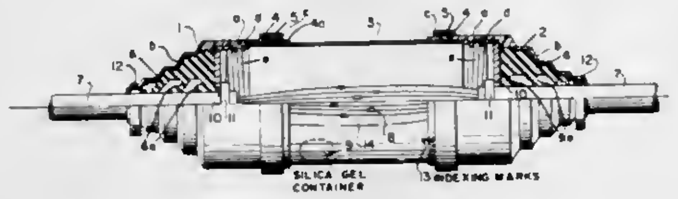
Karl Jirka, Munich, and Johann Gutlhuber, Irlbach, near Straubing, Germany, assignors to Kunststoffwerk Gebruder Anger G.m.b.H., Munich, Germany

Filed Nov. 19, 1970, Ser. No. 91,007

Claims priority, application Germany, Nov. 19, 1969, P 19 58 155.6

Int. Cl. H02g *15/08*

U.S. Cl. 174—138 F **6 Claims**



A sealed connector box for electrical cables is made of a transparent synthetic material and comprises two sleeve elements having conical end portions interconnected by an intermediate tubular member by a screw connection. There are end openings in both ends of the conical end portions through which electrical cables may be inserted and spliced within the tubular element so that the splice is visible. A sealing element fills the interior of the conical end portion and is provided with a plurality of flexible internal ribs which sealingly engage the outer surface of an electrical cable passing therethrough. Other seals are provided on the end opening of each conical end portion and on the joint between a sleeve element and the intermediate tubular element.

3,705,951
SPARK PLUG SEALING GASKET

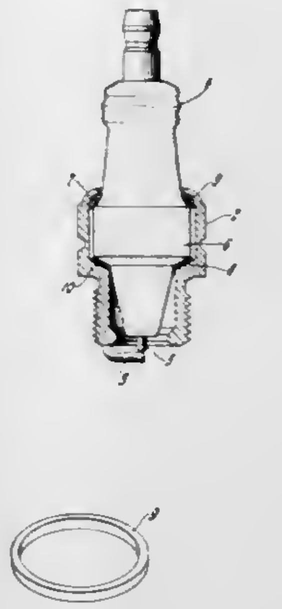
John T. Ransch, Flint, and Michael Skunda, Davison, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 12, 1970, Ser. No. 88,599

Int. Cl. H01b *17/26*

U.S. Cl. 174—152 S **2 Claims**

This invention relates to spark plugs and more particularly to an improved upper seal or gasket for spark plugs. The seal is initially made of 99.4% pure commercially available iron powder that upon heat treat becomes even higher in iron content to provide the necessary ductility for the gasket to seat properly.



ERRATA

For Classes 178—5 and 178—6 see:
Patents Nos. 3,705,839 and 3,705,840

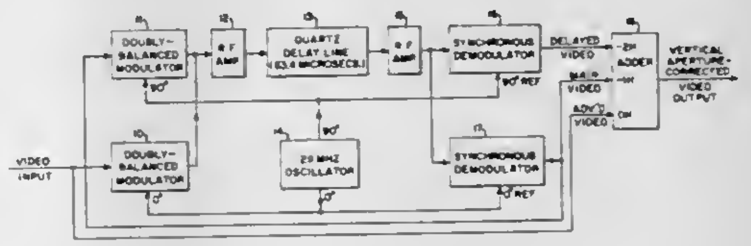
3,705,952
VERTICAL APERTURE CORRECTION CIRCUIT

Max H. Diehl, Manlius, N.Y., assignor to General Electric Company

Filed Sept. 15, 1970, Ser. No. 72,254

Int. Cl. H04n *5/14;* **H03h** *7/30*

U.S. Cl. 178—7.2 **8 Claims**

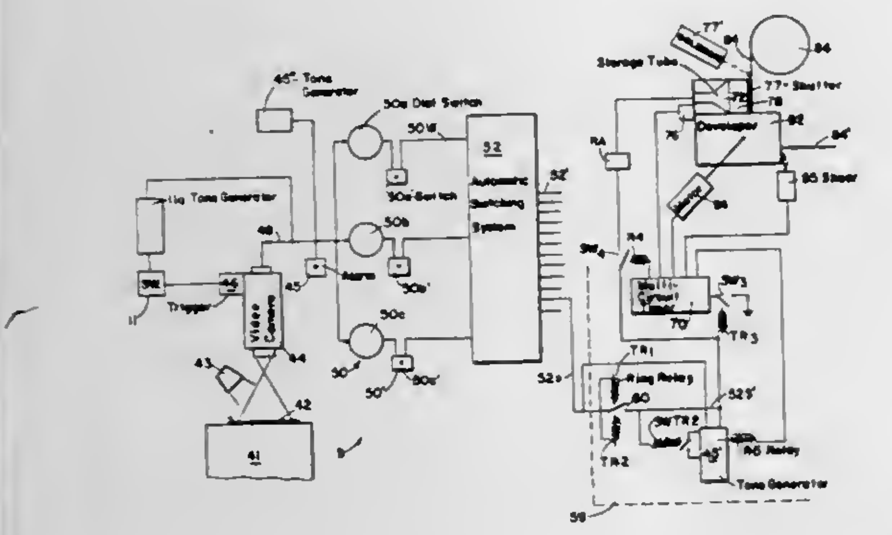


Vertical aperture correction for a television camera is achieved using but a single quartz delay line having a delay time of one horizontal line by modulating the video signal on a first carrier of given frequency and phase and supplying the modulated carrier to the delay line. The modulated carrier, thus delayed by the duration of one horizontal line, is demodulated and the modulating video signal is modulated on a second carrier of the same frequency as the first carrier but phase-displaced therefrom by 90°. The second modulated carrier, thus delayed by the duration of two horizontal lines, is demodulated and the modulating signal is combined with the undelayed video signal and the video signal delayed by one horizontal line to produce a composite, vertical aperture-corrected video signal.

3,705,953

AUTOMATIC COMMUNICATION SYSTEM

Jerome H. Lemelson, 85 Rector St.,
Metuchen, N.J. 08840
Continuation-in-part of application Ser. No. 279,031, Apr. 1, 1963, which is a continuation-in-part of application Ser. No. 723,075, Feb. 28, 1958, now Patent No. 3,084,213, which in turn is a continuation-in-part of application Ser. No. 668,348, Sept. 23, 1957, now Patent No. 3,051,777. This application May 12, 1969, Ser. No. 823,600
Int. Cl. H04n *1/00, 1/28, 1/32*
U.S. Cl. 178—6.6 A **34 Claims**



An automatic communication system is provided for automatically transmitting information between a master station and one or more receiving stations wherein the communication link is automatically effected. In one form, code signals are automatically generated and are utilized to automatically operate a telephone switching system to connect the output of the master station with one or a plurality of receiving stations. Thereafter, facsimile signals are automatically transmitted on the connected circuits and are recorded. In another form, shortwave communication is automatically effected between a sending station and one or more shortwave receivers of respective receiving stations after which information is automatically transferred on the established communication channels and is recorded automatically.

A feature of the instant invention includes computer means for recording information about receiving stations with which communication channels have not been established after the generation of the proper code signals to effect the establishment of such communication channels. The apparatus includes means for automatically reproducing the same signals, which fail to make the connection the first time an attempt is made, one or a number of times thereafter in additional attempts at effecting the establishment of communication channels with all those receiving stations defined for the operation.

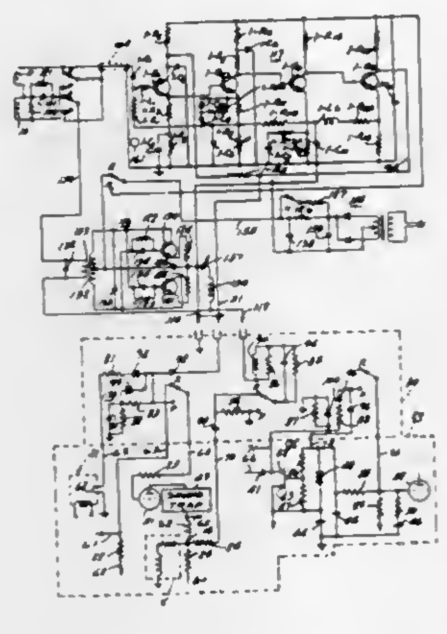
In a form of the instant invention, frames of image information are automatically directed into the scanning field with a video scanning device and are automatically scanned thereafter to generate facsimile signals. A connection signal generating means forms part of the scanning apparatus or is an auxiliary means cooperating with the scanning apparatus.

In another form, all signals, information and connection signals are recorded on a single recording member such as a magnetic tape and are reproduced by respective reproduction transducers as the tape is automatically driven to generate channel connection signals in the proper sequence with associated facsimile signals.

3,705,954

VIDEO TRANSDUCING APPARATUS

Marvin Camras, Glencoe, Ill., assignor to
IIT Research Institute, Chicago, Ill.
Original application June 27, 1967, Ser. No. 649,256, now Patent No. 3,596,008, dated July 27, 1971. Divided and this application May 4, 1970, Ser. No. 34,504
Int. Cl. H04n *5/76*
U.S. Cl. 178—6.6 A **1 Claim**

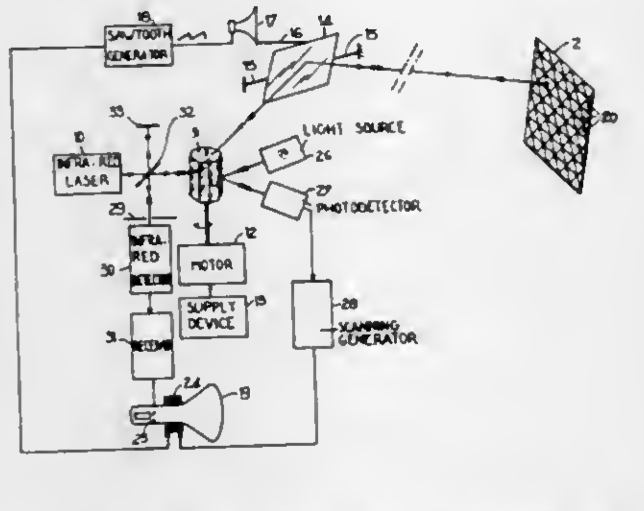


Monochrome and color television recording and playback circuitry for coupling of a video magnetic transducer head with a standard broadcast television receiver. High frequency bias having a frequency of less than 4.4 megahertz, and special head configurations of sheet magnetic material having substantially increased cross sectional perimeter for eddy currents accommodating bias frequencies up to ten megahertz.

3,705,955

BLIND LANDING AID SYSTEMS

George Assouline, Pierre Conjeaud, Pierre Giraolt, and Eugene Leiba, Paris, France, assignors to Thomson-CSF
Filed Jan. 9, 1970, Ser. No. 2,191
Claims priority, application France, Jan. 24, 1969, 6901403
Int. Cl. H04n *3/08*
U.S. Cl. 178—6.8 **6 Claims**

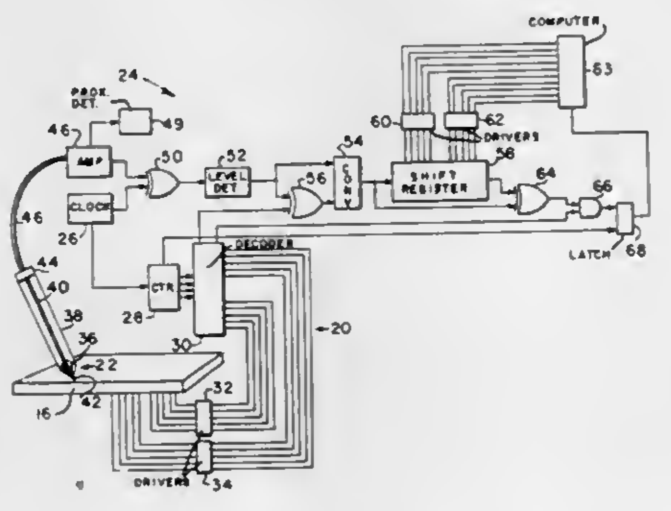


A blind landing aid system, for visualizing, on board an aircraft, a landing runway this aircraft is approaching, this system comprising an infrared laser source, a device for causing the beam emitted by this source to scan the ground, in front of the aircraft, according to a television pattern, reflector beacons bounding the runway for reflecting back on itself any incident infrared beam, a receiver for detecting the infrared beam emitted by this source after reflection on these beacons, and a cathode-ray tube whose screen is scanned in synchronism with the scanning performed by the infrared beam and whose electron beam is controlled by the signals supplied by the receiver, so as to visualize the beacons as luminous spots on the screen of the cathode-ray tube.

3,705,956

GRAPHIC DATA TABLET

Michael L. Dertouzos, Waban, Mass., assignor to
Computek, Inc., Cambridge, Mass.
Filed Jan. 25, 1971, Ser. No. 109,205
Int. Cl. H04n *1/00*
U.S. Cl. 178—18 **11 Claims**



An electromagnetic sensor is held in spaced relation to a grid network having a plurality of conductors defining a Gray Code pattern. Each of the conductors corresponds to a bit in the Gray Code, the grid network characterized by differences which correspond to the differences in the bits of the Gray Code. As current is passed sequentially through each of the conductors, a voltage is induced in the sensor. The location of the sensor with respect to the grid network is determined by detecting the phase of the voltage induced in the sensor.

ERRATUM

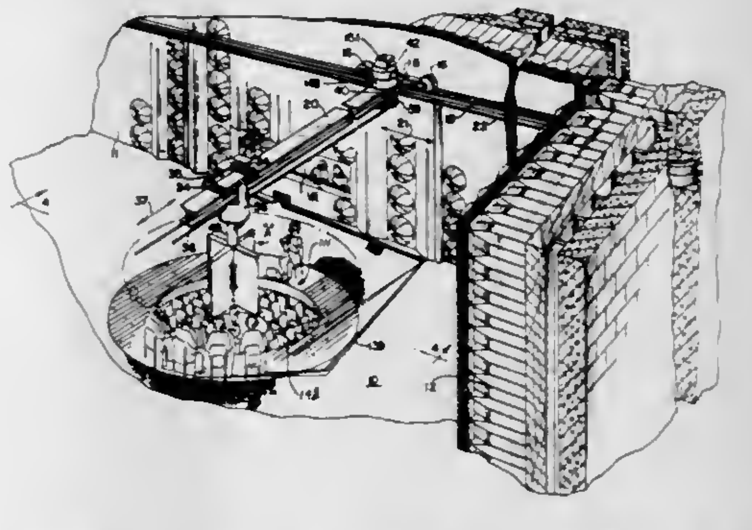
For Class 179—18 see:
Patent No. 3,705,523

3,705,957

TRANSLATIONAL, ROTATIONAL AND VERTICAL MOVEMENT CONTROLLED SOUND SOURCE PICK-UP SYSTEM

David S. Goldsmith, 8359 S. Crandon,
Chicago, Ill. 60617
Filed Feb. 19, 1970, Ser. No. 12,814
Int. Cl. H04r *5/00*
U.S. Cl. 179—1 G **45 Claims**

A sound system for recording or broadcasting in which plural microphones are arranged for intensity sterophony or spaced microphone technique pickup of sound, and in which the microphones are mounted for controlled translational and rotational movement as a whole within a recording studio at a predetermined rate in relation to the tempo of a composition being played. Typically, musicians are positioned so as to totally surround the microphones, and microphone movement enables the eventual listener to be given the various novel musical impressions and effects caused by apparent movement of so-called virtual musical sources, including movement totally about the listener, whose selective hearing and auditory pursuit tracking capabilities are utilized. A suspended column carrying four pairs of microphones is mounted for such rotational and translational movement. Therefore, these three axes of movement may be made to correspond to the *x*, *y*, and displaced *z*-axes of a numerical control system which controls column movement within a specially constructed sound studio in which musicians are disposed in a ring-like formation. The microphones are of a highly directional response capability type able to pick up sound from the sectors of the ring of musicans toward which they are directed. These microphones are protected from incidence of sound from the slide by baffle vanes which prevent spatial distortion. Music thus picked up, upon reproduction, has an apparent or virtual source position determined by the location of the microphones during recording. In addition to rotation and translation as a group, the microphones may be declinated in vertically coincident pairs for altering their directional axes in response to the distance between them and the sound source. The composer marks the musical score with suitable symbols to indicate the desired disposition of virtual sources as the score is played. The numerical control system is programmed to impart to the microphone and baffle assembly the necessary movements for positioning the microphones during recording. Tone detectors, responsive to preselected tones in the music, are associated with the numerical control system for controlling the rate of information input to the control system reader, thereby controlling the rate or pace of movement of the movably mounted microphones. This serves as a pacing means such that the microphones will be moved in response to the time kept by the musicians during rendition of the musical composition.

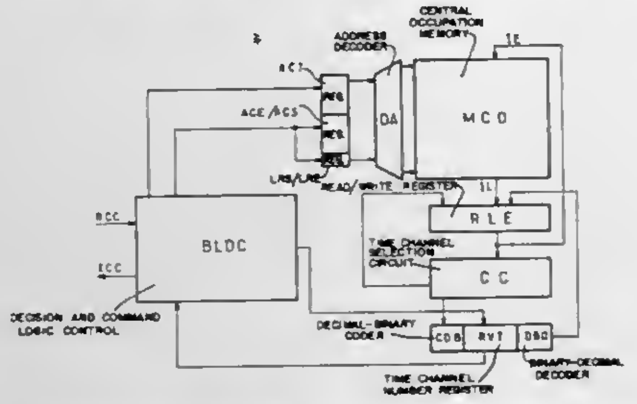


3,705,958

PATH TESTING DEVICE FOR TIME CHANNEL CONNECTION NETWORK

Jean-Baptiste Jacob, Saint Quay Perros, France, assignor to C.I.T. Compagnie Industrielle des Telecommunications, Paris; and Societe Lannionnaise D'Electronique, Lannion, both of France
Filed Nov. 17, 1970, Ser. No. 90,285
Claims priority, application France, Nov. 17, 1969, 6939464
Int. Cl. H04q *11/04*
U.S. Cl. 179—18 J **8 Claims**

A path testing device for a time channel connection network employs a decision and control network which, through its permanent connection with a central processing computer, delivers control signals to various elements connected with the central memory for selecting and storing an available time channel on one of a plurality of time division multiplex communication paths possible through an intermediate stage of a multiple stage interconnection time channel switching network. The path testing device is responsive to an incoming



time slot and an outgoing time slot being accessed to and from the input stage and sequentially examines available time slots from a number available within the intermediate time switching stage.

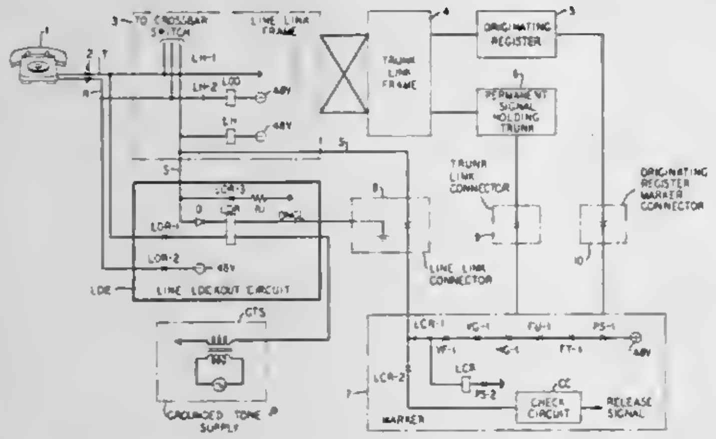
3,705,959
LINE LOCKOUT CIRCUIT

Richard Maurice Swanson, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 17, 1971, Ser. No. 143,764

Int. Cl. H04m *3/18*

U.S. Cl. 179—18 F **4 Claims**



A station line lockout circuit in a common control telephone system employing a crossbar switching network is disclosed. The circuit comprises a single lockout relay which is bridged onto a station line and is automatically operated by a common control circuit after an originating register timeout occurs due to a permanent signal. The lockout relay cooperates with the common control circuit to activate a crossbar switch line hold magnet for opening the conventional line relay circuit to block the initiation of dial tone service requests until after the permanent signal is cleared. The lockout relay locks operated to the station line, supplies permanent signal tone to the line, and maintains the hold magnet activated after the common control circuits release upon determining that the lockout is effective.

3,705,960
AUTOMATIC REPERTORY TELEPHONE DIALER WITH PERFORATED STRIP NUMBER STORAGE

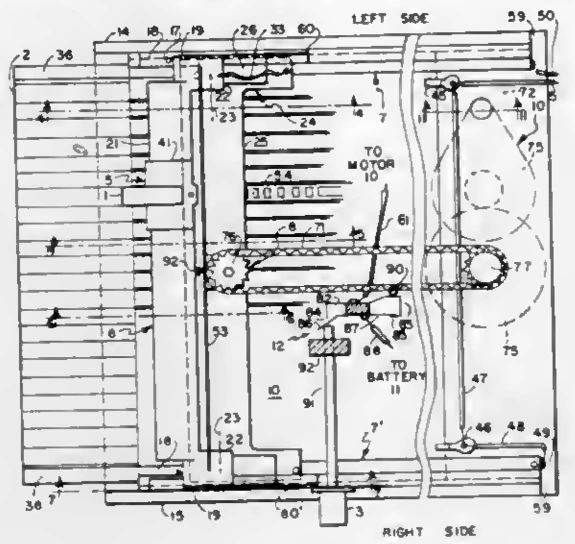
Robert P. Evans, 151 Tremont St., Boston, Mass.; Joseph P. Hussar, 74 Federal St., Weymouth, Mass.; Gerald R. Evans, 11 Channing St., Newton, Mass., and Robert T. Dunn, 4 Cedar Ridge Drive, Bedford, Mass.

Filed Feb. 5, 1970, Ser. No. 9,028

Int. Cl. H04m *1/45*

U.S. Cl. 179—90 R **4 Claims**

Telephone signalling apparatus stores sets of signals along stationary parallel adjacent linex each set being stored along a given line. The detector for the signals slides on a track with is transverse to the lines so that the detector can be moved to a selected line and the detector track is movable along a second track in a direction parallel to the lines. In a preferred embodiment, the detector is manually positioned along its track to the selected line and the track is then driven along the second track so that the detector moves along the selected line producing telephone call signals.



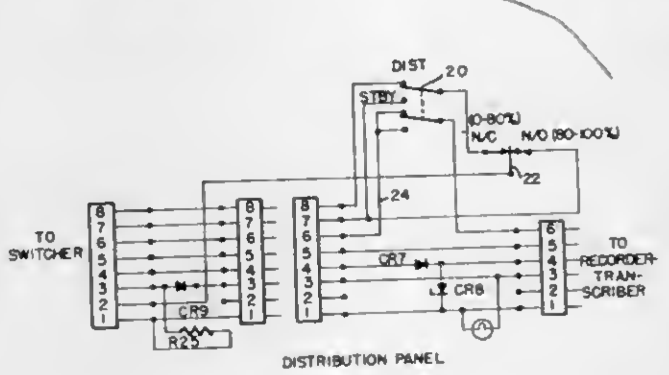
3,705,961
RECORDER-TRANSCRIBER SWITCHING APPARATUS

William M. Nye, Seattle, and Stanley W. Jones, Bellevue, both of Wash., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.

Filed June 24, 1970, Ser. No. 49,432

Int. Cl. G11b *15/06*; H04m *11/10*

U.S. Cl. 179—100.1 DR **10 Claims**



An automatic standby device makes a recorder-transcriber unavailable to a subsequent dictator when the dictated but untranscribed tape in the recorder-transcriber exceeds a predetermined percent of its usable capacity. The device makes the recorder-transcriber automatically available for subsequent dictation when the amount of used percentage of capacity of the machine drops to a predetermined smaller per cent of capacity, when all other available recorder-transcribers are in use, or when all other recorder-transcribers are full. Another feature is that every other pulse of a rectified standard 60-cycle per second current is utilized, with the pulses spaced by a time interval sufficient to allow the control circuits and mechanical movements in both the switching apparatus and recorder-transcriber to effectively seize an available recorder-transcriber prior to the next pulse. The dictate station energizes a stepping circuit when the handset is raised (off-hook condition) only after a predetermined delay to preclude the stepping circuit from responding to simultaneous off-hook signals from multiple dictate stations. Only a portion of the rectified 60-cycle voltage is utilized in the control circuits so that the maximum voltage capability of the transistor components in the circuits is not exceeded.

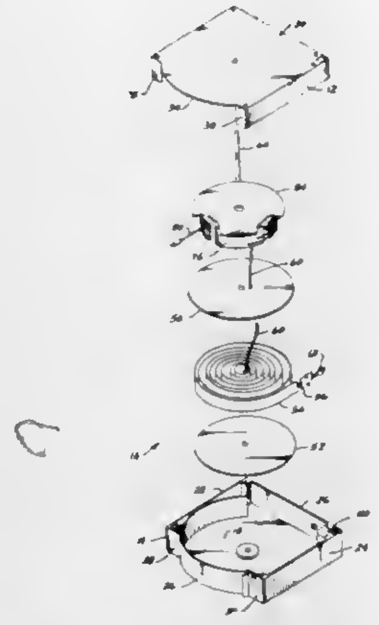
3,705,962
ELECTRICAL CORD RETRACTING MECHANISM

Lionel W. Banister, 2218 Hazard, Apt. 6, Houston, Tex.

Filed June 2, 1971, Ser. No. 149,199

Int. Cl. H02g *11/02*

U.S. Cl. 191—12.4 **12 Claims**



An electrical cord retracting mechanism according to the present invention comprises an enclosure having a shaft journaled for rotation therein. A spiral spring is disposed within the enclosure with the inner extremity thereof secured to the shaft while the outer extremity of the spring is secured to the enclosure. An electrical supply cord is wound between the coils of the spring and is connected at one extremity thereof to an inlet electrical receptacle fixed to the enclosure structure while the other extremity of the supply cord terminates in a second supply receptacle. A mandrel that is disposed within the enclosure is rotatable about the shaft and receives an electrical appliance cord being wound thereabout. One extremity of the appliance cord is received within the second supply receptacle while the other extremity thereof extends through an aperture formed in the housing in order to allow ready access thereto.

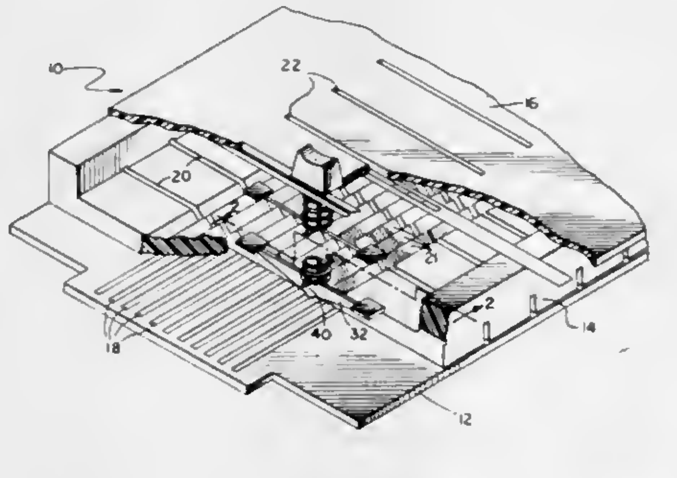
3,705,963
MATRIX SWITCH WITH SLIDE TYPE ACTUATOR AND CONDUCTIVE SPRING COMMON TO GROUND CONTACT AND MOVABLE CONTACT

William L. King, 12059 Milton Ave., Wheaton, Md. 20902, and Edward S. Stein, 5717 Nevada Ave. NW., Washington, D.C. 20015

Filed Aug. 5, 1971, Ser. No. 169,181

Int. Cl. H01h *1/44, 15/06*

U.S. Cl. 260—16 C **3 Claims**



A switch device including a series of spaced conductor points and a sliding switch bar movable from one to another of said conductors with means biasing said sliding switch bar into continuous contact, alternatively, with an indexing surface and said spaced conductor points.

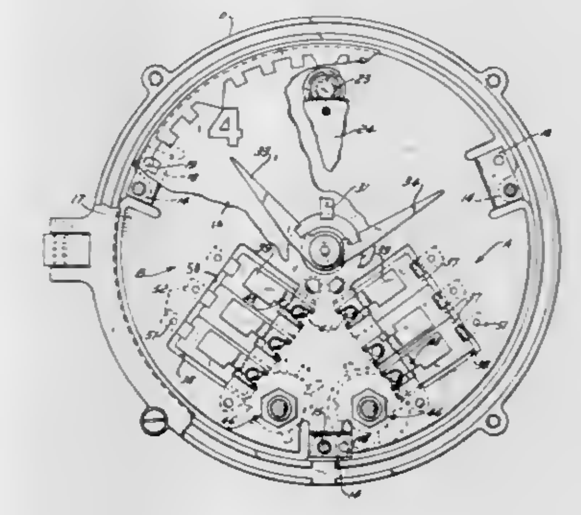
3,705,964
POSITION INDICATING INSTRUMENT WITH CIRCUIT CONTROL SWITCHES

Robert F. Romanowski, Rochester, and Michael Cellini, Henrietta, N.Y., assignors to Qualitrol Corporation, Fairport, N.Y.

Filed Dec. 18, 1970, Ser. No. 99,457

Int. Cl. H01h *43/10*

U.S. Cl. 200—56 R **11 Claims**



An instrument with internal mechanism having a gear driven by a flexible shaft of an associated voltage regulator. As the gear turns, studs thereon cooperate with tripping elements to actuate circuit control switches mounted in groups upon a stationary plate. Selective adjustment may be made of individual switches relative to the tripping elements. As the gear turns, indicators are moved to indicate the extent of directional turning of the gear. The internal mechanism can be assembled or removed as a unit through a front end of the housing covered by a detachable bezel. Readily removable screws secure the unit in the housing.

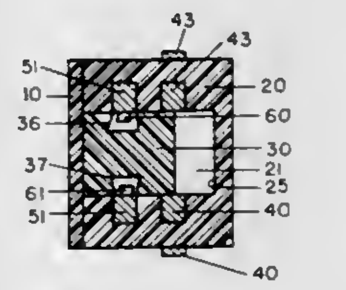
3,705,965
SPIN SWITCH

William Pellet, Succasunna, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Sept. 10, 1971, Ser. No. 179,369

Int. Cl. H01h *35/14*

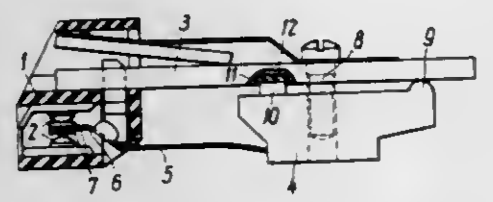
U.S. Cl. 200—61.53 **2 Claims**



This invention relates to a normally closed, double pole, double throw spin actuated electrical switch for safing and arming a missile. The device uses a sealed housing means, a terminal means operatively sealed within said housing having a pair of normally opened contacts and a pair of normally closed contacts, a piston pole means slidably positioned and biasedly held within the housing and responsive to the centrifugal forces created by the spin of the launched missile carrier, the spin force closes the normally open contacts and opens the normally closed contacts.

3,705,966
ADJUSTABLE RELAY CONTACT

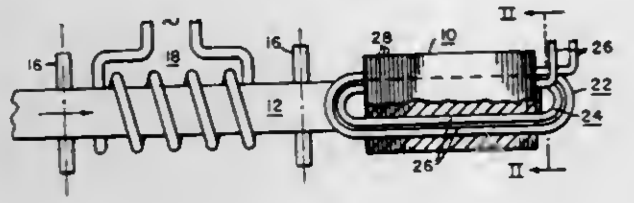
Karl Heinz Bergmann, Kirchvers, Germany, assignor to Deutsche Fernsprecher Gesellschaft mbH, Marburg, Germany
Filed Apr. 19, 1971, Ser. No. 135,149
Claims priority, application Germany, Apr. 18, 1970, P 20 18 627.0
Int. Cl. H01h *1/34*
U.S. Cl. 200—166 M **8 Claims**



A relay having at least one break contact fitted to a break-contact holder and with at least one operating contact mounted on an operating spring anchored to a spring adjustment member.

3,705,967
INDUCTION HEATING METHOD

George F. Bobart and William A. Emerson, Ellicott City, Md., assignors to United States Steel Corporation
Continuation-in-part of application Ser. No. 835,951, June 24, 1969, now Patent No. 3,562,470. This application Feb. 8, 1971, Ser. No. 113,255
Int. Cl. H05b *5/00*
U.S. Cl. 219—10.41 **4 Claims**

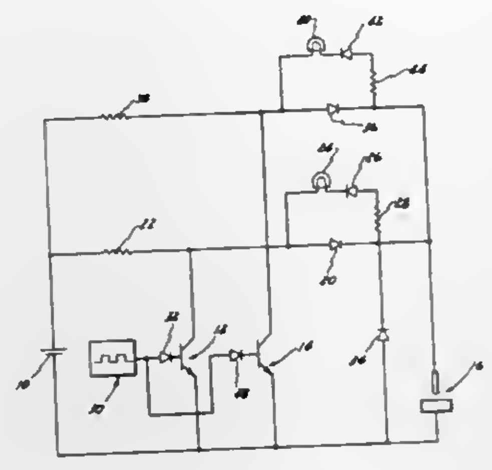


Disclosed herein is an induction heating method for continuous rapid heating of an elongated metal workpiece of rectangular cross-section. A continuous-cast rectangular-section steel strand, while travelling from caster mold to reducing rolls in a continuous caster line, is sequentially passed longitudinally through two types of induction heating means operating in combination to heat the strand flat-center regions and corner regions up to rolling temperature.

3,705,968
MULTIPLE GAP ELECTRICAL DISCHARGE MACHINING CIRCUIT

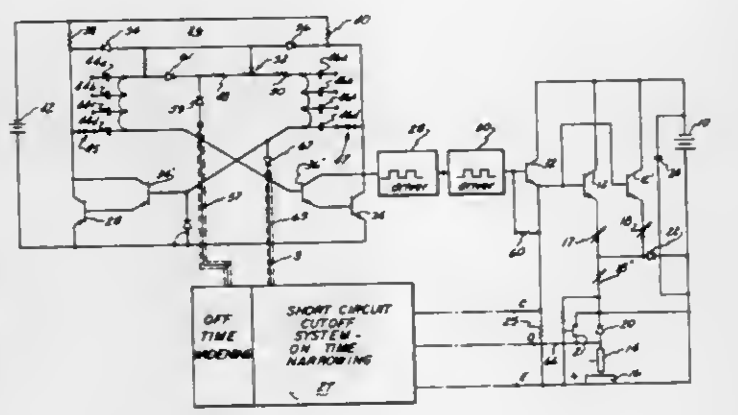
Dalton R. Verner, Orchard Lake, Mich., assignor to Elox Inc., Davidson, N.C.
Filed June 25, 1971, Ser. No. 156,899
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 S **4 Claims**

The circuit includes an arrangement for providing electrical discharge machining across one or more gaps with power pulses derived from a common power supply. Each machiming gap includes an electronic switch and has associated with it a shunt diode of blocking polarity to prevent gap inductance from breaking down the associated switch. When several electronic switching means are used, they are each connected through an isolating diode to a common pulse generator or triggering means for turning them on and off at the same time. Also included in each gap circuit is a series diode of a polarity to pass power pulses to the gap with a detector means connected across the series diode for providing an indication of component failure in the associated gap circuit when several switches are connected in parallel.



3,705,969
CUT-OFF PROTECTION SYSTEM FOR ELECTRICAL DISCHARGE MACHINING POWER SUPPLY

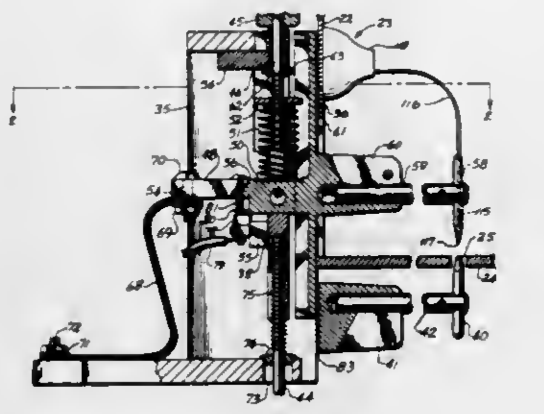
Oliver A. Bell, Jr., Mooresville, N.C., assignor to Colt Industries Operating Corp., Davidson, N.C.
Filed Nov. 8, 1971, Ser. No. 196,439
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 S **24 Claims**



A short circuit protection system which includes a cut-off means operably connected to the output switch for interrupting or otherwise controlling its operation. A cut-off means receives its control signal as the result of a comparison of a gap voltage signal from one of the gap elements and a floating reference voltage signal derived from the other gap element with the cut-off means being activated responsive to a predetermined difference between these signals. The reference voltage network is thus connected directly to one of the gap elements and includes a Zener diode with associated potentiometer to allow adjusting of reference level. The reference voltage itself is keyed into operation in phase with the output switch conduction and thus in phase with each gap discharge.

3,705,970
APPARATUS FOR WELDING A CONDUCTOR THROUGH COLD FLOWABLE INSULATION

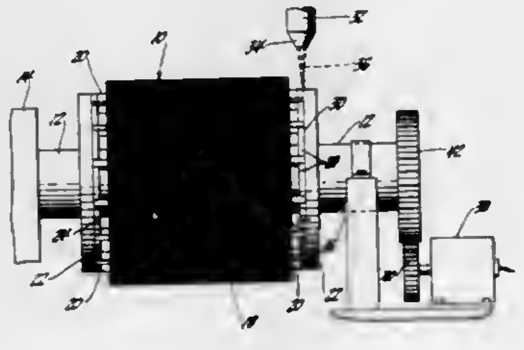
John F. Weatherman, Santa Ana, Gary J. Walker, La Crescenta, and Larry R. Conley, Simi, Calif., assignors to Micro-Technology, a division of Sterling Electronics Corporation, Westlake Village, Calif.
Original application July 28, 1969, Ser. No. 857,258, now Patent No. 3,627,970. Divided and this application Aug. 9, 1971, Ser. No. 170,259
Int. Cl. B23k *9/28, 11/10*
U.S. Cl. 219—86 **12 Claims**



A conductor, surrounded with cold flowable insulation, is welded to a terminal pin, e.g., by engaging the conductor and the pin between a pair of unheated welding electrodes. The electrodes are urged together with a force which reaches a value greater than a desired welding force value and is sufficient to cause the insulation to undergo cold flow out of a path between the electrodes via the conductor and the pin, thereby to render the path conductive. The force applied to the electrodes is then decreased to the desired welding force value and a pulse of welding current is passed along the conductive path when the desired force value is achieved. The current pulse is applied as the force applied to the electrodes decreases and is completed, and the molten metal formed by the current pulse is solidified, before such force is completely removed. The conductor is supplied through a passage formed in one of the electrodes.

3,705,971
INDUCTION MOTOR FABRICATION METHOD

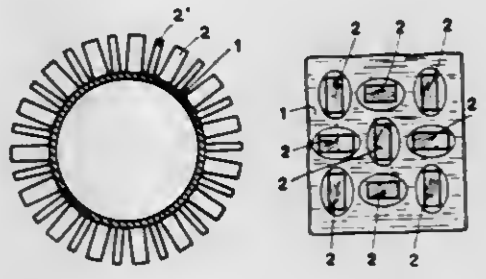
Linos J. Jacovides, Troy, Mich., and David M. Lyon, La Grange, and Richard M. Fischer, Naperville, Ill., assignors to General Motors Corporation, Detroit, Mich.
Filed Aug. 13, 1970, Ser. No. 63,451
Int. Cl. B23k *15/00*
U.S. Cl. 219—121 EM **2 Claims**



A method for fabricating a squirrel cage rotor for an AC induction motor. In this fabrication method, a rotor core made of magnetic laminations is provided with copper conductor bars protruding beyond the respective ends of the core body and copper end rings positioned to abut the ends of the conductor bars at the respective ends of the core body. Each conductor bar is fused to its respective end rings by electron beam welding wherein an electron beam is focused on areas of the conductor bar and the end ring adjacent the conductor bar for a time sufficient to fuse the two members.

3,705,972
PIPPED PIPES AND MANUFACTURING METHOD FOR SAID PIPPED PIPES

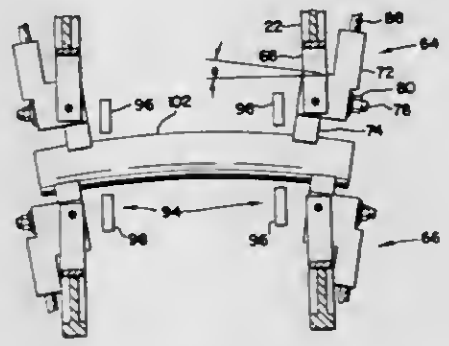
Benito Luigi Trojani, Via Cortivallo 32, Lugano, Italy
Filed Nov. 8, 1971, Ser. No. 196,451
Claims priority, application Italy, Oct. 7, 1971, 29,607/71
Int. Cl. B23k *9/20*
U.S. Cl. 219—107 **2 Claims**



A manufacturing method for pipped pipes, characterized in that it is provided at its outer surface with a series of pips, showing an oval or rectangular or prolonged sectional shape, said pips being further disposed so that the larger sides or axes thereof are orthogonal relative to those of the adjacent pips.

3,705,973
RESISTANCE HEATING APPARATUS FOR ELONGATED WORKPIECES

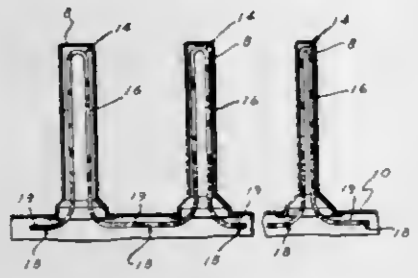
Norbert R. Balzer, Parma, and Joseph E. Arnosky, Broadview Heights, Ohio, assignors to Park-Ohio Industries, Inc., Cleveland, Ohio
Filed Dec. 29, 1970, Ser. No. 102,299
Int. Cl. H05b *1/00*
U.S. Cl. 219—156 **11 Claims**

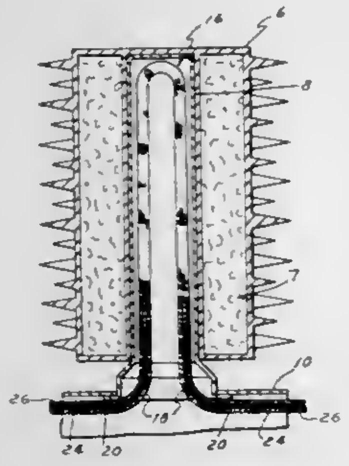


An apparatus for resistance heating an elongated workpiece wherein the shaft is transversely gripped between two spaced apart resistance heating contacts. Each contact includes first and second portions having shaft receiving areas in order to increase the effective gripping and heating area between the contacts and shaft. Each portion is pivotally mounted to a contact arm so as to be arcuately moveable in a plane perpendicular to the shaft. The contact arms extend generally transverse to the shaft and the associated arms for each first and second portion include force means for moving the arms between a first opened position and a second heating position wherein the contact portions clampingly engage the workpiece. The arcuate movement provided for each contact portion permits substantial contact-workpiece area contact for a workpiece having substantial transverse run-out.

3,705,974
HAIR SETTING APPARATUS

Gosta Nilsson, Malmo, Sweden, assignor to Springfield Wire, Inc., Springfield, Mass.
Filed Dec. 2, 1970, Ser. No. 94,341
Int. Cl. A45d *4/10;* **H05b** *1/00*
U.S. Cl. 219—222 **1 Claim**



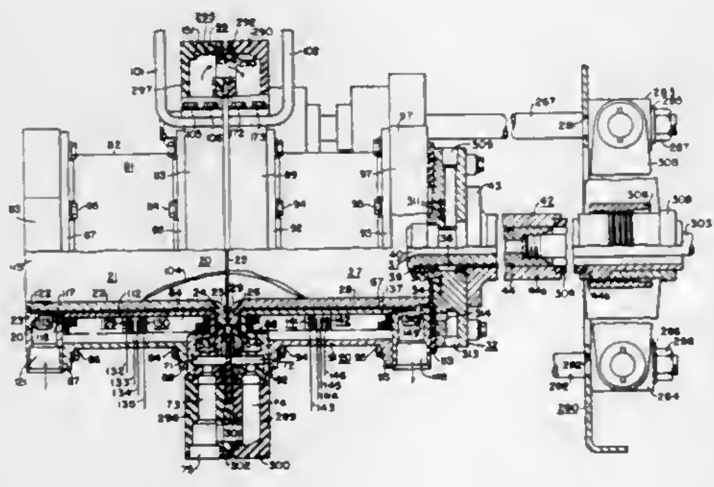


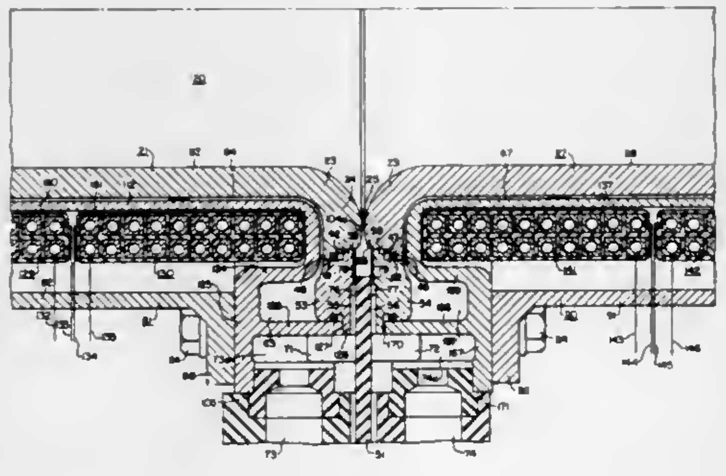
Electrical hair setting apparatus having a plurality of heating elements in the form of tubular columns or posts of different diameters on which hair rollers or curlers to be uniformly heated may be removably fitted for heating preparatory to use in hair setting. A generally uniform diameter, flexible, continuous, cable formed of a resistance wire of uniform resistivity wound on a flexible core and having a plurality of alternate hot and cold sections formed by conductive strips of various lengths spaced along the length of the cable extending in a series of loops into and out of each of the heating posts with the hot sections disposed generally at the outer portions of the posts and the cold sections extending from within to without the heating posts and traversing the distance between adjacent posts. The cold sections are spaced apart so as to leave hot sections of various predetermined lengths with the longer hot sections being disposed in the larger diameter posts and the shorter hot sections in the smaller diameter posts whereby the power generated and heat given off by each post is a function, at least in part, of said predetermined length.

3,705,975
SELF-STABILIZING ARC HEATER APPARATUS

Charles B. Wolf, Irwin, and Maurice G. Fey, Turtle Creek, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 2, 1970, Ser. No. 15,446
Int. Cl. H05b *7/18*
U.S. Cl. 219—383 **18 Claims**

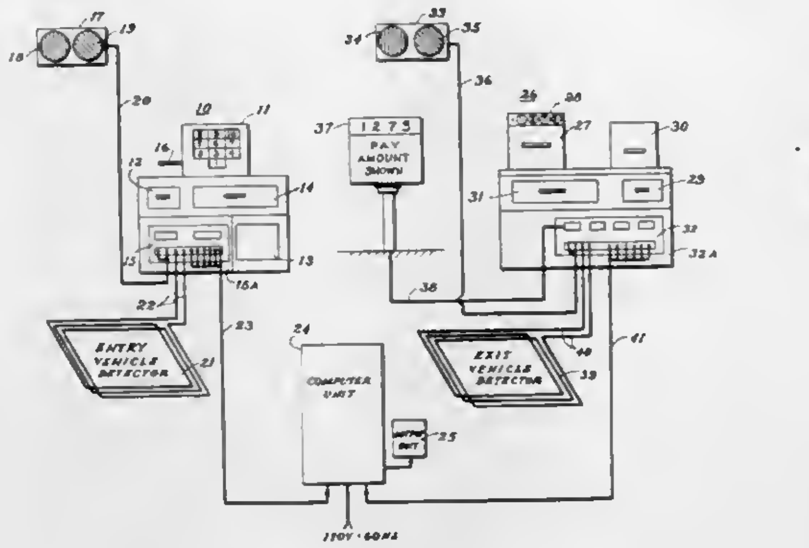
An arc heater has two generally cylindrical electrodes which together with an upstream end plate form substantially the entire enclosure of an arc chamber. Two electrodes are electrically insulated from each other and separated by a very narrow gap through which process gas is brought into the chamber at a very high velocity through a substantially cylindrical path through the gap. A sufficient system voltage is maintained across the electrodes at all times to cause electrical breakdown between electrodes in the narrow gap. The arc initially forms in the gap, is quickly blown by the high velocity gas out of the gap into the chamber and may become elongated to a length whereat the voltage required to maintain the arc exceeds the breakdown voltage of the gap whereupon flashover in the gap occurs, the arc momentarily returning to the gap only to be immediately blown into the arc chamber and elongated again. Magnetic field coils in the electrode assemblies provide a magnetic field which exerts a force on the arc and causes it to rotate over the electrode surfaces. An upstream admission tube extending through the end plate is provided for bringing in additional feed stock in gaseous, liquid or solid form. The field coils may be connected in a variety of different circuits to provide field shaping as desired. The electrodes and field coils are part of electrode assemblies which include means defining passageways for the flow of cooling fluid to conduct heat flux from the arcing surfaces. The upstream electrode assembly is mounted on two pairs of linear hole bearings adapted to move on two axially extending tie rods, and all electrical, gas and water connections to the upstream electrode assembly are flexible so that the arc chamber can be opened without any major disconnecting of the equipment. When the chamber is opened, the electrodes may be slidably removed from the remainder of the assemblies.





3,705,976
REVENUE CONTROL SYSTEM FOR TOLL ROADS

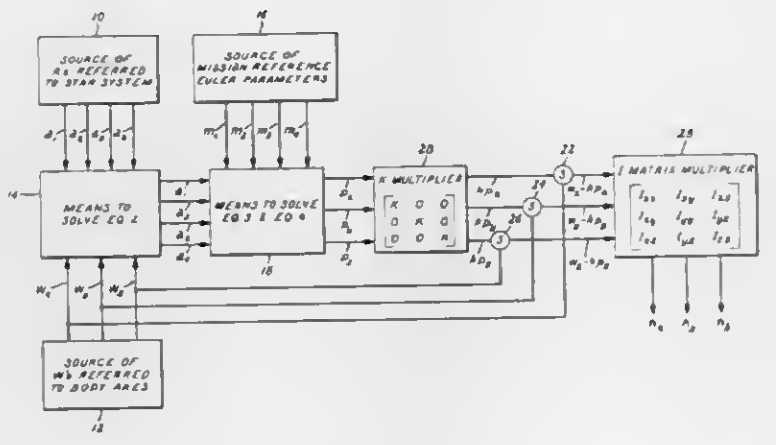
Michael M. Platzman, 541 Green Place, Woodmere, N.Y.
Filed Nov. 16, 1970, Ser. No. 89,683
Int. Cl. G08g *1/015;* **G06k** *17/00*
U.S. Cl. 235—61.8 A **30 Claims**



A system for automatically reconciling the revenues collected, with the vehicle type and distance travelled over a toll road. The system is applicable to a barrier type configuration where the amount collected by the collector is reconciled with the amount automatically determined by the type of vehicle passing the barrier terminal. In the closed loop system information is taken at the entrance to the toll road and is transmitted to a computer. A ticket is encoded at the entering terminal. The tickets are decoded at the exit as well as additional information taken at the exit which is also transmitted to a computer for further reconciliation. The fee is automatically computed and displayed at the exit terminal directly from the tickets. Non-revenue transactions and credit card transactions are accommodated and checked for validity by the computer.

3,705,977
ATTITUDE CONTROL SYSTEM

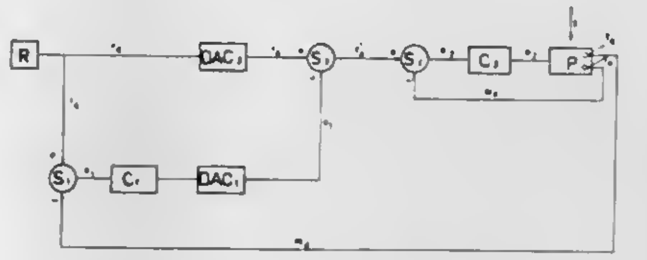
Kent R. Folgate, Phoenixville, Pa., assignor to General Electric Company
Filed Oct. 14, 1970, Ser. No. 80,582
Int. Cl. G05d *1/08;* **G06f** *15/50*
U.S. Cl. 235—150.25 **4 Claims**


SOURCE OF REFERRED TO STAR SYSTEM
SOURCE OF MISSION REFERENCE EULER PARAMETERS
MEANS TO SOLVE EQ 2
MEANS TO SOLVE EQ 3 & EQ 4
K MULTIPLIER
I MATRIX MULTIPLIER
SOURCE OF REFERRED TO BODY AXES

Given data representative of existing and desired orientation of freely rotatable body, unique axis is determined around which a single rotation no greater than a straight angle will move body to desired orientation. Components of angular velocity arbitrarily proportional to components of unique axis are substracted from existing components of angular velocity of body, and change in body angular momentum corresponding to these is calculated. Control means (e.g., control gyroscopes) are controlled responsively to calculated result to contribute components of required angular momentum change.

3,705,978
TIME SHARED DIGITAL AND ANALOG PROCESS CONTROL

Lucien Amede De Schamphelaere, Edegem, Belgium, assignor to Agfa-Gevaert, Mortsel, Belgium
Filed Sept. 9, 1970, Ser. No. 70,676
Claims priority, application Great Britain, Sept. 10, 1969, 44,596/69
Int. Cl. G05b *6/02;* **G06j** *3/00*
U.S. Cl. 235—151.1 **11 Claims**



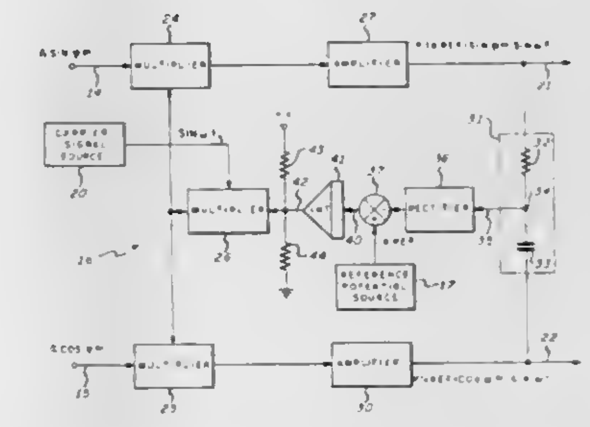
A digital computer is used in a time sharing technique to control a plurality of control circuits. The frequency of sampling *f*, may be low in comparison with the frequency of sampling in conventional direct digital control, and the capacity of the digital computer correspondingly be increased, if each variable in the process is controlled according to an analog control, and the analog reference value in the analog control is derived from a digital reference value which is sequentially corrected in accordance with a correction value which is obtained from the comparison of said digital reference value with a digital value derived from the process.

3,705,979

Patent Not Issued For This Number

3,705,980
CONTROLLED MAGNITUDE REPEATER FOR SYNCHRO AND RESOLVER SIGNALS

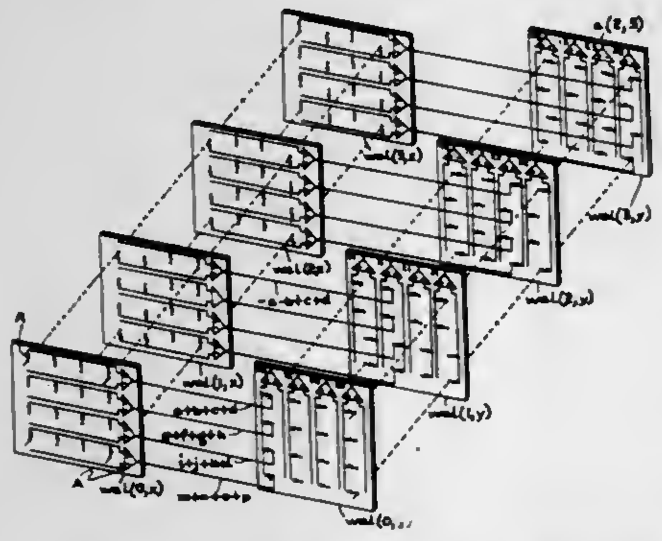
David R. Brickner and Sidney T. Schell, Phoenix, Ariz., assignors to Sperry Rand Corporation
Filed Jan. 2, 1970, Ser. No. 55
Int. Cl. G06g *7/22*
U.S. Cl. 235—186 **33 Claims**



This application describes a controlled magnitude repeater for synchro and resolver signals having undesired variations in magnitude. The repeater comprises adjusting means responsive to the angle signals for providing corresponding repeated angle signals. Combining means are included for combining the repeated angle signals providing a signal whose magnitude is independent of the angle and dependent on the undesired magnitude variations. A reference signal is provided for comparison with the combined signal thereby providing an error signal. The error signal is fed back to the adjusting means to adjust the repeated angle signals thereby rendering them independent of the undesired magnitude variations.

3,705,981
SEQUENCY FILTERS BASED ON WALSH FUNCTIONS FOR SIGNALS WITH TWO SPACE VARIABLES

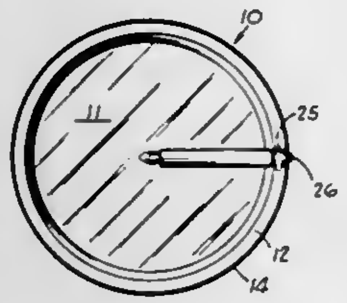
Henning Friedolf Harmuth, Bethesda, Md., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Oct. 5, 1970, Ser. No. 77,996
Int. Cl. G06f *15/34;* **G06g** *7/26*
U.S. Cl. 235—193 **4 Claims**



The present invention relates to a sequency sampling filter based on Walsh functions for signals having two space variables, x and y. Voltages derived from the x, y plane of a space domain are transformed into voltages in the k,m plane of the sequency domain. The filtering process is performed by not feeding certain voltages $a(k,m)$ to the circuit which performs the inverse transformation of voltages in the sequency domain back into the space domain.

3,705,982
ILLUMINATED SERVING TRAY

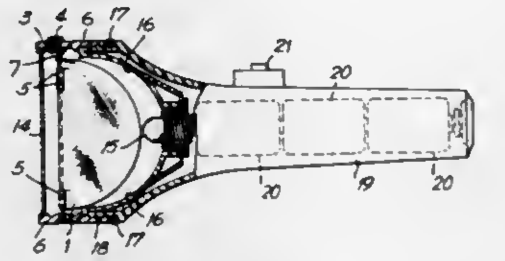
Richard C. Smolinski, 72 Mar Vista Dr., Monterey, Calif.
Filed Dec. 30, 1970, Ser. No. 102,678
Int. Cl. F21v *33/00;* **A47g** *23/06*
U.S. Cl. 240—6.4 **6 Claims**



An illuminated serving tray with a depth sufficient to removably receive and hold a conventional penlight flashlight, with a translucent pane thereover preferably presenting a non-skid textured upper surface.

3,705,983
FLASHLIGHT

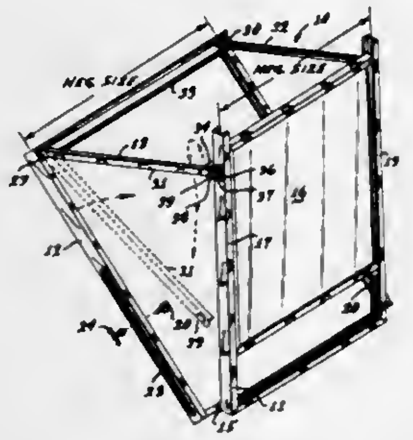
Naojiro Yamada, 30–11, Yahiro 1-chome, Sumida-ku, Tokyo-to, Japan
Filed May 11, 1970, Ser. No. 36,235
Claims priority, application Japan, May 10, 1969, 44/43,144
Int. Cl. F21l *9/00, 15/04*
U.S. Cl. 240—10.6 **5 Claims**



According to the flashlight of the present invention, the light emitted from a single light source can be projected either as a white light for illumination or as a red light for signal or warning purposes, so that the flashlight can be used for multiple purposes. The present invention, in order to attain this end, comprises a filter member disposed in front of a single illuminating light source, a mechanism for opening and closing this filter member, a mechanism for effecting the opening and closing of said filter member with "one touch" (or single) operation, and a mechanism for retaining the opened or closed condition.

3,705,984
PORTABLE CASSETTE HOLDER AND PATIENT SUPPORT FOR CHEST X-RAYS

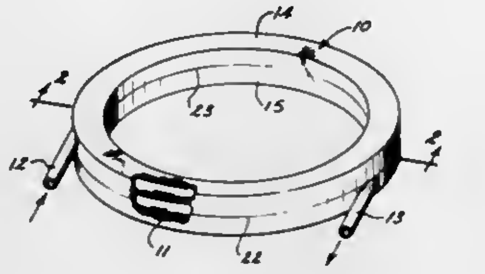
John Marcus Westenberger, Garden Grove, Calif., assignor to Westric Cutting Tool, Inc., Stanton, Calif.
Filed Mar. 9, 1971, Ser. No. 122,442
Int. Cl. G01n *21/00;* **H01j** *37/20*
U.S. Cl. 250—50 **3 Claims**



A portable holder for X-ray film cassettes for supporting a bedridden patient in a desired position with respect to the cassette for a chest X-ray. A collapsible frame is provided that holds a cassette in an angular relationship with the bed whereby both the chest of the patient leaning back on the cassette in the frame and the cassette are disposed in parallel plane and substantially perpendicular to the X-ray beam.

3,705,985
FLUID IRRADIATOR AND PROCESS FOR ITS MANUFACTURE

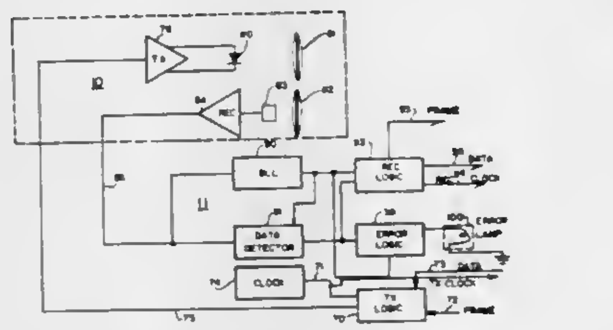
Bernard Manning, Annandale, and Sigurd E. Nelson, Springfield, Va., assignors to Nuclear Associates, Inc.
Filed June 27, 1969, Ser. No. 837,221
Int. Cl. G21b *5/00*
U.S. Cl. 250—106 S **7 Claims**



An article for irradiating a fluid comprising a continuous tubular matrix in curvilinear form having a fluid inlet and a fluid outlet; a radioactive material dispersed substantially uniformly in the matrix to provide an annular radiation source; and a protective shield surrounding the matrix to prevent escape of radioactive energy to unwanted locations. A process for the preparation of a fluid irradiating article comprises in combination the steps of providing a material capable of being made radioactive; providing a porous tubular matrix which will have a half-life less than said material capable of being made radioactive when said matrix and said material are made radioactive by the same means for the same period; depositing said material substantially uniformly in at least a part of the porous portion of the porous tubular matrix; sealing at least the outer surface of the material containing tubular matrix to prevent escape of deposited material therefrom; and subjecting the resulting sealed tubular matrix to a means for making the deposited material radioactive.

3,705,986
OPTICAL DATA TRANSMISSION SYSTEM

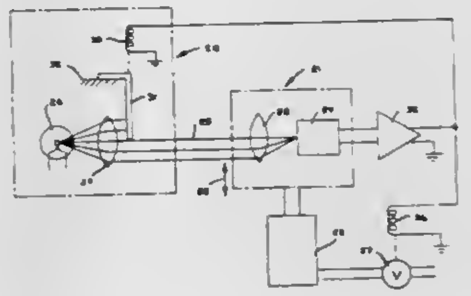
Ray W. Sanders and David W. Luce, Los Angeles, and William Quan, Oxnard, Calif., assignors to Computer Transmission Corporation, Los Angeles, Calif.
Filed Jan. 25, 1971, Ser. No. 109,236
Int. Cl. H04b *9/00*
U.S. Cl. 250—199 **6 Claims**



Disclosed is a point-to-point digital data transmission system employing pulse modulated infrared or light beams. The system includes a pair of optical transceiver units which link one computer installation to another via line of sight communications. The system also includes interface units connecting respective optical units to their associated computer installation. The interface units encode, modulate, demodulate and transfer received data. The system includes means to automatically synchronize with incoming data and further provide a source of synchronizing signals for use by associated computer equipment.

3,705,987
OPERATING DIFFERENTIAL EXTENDER FOR PHOTOELECTRIC EYE OR EQUIVALENT SENSING DEVICE

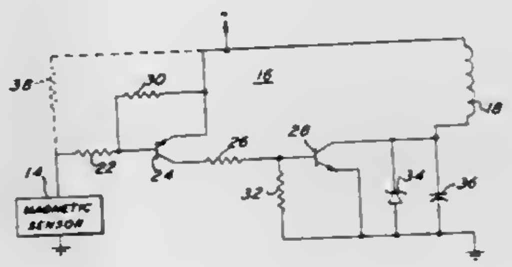
Dudley S. Clarke, Westchester, and Jack Camera, Chicago, Ill., assignors to Autoquip Corporation, Chicago, Ill.
Filed Oct. 7, 1971, Ser. No. 187,243
Int. Cl. G01j *1/20;* **G05b** *1/06;* **H01j** *39/12*
U.S. Cl. 250—201 **6 Claims**



Where one component is to be oriented with respect to another component in a direction transverse to a line extending between the components, a light beam is established between the components along that line. This light beam extends from a light source to a photoelectric eye. When the light beam is broken (or established), as a result of the components being mispositioned, a motor is energized to cause movement in a direction to reestablish (or break) the light beam. To obtain a differential between the relative position of the components when the light beam is broken (or established) as compared to when it is established (or broken) a shutter is used to cut off a side of the beam which side is oriented in the direction of movement with respect to the remainder of the beam. By masking off a side of the light beam as the components are drifting out of orientation with respect to each other and by removing the mask when a corrective movement is undertaken, the differential is achieved. In other embodiments the beam is unmasked at the time of drifting out of orientation occurs and partially masked during the period of corrective movement.

3,705,988
TRANSISTOR IGNITION SYSTEM

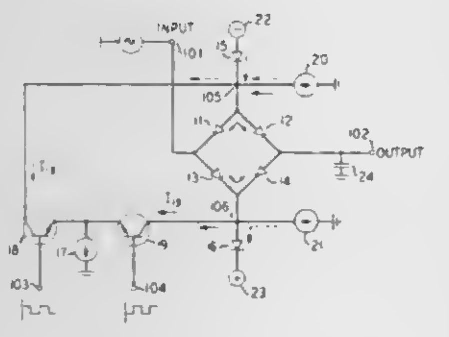
Ronald G. Moyer and Thomas M. Emory, Jr., Conshohocken, Pa., assignors to Digi-Log Systems, Inc., Conshohocken, Pa.
Filed Apr. 19, 1971, Ser. No. 135,001
Int. Cl. F02p *9/00*
U.S. Cl. 307—10 R **5 Claims**



A reliable transistor ignition system that can be installed in existing automobiles without replacing the coil includes a multipole magnet attached to the distributor shaft, a magnetic field sensing device adjacent the magnet, and an amplifier-control that uses high voltage, high power transistors.

3,705,989
FISH DISEASE TREATMENT WITH NAPHTHYRIDINE DERIVATIVES

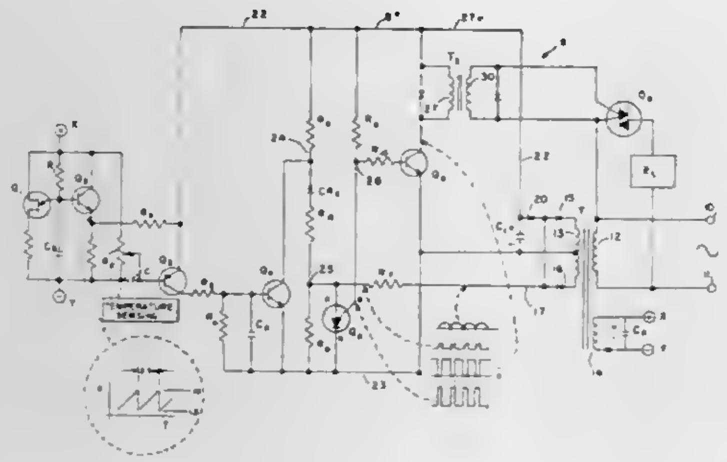
Yasuo Oshima, Tokyo, Nobuhiko Nakazawa, Urawa-shi, Senkichi Nagasaki, Tokyo, Takeo Naito, Ichikawa-shi, Yasuaki Osada, Tokyo, Naoya Okusa, Chiba-shi, Akira Inuaki, Sakura-shi, and Kazuyuki Tanaka, Chiba-shi, Japan, assignors to Daiichi Seiyaku Company Limited, Tokyo, Japan
No Drawing. Filed Sept. 25, 1969, Ser. No. 861,147
Claims priority, application Japan, Oct. 2, 1968, 43/71,103
Int. Cl. A61k *27/00*
U.S. Cl. 424—256 **9 Claims**



Compositions useful in the treatment of fish diseases resulting from pathogenic organisms comprising a pharmaceutical carrier and a 1-substituted, 4-dihydro-7-[2-(5-nitro-2-furyl)-vinyl)]-4-oxo-1,8-naphthyridine, the 3-carboxy or methoxycarbonyl derivatives thereof or the alkali metal salts of the 3-carboxy-substituted derivative and a method of treating said fish diseases.

3,705,990
THYRISTOR FIRING CONTROL CIRCUIT

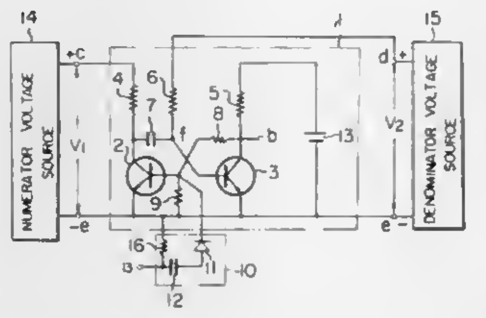
John Piteckis, Shaumburg, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed July 21, 1971, Ser. No. 164,720
Int. Cl. H03k *17/56*
U.S. Cl. 307—252 B **5 Claims**



A burst firing type of solid state modulating condition control system operating a solid state power handling semiconductor means. A programmable unijunction transistor is utilized to provide a modified zero crossover firing circuit with an extended triggering pulse to the Triac when using inductive loads or in three phase control circuits where control circuit voltage and load circuit current are not in phase.

3,705,991
DIVIDING CIRCUIT USING MONOSTABLE MULTIVIBRATOR

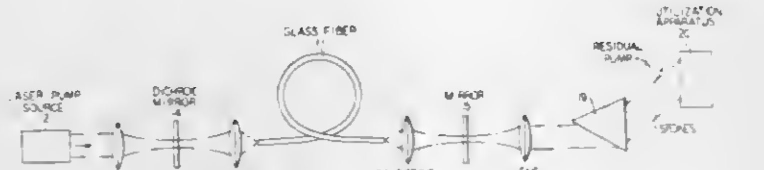
Nobuhito Hobo, Inuyama, Japan, assignor to Nippondenso Kabushiki Kaisha, Aichi-ken, Japan
Filed Oct. 27, 1970, Ser. No. 84,370
Claims priority, application Japan, Dec. 8, 1969, 44/98,537
Int. Cl. H03k *3/10;* **G06g** *7/16*
U.S. Cl. 307—273 **3 Claims**



A dividing circuit comprising a monostable multivibrator with an RC type time-constant-determining circuitry, and a constant D.C. voltage source and two variable D.C. voltage sources. In a stable state, the time-constant-determining capacitance is charged from a first variable D.C. voltage source corresponding to a numerator, and in unstable state it discharges through a loop including a second variable D.C. voltage source corresponding to a denominator.

3,705,992
BROADBAND TUNABLE RAMAN-EFFECT DEVICES IN OPTICAL FIBERS

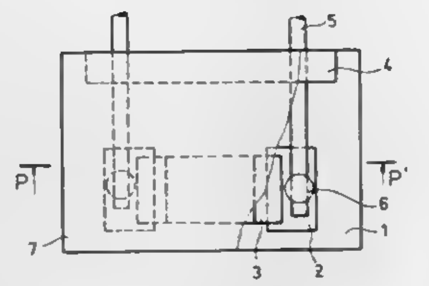
Erich Peter Ippen, Middletown, Chandra Kumar Naranbhai Patel, Summit, and Rogers Hall Stolen, Middletown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Dec. 13, 1971, Ser. No. 207,030
Int. Cl. H03f *7/00*
U.S. Cl. 307—88.3 **7 Claims**



Stimulated Raman emission in the visible has been observed in glass-fiber optical waveguides. Even though the Raman cross section is quite small, relatively low threshold for Raman emission can be achieved because high optical power densities are maintained over long lengths of waveguide. The broad stimulated gain bandwidths available in glass should permit the construction of wideband fiber amplifiers and Raman oscillators tunable over a range of about 100 angstroms.

3,705,993
PIEZORESISTIVE TRANSDUCERS AND DEVICES WITH SEMICONDUCTING FILMS AND THEIR MANUFACTURING PROCESS

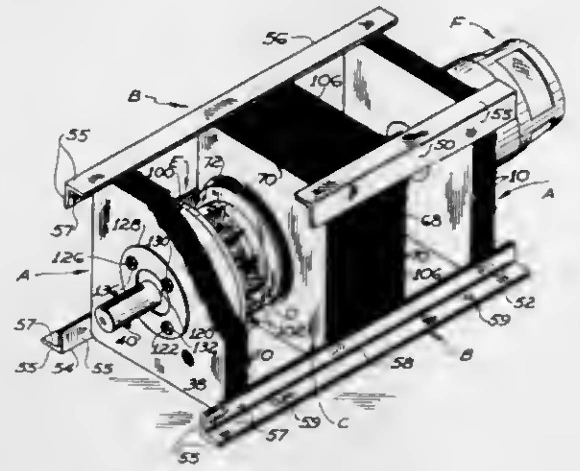
Radu G. Grigorovici and Andrei Gavrila Devenyi, Bucharest, Valer Florea, Medias-Aleea, and Gheorghe Korony, Aretia Beln, and Carol Costachescu, Bucharest, Rumania, assignors to Institutul de Fizica, Bucharest, Rumania
Filed July 14, 1971, Ser. No. 162,525
Claims priority, application Rumania, July 16, 1970, 63,946
Int. Cl. H01v *7/00*
U.S. Cl. 310—8.1 **6 Claims**



A method of making a piezoresistive device in which a mica, synthetic resin or metallic substrate (the latter coated with a layer of insulating enamel) is coated with strips of colloidal-silver paste, is fired to fuse the resulting conductive strips to the substrate, is provided with a layer of vapor-depositing germanium bridging the strips, is formed with wire terminals and is thereafter coated with a lacquer.

3,705,994
ELECTRICAL MACHINE FRAME

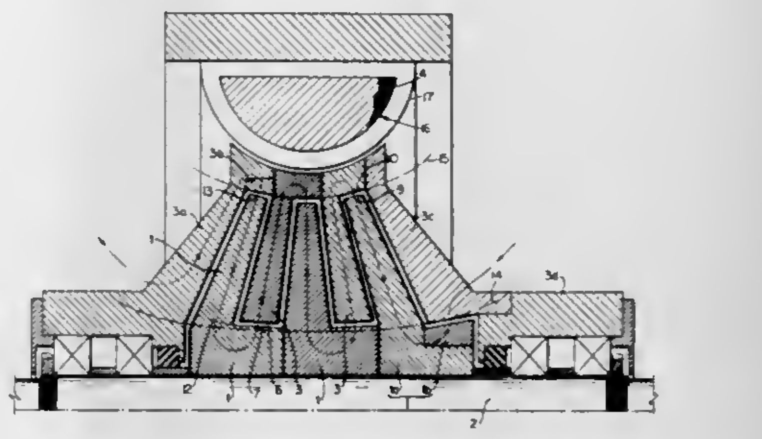
Gordon J. Berry, Jr., Novelty, Ohio, assignor to Portec Inc., Cleveland, Ohio
Filed Feb. 18, 1971, Ser. No. 116,403
Int. Cl. H02k *5/00*
U.S. Cl. 310—91 **14 Claims**



A frame for large electrical machines comprised of a rotor and a stator and means for mounting the rotor relative to the stator. The mounting means or frame is comprised of two spaced apart end bracket plates and longitudinally extending angle iron connecting members. The end bracket plates are each fabricated from a plurality of laminations stamped from relatively thin metal to the desired ultimate dimensions and with the necessary openings therethrough. The laminations are placed in a side by side relationship and welded together to form an integral unit. The component parts are all assembled in their final operative position and angle iron connecting members are welded to the end bracket plates and the stator so as to rigidly hold the parts in the assembled position.

3,705,995
HOMOPOLAR MACHINE WITH MULTIPLE DISCS AND A SHORT INDUCTOR

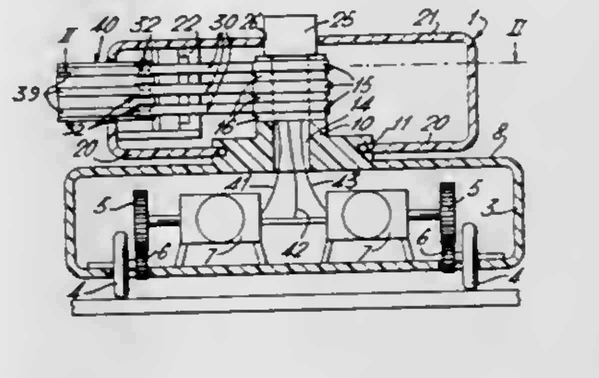
Jean-Pierre Chabrerie, 55–1–08 Rue Saint Saens, Saint-Michel-S/Orge, France, and Alain Jacques Mailfert, 5 Av a Frauie, Aulnay-Sous-Bois, France
Filed Nov. 29, 1971, Ser. No. 202,757
Claims priority, application France, Nov. 30, 1970, 7042947
Int. Cl. H02k *31/04*
U.S. Cl. 310—178 **3 Claims**



Homopolar machines with multiple discs and a short inductor. The homopolar machine has in combination with the short inductor discs and counter discs which decrease in thickness from the center toward the periphery thereof, the thickness at the periphery being equal to the thickness at the center reduced in inverse proportion to the corresponding radius therebetween. The inductor is preferably of the superconductor type, and its inner surface is at least in part of a toroidal configuration. The sliding contacts are preferably made by filling the machine with a liquid metal, and one or more of the contact surfaces may be truncated to facilitate assembly of the machine.

3,705,996
SLIP RING ASSEMBLY

Kamal Ahmed, Stanmore, England, assignor to AMP Incorporated, Harrisburg, Pa.
Original application Aug. 25, 1969, Ser. No. 852,702, now Patent No. 3,574,266. Divided and this application Jan. 8, 1971, Ser. No. 104,943
Int. Cl. H01r *39/08*
U.S. Cl. 310—232 **3 Claims**

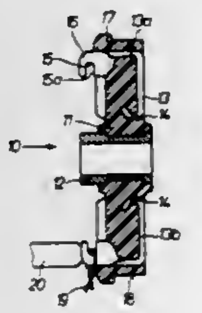


A carriage having a pair of driven wheels, each wheel of the pair being driven by a separate electric motor to permit differential steering of the carriage. A slip ring assembly is provided on the carriage and forms a part of a feed path for supplying power to the electric motors. The carriage can be arranged immediately below a board on which a toy vehicle stands and can be indirectly coupled to the toy vehicle by a permanent magnet.

3,705,997
COMMUTATOR

Oskar Bauerle, Senftertalweg 15, Buhl, Germany; Wilfried Kubel, Im Kossler, Altschweier, Germany; Ernst Munster, Oberhof 9, Vimbuch, Germany; and Karl Schweikert, Obervogt-Haefelin Str. 41b; and Georg Strobl, Obervogt-Haefelin Str. 41a, both of Buhl, Germany

Filed July 9, 1971, Ser. No. 161,231
Claims priority, application Germany, July 11, 1970, P 20 34 502.2
Int. Cl. H02k *13/04*
U.S. Cl. 310—237 **7 Claims**

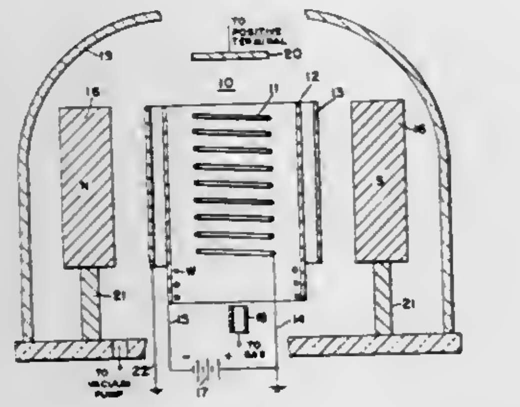


A hub of electrically insulating material carries a plurality of elongated electrically conductive lamellas. Each of the lamellas has an exposed contact face, a first end portion embedded in the material of the hub, an intermediate portion also embedded and a second end portion which projects from the hub and is of hook-shaped configuration with its general plane including an angle of substantially 90° with the general plane of the exposed contact face.

3,705,998
NEGATIVE ION GENERATOR

Thomas A. Jennings, Glenside, and William McNeill, Southampton, Pa., assignors to the United States of America as represented by the Secretary of the Army

Continuation-in-part of abandoned application Ser. No. 37,360, May 5, 1970, which is a continuation of abandoned application Ser. No. 704,463, Feb. 9, 1968. This application Jan. 27, 1972, Ser. No. 221,250
Int. Cl. H01j *33/00, 37/08*
U.S. Cl. 313—161 **6 Claims**

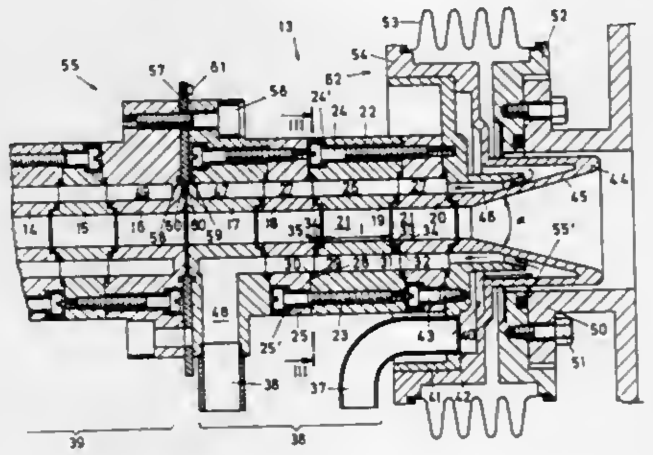


Negative ion generator for controllably and selectively generating negative ions by superposing non-uniform electric and magnetic fields, and comprising means for generating an electrostatic field within a metallic cylinder and a magnet associated therewith for producing the magnetic field, and generating the negative ions when a supply of gas is fed into the generator.

3,705,999
GAS DISCHARGE TUBE FOR A LASER

Karlheinz Victor Hermann Banse, Flamatt, Wolfgang Hagen Seelig and Jurg Hugo Steinger, Bern, and Gerd Bernd Herziger, Gumligen, Switzerland, assignors to Institut fur Angewandte Physik der Universitat Bern, Bern, Switzerland

Filed Apr. 9, 1971, Ser. No. 132,717
Claims priority, application Switzerland, Apr. 13, 1970, 5,451/70
Int. Cl. H01j *7/18*
U.S. Cl. 313—197 **12 Claims**

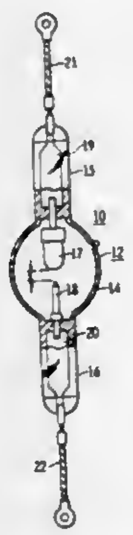


A vacuum gas discharge tube of a laser assembly comprises a plurality of interconnected discs which are provided with aligned central bores to define a discharge column. Each disc has an anodic oxidation layer on its surface to electrically insulate it from the other discs and protect it against ion bombardment and ultra-violet rays from the discharge column. The discs are sealed by annular sealing rings seated in recesses in the discs and the rings are protected by shoulders which project beyond the rings to cover the same and protect them against the ion bombardment and ultra-violet rays.

3,706,000
CURRENT-RATED SHORT-ARC LAMP FOR LIGHT PROJECTION APPARATUS

Theodore C. Retzer, Cedar Grove, and Joseph P. Kearney, Teaneck, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 11, 1970, Ser. No. 36,253
Int. Cl. H01j *17/20*
U.S. Cl. 313—214 **5 Claims**



A direct-current short-arc xenon lamp is mounted in prefocused relationship with either a parabolic or an ellipsoidal reflector so that the optical axis of the reflector is aligned with the longitudinal axis of the lamp. The spacing between the lamp electrodes is smaller than that used heretofore and the focal point of the reflector is located at a predetermined position along the arc path. The lamp is rated and operated at a predetermined current within a range of from 70 to 200 amperes and the electrodes are spaced from 4.6 to 7.0 millimeters apart, depending upon the particular operating-current rating of the lamp. When the lamp is operated in a horizontal position, a magnet located adjacent the lamp and outside of the reflector is used to prevent upward bowing of the arc. In the case of a movie projection system, the shorter and more intense arc increases the screen lumens and decreases the power (watts) consumed by the lamp.

3,706,001
THERMIONIC ELECTRON EMITTER CONTAINING THORIUM CARBIDE, THORIUM OXIDE AND ZIRCONIUM CARBIDE

Thomas J. Nall, Fern Creek, Ky., assignor to the United States of America as represented by the Secretary of the Army

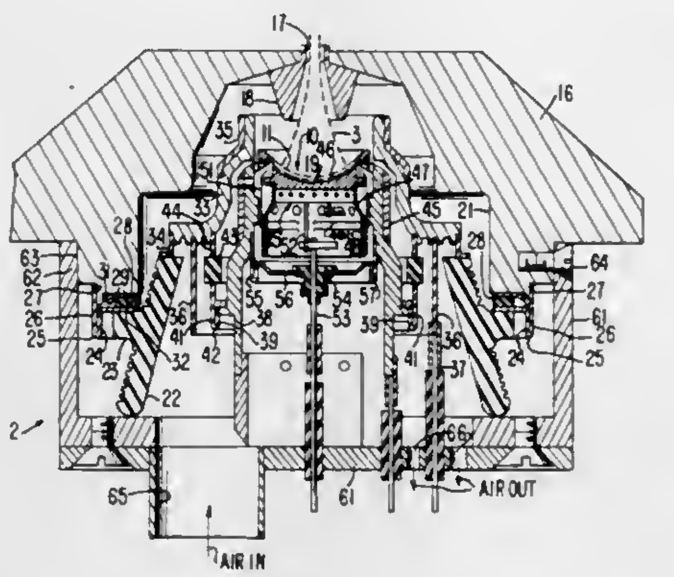
No Drawing. Filed Mar. 15, 1971, Ser. No. 124,608
Int. Cl. H01j *1/05, 1/14, 1/38, 19/06*
U.S. Cl. 313—346 DC **2 Claims**

An improved thermionic electron emitter is provided containing thorium carbide, thorium oxide and zirconium carbide.

3,706,002
ELECTRON GUN

George V. Miram, Daly City, and Gerhard B. Kuehne, Santa Clara, Calif., assignors to Varian Associates, Palo Alto, Calif.

Continuation-in-part of application Ser. No. 50,685, June 29, 1970. This application Nov. 16, 1970, Ser. No. 89,972
Int. Cl. H01j *25/10*
U.S. Cl. 315—5.39 **14 Claims**

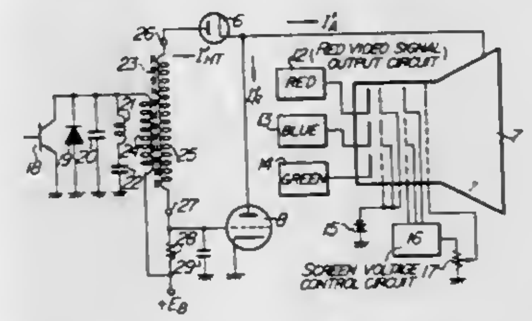


A high power microwave beam tube is disclosed employing an improved electron gun. The electron gun includes an outwardly flared high voltage electrical insulator for insulating the anode relative to the cathode. The outwardly flared insulator includes an external shoulder portion encircling the flared member, such shoulder being disposed intermediate the length of the flared member and being joined to a portion of the envelope of the gun to be operated at a potential positive with respect to the cathode potential. A fluid enclosure encloses the wide end of the flared insulator for containing a fluid coolant in heat exchanging relation with portions of the vacuum envelope of the gun for cooling the gun in use.

3,706,003
HIGH VOLTAGE REGULATING CIRCUIT

Mitsuharu Akatsu; Tomoo Kinoshita, both of Yokohama, and Tadahiko Iwasaki, Kamakura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 27, 1970, Ser. No. 40,857
Claims priority, application Japan, May 30, 1969, 44/41679
Int. Cl. H01j *29/70*
U.S. Cl. 315—18 **6 Claims**

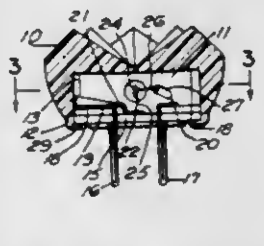

26
6
23
12 (RED VIDEO SIGNAL OUTPUT CIRCUIT)
RED
BLUE
GREEN
25
27
28
29
8
15
16
SCREEN VOLTAGE CONTROL CIRCUIT
17
+EB

A high voltage regulating circuit has a cathode ray tube, high voltage generating means connected with the anode of the cathode ray tube and comprising a flyback transformer and a voltage rectifier, a shunt regulating tube whose plate is connected with the anode of the cathode ray tube, and high voltage current responsive means. The high voltage current responsive means is connected with the high voltage generating means for generating a control signal proportional to the high voltage current flowing through the high voltage generating means. The control signal is supplied to the grid of the shunt regulating tube to control the plate current thereof, so that the anode voltage of the cathode ray tube is kept constant.

3,706,004
COMBINATION LIGHT AND SWITCH

Frederic W. Schwartz, Providence, R.I., assignor to Cable Electric Products, Inc., Providence, R.I.

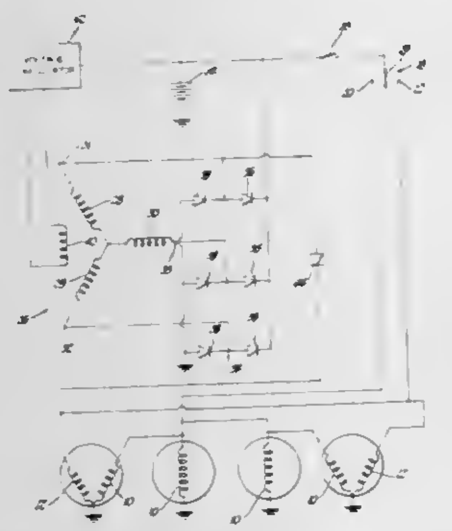
Filed Aug. 2, 1971, Ser. No. 168,190
Int. Cl. H01j
U.S. Cl. 315—71 **10 Claims**



A combination light and switch suitable for a night light. An outer transluscent housing, clear or in colors, is provided with an annular recess on one side. The walls of the recess are provided with spaced, integral, vertical ribs. On diametrically opposed sides, at least two of the ribs on each side are shortened so that they do not reach the outer edge. A circular dielectric disc is mounted over the recess, resting on the outer ends of the ribs and locked in place by swedging over the edge of the housing. A pair of contact prongs are mounted on the disc with each prong having one leg extending through the disc and bent over. At the point where the prongs are bent over, the disc is provided with a thicker portion forming a rib across the diameter of the disc. Mounted on this side of the disc is a conventional neon lamp, resistance, and wiring so that they are hooked electrically to one of the prong legs. The other end of the lamp circuit is tied to a pivoted member which is designed to slide over and away from the turned over end of the other prong. This forms a switch for opening and closing the circuit to the lamp. With the parts assembled, the rib on the disc extends over the shorter ribs of the housing and can turn in both directions until the longer ribs are reached. The switch member extends between two of the ribs and is confined between them. Thus, when the prongs are pushed into a wall receptacle, turning movement of the housing will actually turn the bent over portion of the prong away from the switch member, which cannot turn because of the ribs. Reverse movement puts the switch on by contacting the parts.

3,706,005
VEHICLE DAYTIME RUNNING LIGHTS

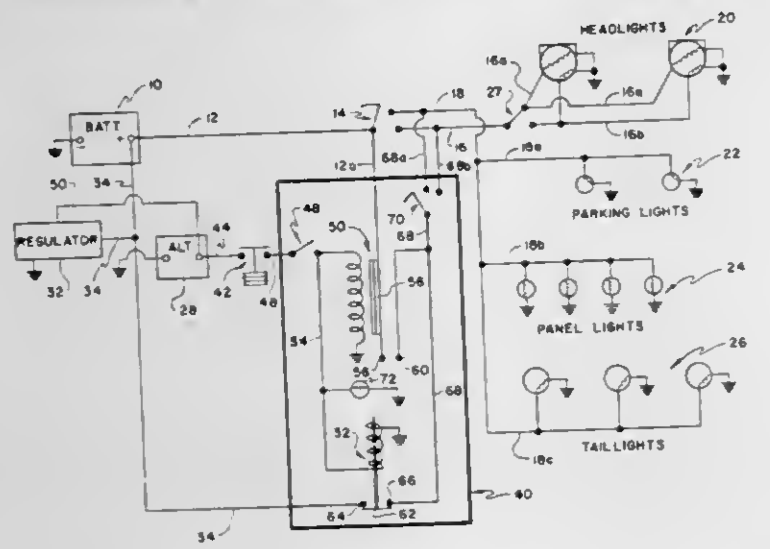
Richard A. Carlson, Pontiac, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 10, 1970, Ser. No. 96,688
Int. Cl. B60q ***1/04***
U.S. Cl. 315—82 **2 Claims**



A dual intensity lighting circuit in which the low beam filaments of the vehicle headlamps are energized to produce less light output when the vehicle engine is running, and the low beam filaments are not energized through the conventional headlight lighting system, than when they are energized through the conventional lighting system. The output from one of the output terminals of a three phase alternating current generator is supplied to the low beam filaments to provide for the diminished illumination through a blocking diode.

3,706,006
HEADLIGHT CONTROL SYSTEM FOR VEHICLES

Richard C. Miller, Sr., 1156 Crahen NE., Grand Rapids, Mich. 49501
Filed Apr. 1, 1971, Ser. No. 130,164
Int. Cl. B60q ***1/02***
U.S. Cl. 315—83 **8 Claims**



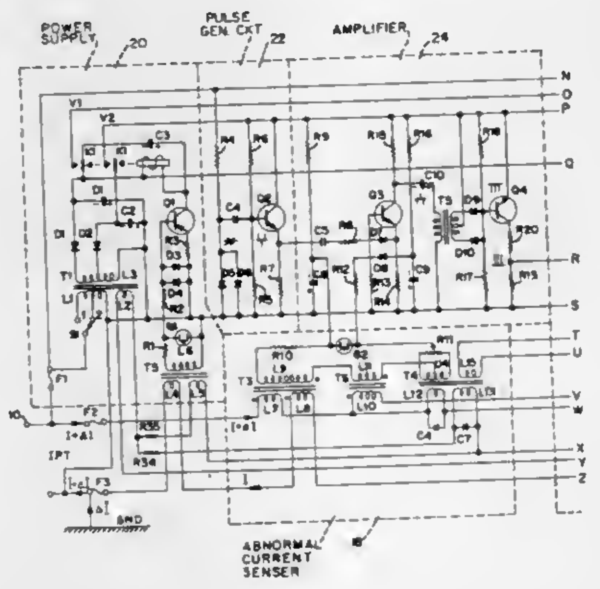
A lighting control device for vehicles which can be installed for automatically turning on the lights of the vehicle whenever the vehicle is operated either by day or night for safety purposes. The device includes sensors connected to the alternator or generator of the vehicle and operating through a series of relays to provide power to the vehicle light system regardless of the position of the manually operated lighting switch. Override or defeat switches are also provided wherein the device may be disconnected, and the lighting system will operate in a conventional manner. The device may also function automatically to turn off the lights a predetermined time after the vehicle has been stopped.

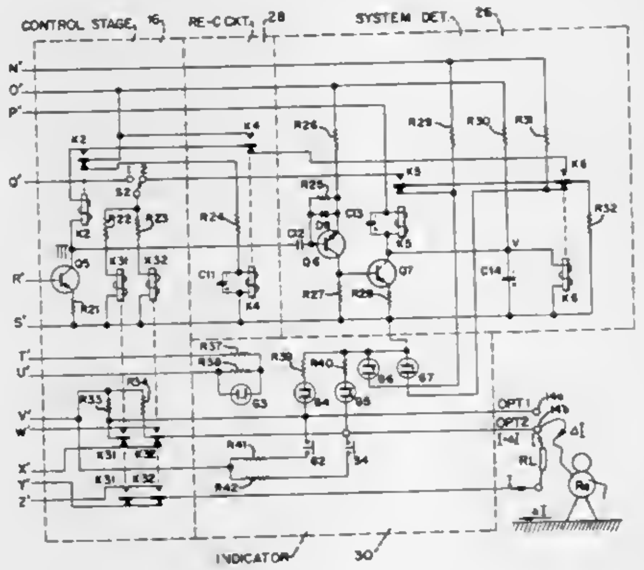
ERRATUM

For Class 317—58 see:
Patent No. 3,706,100

3,706,007
OVERLOAD AND SHOCK PROTECTIVE DEVICE

Yung-Chun Wu, 9–1, Alley 7, Yang Ming Li, Yang Ming Shan, Taipei, China
Filed Mar. 23, 1971, Ser. No. 127,320
Int. Cl. H02h ***3/28***
U.S. Cl. 317—18 D **13 Claims**

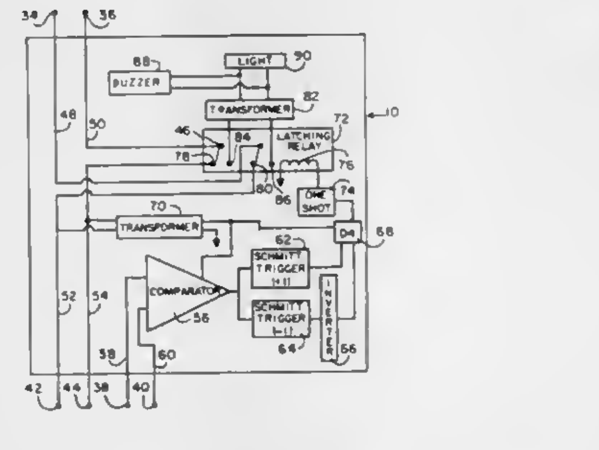




Disclosed herein is a protective circuit for disconnecting a load from a voltage source in response to the detection of an electrical overload or an excess of leakage current. The protective device, which is coupled in series with the voltage source and load, includes a power supply for converting the source voltage into a potential for use by the protective device; a pluse generator for use in detecting malfunctions in the protective circuit; a current sensor for producing an output signal under conditions of abnormal current flow; an amplifier for amplifying the output signals of the pulse generator and the current sensor; a control stage for opening and closing a current path from the potential source to the load in response to an output signal from the amplifier; a reset circuit for automatically resetting the control stage when a previously detected malfunction has been remedied; a system detector for monitoring the operation of the previously mentioned devices, and for detecting failures thereof by monitoring the amplified pulses, for actuating the control stage; and an indicator responsive to the control stage, the current sensor and the detector for indicating the presence of a malfunction, and the nature of such malfunction.

3,706,008
BODY CURRENT ACTIVATED CIRCUIT BREAKER

Frederic B. Kremer, 1600 Garrett Road, Apt. B–204, Upper Darby, Pa. 19082
Filed Feb. 3, 1972, Ser. No. 223,096
Int. Cl. H02h ***3/16***
U.S. Cl. 317—18 A **7 Claims**

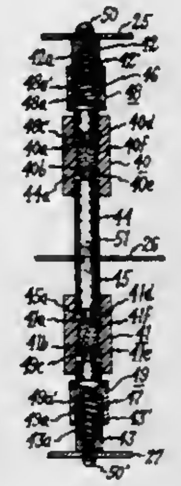


A body current activated circuit breaker responsive to the flow of current through the human body comprising body contacting electrodes to monitor the flow of electrical currents in a human being, a circuit breaker interposed between the source of electrical power supply and the electrical appliance being operated by the human being, the circuit breaker being responsive to the electrical currents monitored by the electrodes to automatically interrupt the current supply to the electrical appliance upon detecting current flow through the body that exceeds a predetermined, safe level.

3,706,009
LIGHTNING ARRESTER CAPACITIVE GRADING CIRCUIT MOUNTING MEANS

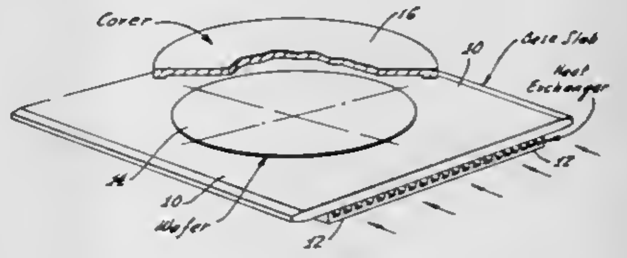
Roderick Reitz, Lanesboro, Mass., assignor to General Electric Company
Filed Dec. 22, 1971, Ser. No. 210,769
Int. Cl. H02h ***9/06***
U.S. Cl. 317—68 **8 Claims**

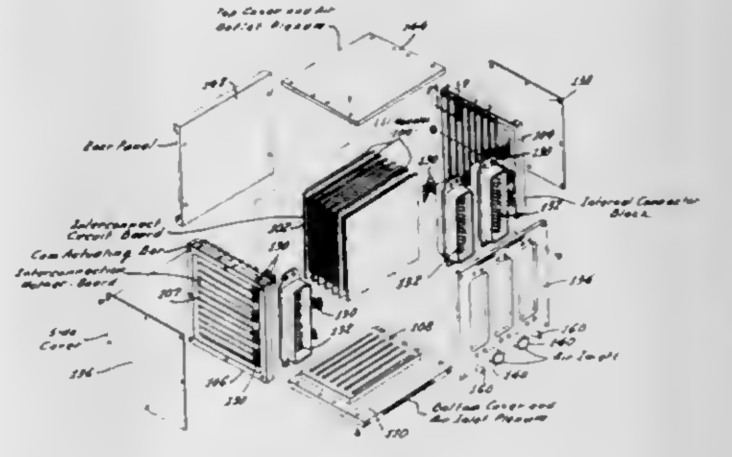
A surge voltage arrester, such as a lightning arrester, is provided with a spring-loaded mounting means for releasably supporting a plurality of capacitors in a series circuit arrangement in which they act as a voltage grading circuit for the sparkgap assemblies of the arrester. The mounting means includes a plurality of slidably engageable terminal and contact members that are shaped to cooperate with recessed terminals in the grading capacitors to form a relatively rigid mounting column that is effective to support the capacitors in a predetermined position adjacent the sparkgap assemblies of the arrester. The mounting means are further operable to permit removal of one or more of the capacitors from the series-connected column without requiring disassembly of the entire column.



3,706,010
PACKAGING STRUCTURE HAVING COOLING MEANS FOR A MULTIPLICITY OF HERMETIC MODULES FOR INTEGRATED CIRCUIT CHIPS

Lothar Laermer, Paramus, and Robert J. Schenk, Pompton Plains, N.J., assignors to The Singer Company, Little Falls, N.J.
Filed Aug. 20, 1971, Ser. No. 173,367
Int. Cl. H05k ***7/20***
U.S. Cl. 317—100 **5 Claims**

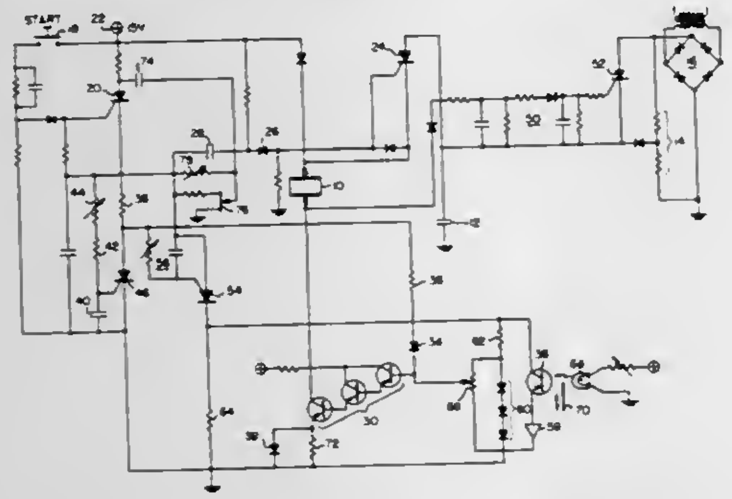



Top Cover and Air Outlet Plenum
Rear Panel
Interconnect Circuit Board
Cam Actuating Bar
Internal Connector Block
Side Cover
Air Inlet
Bottom Cover and Air Inlet Plenum

An improved hermetically sealed module is provided for packaging Large Scale Integrated Circuit (LSI) chips for computers, and the like; and an improved higher level packaging structure is provided for a multiplicity of such modules. The individual modules incorporate a heat exchanger by which cooling air is brought within the proximity of the heat dissipating semiconductor element in the module while still maintaining the integrity of the hermetically sealed enclosure, and an improved electrical terminal assembly is provided for connecting the semiconductor element within the module to outside circuitry. The higher level packaging structure consists of two contact block assemblies to which motherboards, a front panel, a rear panel, a bottom inlet air plenum and a top outlet air plenum are mounted, together with a contact assembly for engagement with the contacts on the individual modules. The contacts of the contact assembly are cam operated into engagement with the module contacts after the module is inserted so as to minimize the insertion force requirements.

3,706,011
TIMER CIRCUIT FOR MAGNETIC ACTUATORS

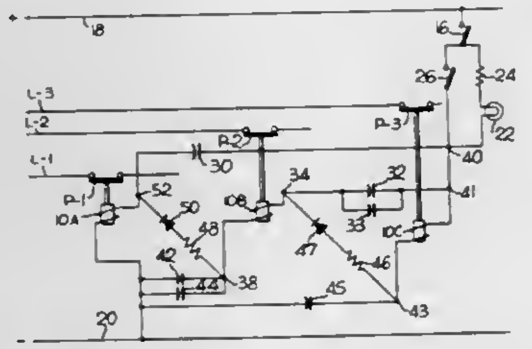
Andrew W. Vincent, 65 Aberdeen St., Rochester, N.Y. 14611
Filed May 14, 1971, Ser. No. 143,386
Int. Cl. H01h *47/04*
U.S. Cl. 317—151 **2 Claims**



A drive circuit for rapid energization of a solenoid, relay, or other electromagnetic device. The circuit develops a relatively high voltage at its output for a controllably variable, brief period to initiate motion of the driven device. This is followed by a brief interval during which current through the device is effectively cut off, and thereafter a relatively low holding voltage is developed to maintain the device partly or fully energized. Servo means are provided for sensing the advance of the device and for controlling the holding voltage to keep the device at a predetermined position for as long as desired.

3,706,012
SERIES-PARALLEL ELECTRICAL CIRCUIT

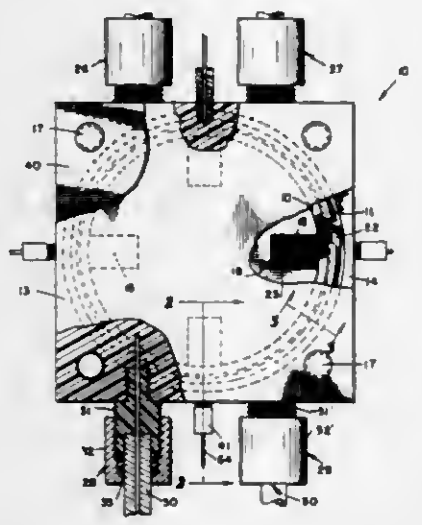
Herbert M. Pfianz, Westwood, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed May 26, 1971, Ser. No. 147,135
Int. Cl. H01h *47/10*
U.S. Cl. 317—157 **11 Claims**



An improved direct current electrical circuit in which any number of electrical devices may be energized in parallel with each other to momentarily provide a higher state of energization of the devices, or in which the devices may be energized in series with each other to provide a lower state of energization of the devices, with the circuit automatically reverting from the parallel energization state to the series energization state.

3,706,013
ION EXCHANGE MEMBRANE ELECTROCHEMICAL INTEGRATOR

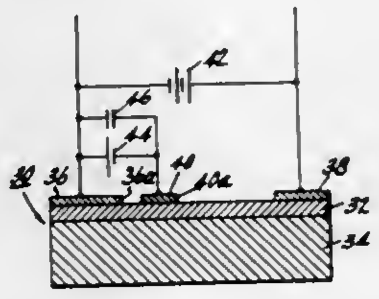
Pierre Louis Bourgault, Don Mills, Ontario, and George Herbert Fraser, Weston, Ontario, Canada, assignors to Johnson Matthey & Mallory Limited, Toronto, Ontario, Canada
Continuation of abandoned application Ser. No. 731,556, May 23, 1968. This application Dec. 24, 1970, Ser. No. 101,409
Int. Cl. H01g *9/00*
U.S. Cl. 317—231 **11 Claims**



An electrochemical integrator including a work area divided into work compartments by an ion exchange membrane means, electrode means cooperatively associated with the work compartments, an ionizable material such as a gas, reagent or product, which ionizes due to the passage of current through the electrode means in the work compartments, and a measuring means which displays the quantity of gas, reagent or product transferred through the ion exchange membrane means. The quantity of ionizable material transferred between the work compartments is proportional to the electrical charge passed through the electrode means.

3,706,014
SEMICONDUCTOR DEVICE

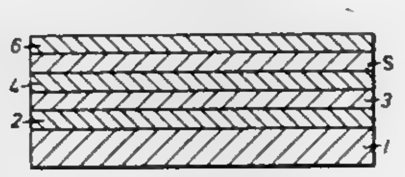
Raymond Harkless Dean, Lawrenceville, N.J., assignor to RCA Corporation
Filed Sept. 11, 1970, Ser. No. 71,456
Int. Cl. H01l *17/00*
U.S. Cl. 317—234 R **8 Claims**



Spaced cathode and anode contacts engage a semiconductor layer with at least the cathode contact forming an injecting junction with the semiconductor layer. A third contact between the cathode and anode contacts and adjacent the cathode contact forms a blocking junction with the semiconductor layer and is electrically connected to the cathode contact. A voltage applied between the cathode and anode contacts creates an electrical field along the surface of the semiconductor layer with the profile of the electrical field being adjusted by the voltage applied to the third contact. The profile of the electrical field can be varied by changing the distance between the anode facing end of the third contact and the anode facing end of the cathode contact and/or by changing the voltage applied to the third contact with respect to the voltage applied to the cathode contact.

3,706,015
SEMICONDUCTOR WITH MULTILAYER CONTACT

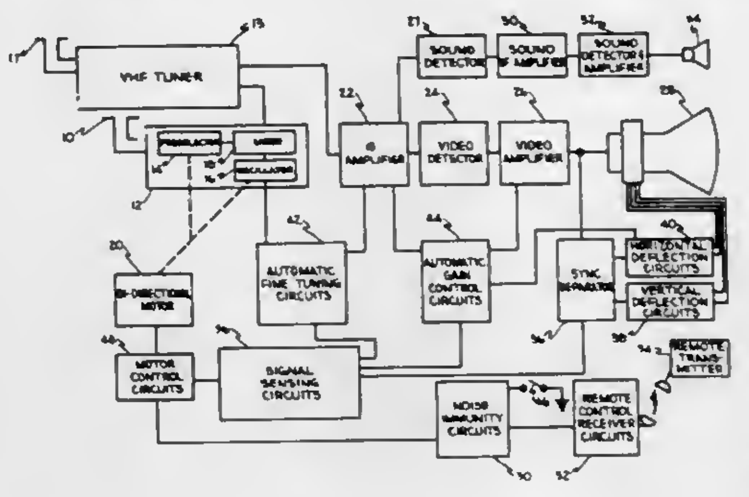
Rigobert Schimmer and Horst Gesing, Belecke, and Karl-Heinz Cordes, Warstein, Germany, assignors to Licentia Patent Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Mar. 2, 1971, Ser. No. 120,220
Claims priority, application Germany, Mar. 3, 1970, P 20 09 863.9
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 317—234 R **10 Claims**



A semiconductor having a contact composed of a layer located immediately on the semiconductor and made of the combination of an adherent metal and a low contact-resistance metal, a layer situated on the combination layer and being substantially solder-insoluble and wettable, a second wettable layer situated on the solder-insoluble and wettable layer, and at least one etchant-resistant layer situated on the second wettable layer.

3,706,016
MOTOR CONTROL CIRCUIT

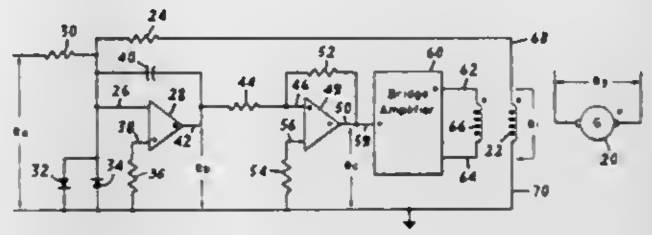
Thomas Austin Bridgewater, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Continuation of Ser. No. 829,394, June 2, 1969, abandoned. This application Jan. 6, 1971, Ser. No. 104,473
Int. Cl. H02p *5/00*
U.S. Cl. 318—16 **20 Claims**



A motor control circuit includes a pair of transistors. Circuit means are provided for connecting a source of potential and a motor winding in series between the collector electrodes of the transistors. Control means are coupled between the base and emitter electrodes of the collector-emitter electrode current path of the devices and, hence, the energization of the motor winding.

3,706,017
MOTOR SPEED CONTROL

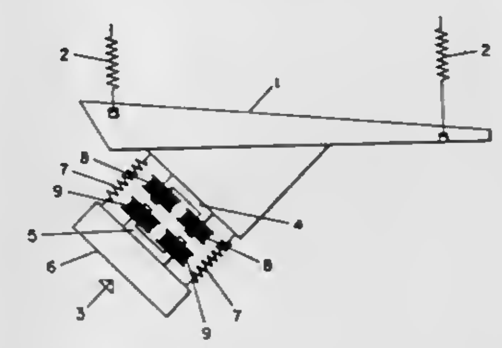
John A. Gingrich, Toronto, Ontario, Canada, assignor to Dover Corporation (Canada) Limited, Toronto, Ontario, Canada
Filed July 15, 1970, Ser. No. 54,895
Int. Cl. H02p *7/34*
U.S. Cl. 318—146 **18 Claims**



A system for accurately controlling the speed of a D.C. motor which is powered by the generator of a motor-generator set. The flux in the generator is controlled by a generator field supplied by a switching bridge amplifier. The voltage induced in an extra generator field is integrated to obtain a measurement of the change of the flux in the generator and this measurement is used to control the switching of the bridge amplifier. The control is effected in such a way that the rate of change of flux in the generator is made proportional to the error between the pattern speed and the measured speed of the D.C. motor.

3,706,018
ELECTROMAGNETIC VIBRATOR EMPLOYING RECTIFICATION OF INDUCED CURRENTS

John M. Morris and Preston H. Schrader, Louisville, Ky., assignors to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Nov. 4, 1971, Ser. No. 195,746
Int. Cl. H02k *33/08*
U.S. Cl. 318—125 **4 Claims**

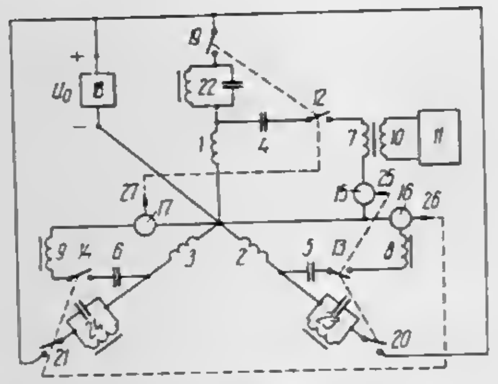


The motor of an electromagnetic vibrator comprises a ferromagnetic core arranged with windings energized with alternating current and direct current, in which the direct current excitation preferably exceeds the alternating current excitation. The direct current for a winding may be supplied from the power line through rectifiers or may be induced in the winding, closed by a unilateral conductor, by transformer action from another winding energized with alternating current. Since the force of an electromagnet varies as the square of the flux across the air gap, the presence of the direct current field increases the effectiveness of the alternating current in driving the vibrator.

3,706,019

DEVICE FOR MEASURING ANGULAR POSITION OF THE ROTOR OF A SYNCHRONOUS ELECTRIC MOTOR AND A THYRATRON ELECTRIC MOTOR

Vladimir Grigorievich Eremenko, Moscow, U.S.S.R., assignor to Moskovsky Ordena Lenina Energetichesky Institut, Moscow, U.S.S.R.
Filed Mar. 11, 1970, Ser. No. 18,595
Int. Cl. H02k *29/00*
U.S. Cl. 318—138 **3 Claims**



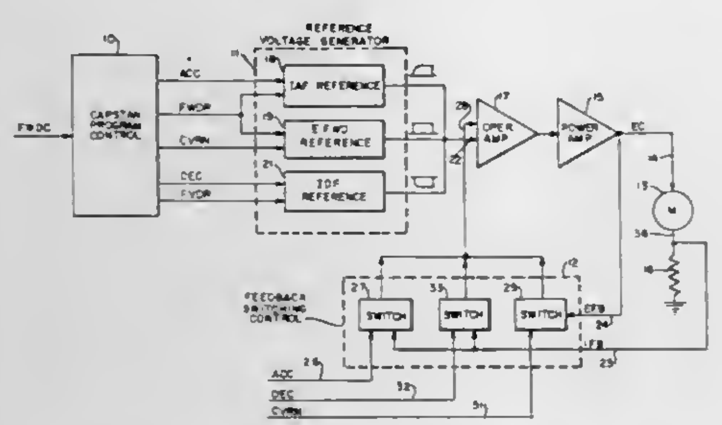
A device for measuring angular position of the rotor of a synchronous electric motor by virtue of variation of the value of the high-frequency current envelope, said current flowing through at least one phase winding of the motor that is connected to a high-frequency power supply source, wherein inserted into the electrical circuit formed by a motor phase winding and the high-frequency power supply source, is a low-frequency guard filter, whereas inserted into the electrical circuit formed by the motor phase winding and low-frequency power supply source, is a high-frequency guard filter.

A thyratron electric motor employs the contemplated device for measuring angular position of the rotor whose change over switch provides alternative connection of the motor phase winding to the high-frequency power supply source, is synchronized with the ring-type power switching arrangement of the motor.

3,706,020

CAPSTAN MOTOR CONTROL SYSTEM

Daniel M. Klang, Huntington Station, N.Y., assignor to Bucode Inc., Hauppauge, N.Y.
Filed Mar. 12, 1971, Ser. No. 123,765
Int. Cl. H02r *5/06*
U.S. Cl. 318—270 **6 Claims**

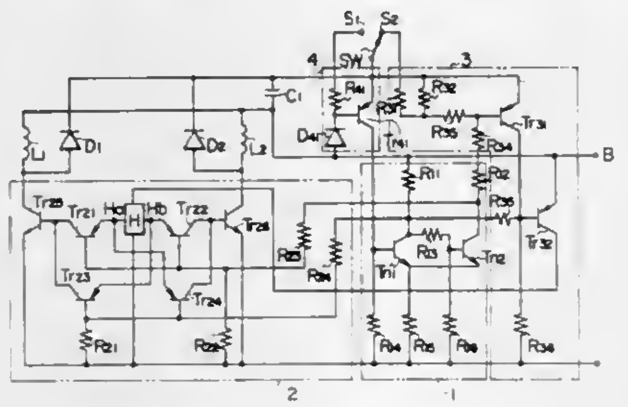


A capstan motor control system for use in magnetic tape transports, which provides for a pre-shaped current to be applied to the motor for predetermined time intervals during starting and stopping. Under current control in the starting interval, the motor accelerates to approximately 80% of its running speed. A substantially constant voltage is then applied under which the motor asymptotically accelerates to its running speed. The pre-shaped current in the stopping interval is of opposite polarity to slow the motor speed. The motor is subsequently dynamically braked to rest.

3,706,021

DIRECT CURRENT MOTOR WITH ELECTRICAL BRAKING DEVICE

Kiyoshi Yanagida, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed Sept. 17, 1970, Ser. No. 73,168
Claims priority, application Japan, Sept. 17, 1969, 44/73,755
Int. Cl. H02p *5/16*
U.S. Cl. 318—302 **2 Claims**

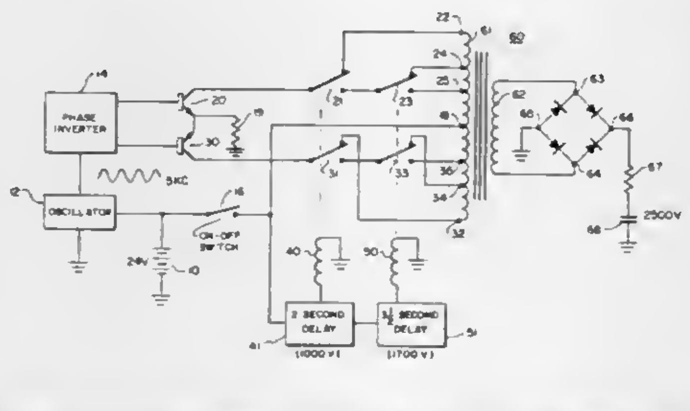


A direct current motor having a rotor with a pair of magnetic poles, a pair of driving coils and a power source and power switching means for supplying current alternatively to the driving coils, is provided with an electrical braking device. This braking device detects an induced voltage generated in the driving coils due to the magnetic poles. When speed change-over means are switched from a fast speed mode to a slow speed mode, that is, if the detected voltage is larger than the predetermined value, the revolution rate of the rotor is higher than a predetermined slow speed rate, the direction of the output current of the power switching means changes, subjecting the rotor to a braking force. The motor is thereby rapidly switched to a slow speed through a purely electrical braking force generated by the driving coils.

3,706,022

HIGH EFFICIENCY CAPACITOR CHARGING CIRCUIT

Earl E. Corey, Waltham, Richard A. Tuft, Chelmsford, and Jason H. Woodward, Lexington, Mass., assignors to the United States of America as represented by the Secretary of the Army
Continuation of abandoned application Ser. No. 15,655, Mar. 2, 1970. This application Nov. 4, 1971, Ser. No. 195,887
Int. Cl. H02m *3/24*
U.S. Cl. 320—1 **2 Claims**

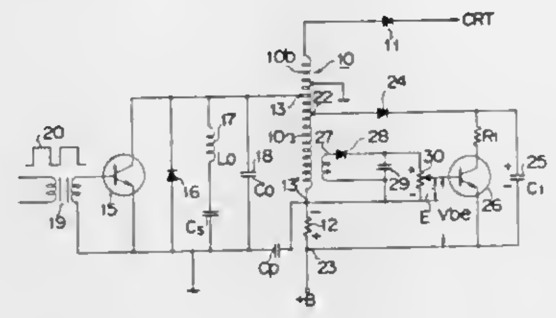


This disclosure relates to charging circuits and, particularly, to circuits for converting D-C voltage from a low level to a high level for capacitor charging. More particularly this disclosure describes a circuit for converting a low-level, D-C voltage to a high-level, D-C, capacitor-charging voltage in a series of steps of increasing voltage to maintain a relatively-high rate of charge and efficiency during the entire charging time from zero voltage to the full voltage.

3,706,023

HIGH VOLTAGE REGULATION CIRCUIT FOR TELEVISION RECEIVER

Hisashi Yamada, Yokohama; Hisao Tajiri, Kanagawa, and Mitsugu Nishizawa, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 1, 1970, Ser. No. 77,190
Claims priority, application Japan, Oct. 3, 1969, 44/78876; Jan. 26, 1970, 45/6542; Jan. 22, 1970, 45/6141
Int. Cl. H02m *3/22*
U.S. Cl. 321—2 **4 Claims**

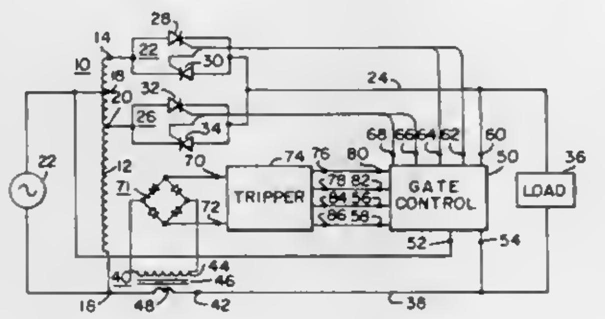


A high voltage regulation circuit in a high voltage power supply circuit for a television receiver in which a transistorized horizontal deflection circuit is connected to the primary winding of a flyback transformer is disclosed, said regulation circuit comprising a diode and a capacitor connected to the primary winding, and means for controlling the amount of discharge from said capacitor depending upon the current load change in the high voltage power supply circuit mainly during a tract period, whereby the variation of high voltage due to the load variation in the high voltage power supply circuit is prevented and stabilized high voltage is produced.

3,706,024

TAP CHANGING APPARATUS HAVING A GATE CONTROL TRIPPER

Peter Wood, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed March 29, 1971, Ser. No. 128,662
Int. Cl. G05f *1/20*
U.S. Cl. 323—43.5 S **4 Claims**

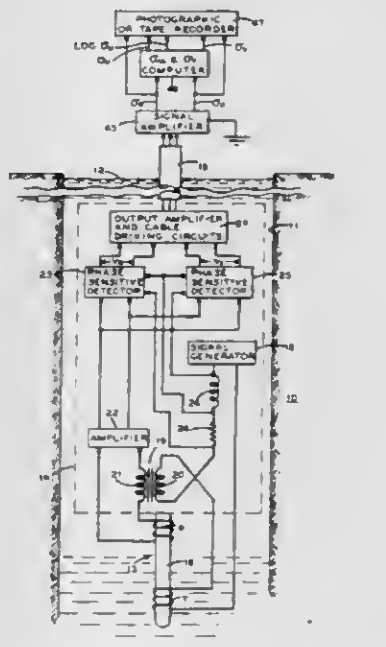


Tap changing apparatus including a transformer having a tapped winding, solid state switching elements connected between the winding and a load, and a control circuit which provides the proper gate drive to the switching elements for changing taps. The control circuit senses the voltage and current characteristics of the system to determine at what instant it will gate the switching elements in making a tap change. A tripper circuit senses the system current and trips the control circuit so that a tap change cannot be made when the system current is too low to have its characteristics detected.

3,706,025

INDUCTION LOGGING METHODS AND APPARATUS USING MORE THAN ONE PHASE COMPONENT OF THE RECEIVED SIGNAL

Charles Y. Regat, Redding, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Dec. 29, 1969, Ser. No. 888,239
Int. Cl. G01v *3/10, 3/18*
U.S. Cl. 324—6 **51 Claims**



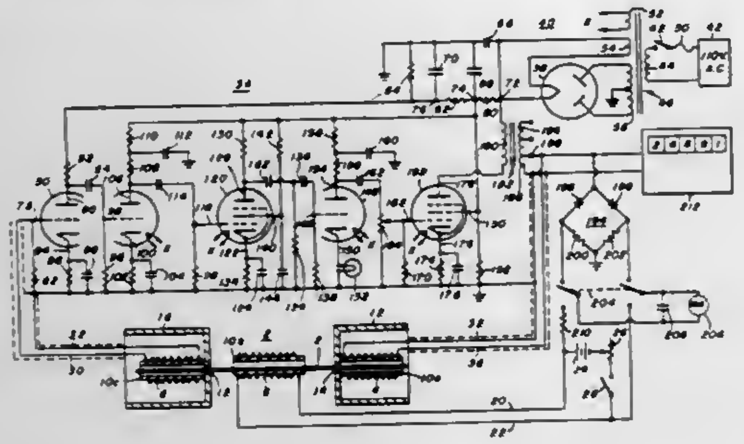
In accordance with an illustrative embodiment of the present invention, methods and apparatus are disclosed for measuring the average conductivity and heterogeneity of formations surrounding a borehole. To accomplish this, certain phase components of the electrical signal produced by an induction logging tool are measured and combined in accordance with given mathematical relationships to produce indications of the average conductivity and heterogeneity of a formation. Moreover, the average conductivity and heterogeneity indications can in turn be combined to give indications of the conductivity of different radial regions of the formation under investigation. Additionally, to measure these phase components, a technique is disclosed for elimioating the mutual coupling between the transmitter and receiver coils of an induction logging tool. In this technique, the transmitter coil(s) is excited at two different frequencies and the mutual coupling component of the voltage induced in the receiver coil(s) at the lower frequency is used to cancel out the mutual coupling component at the higher frequency. The phase components used for computational purposes are then measured at the higher frequency.

3,706,026

APPARATUS FOR DETERMINING RESONANT FREQUENCIES OF A SPECIMEN OF MAGNETOSTRICTIVE MATERIAL

Thomas E. Johnson, Jr., Plum Borough, and Peter R. Mould, Franklin Township, Westmoreland County, Pa., assignors to United States Steel Corporation
Filed Nov. 16, 1970, Ser. No. 89,685
Int. Cl. G01r *33/18*
U.S. Cl. 324—34 MA **3 Claims**

An apparatus for the accurate determination of the resonant frequency of a carbon sheet steel specimen has a measuring head of three axially aligned encircling coils surrounding the specimen. The specimen midpoint resting on the center biasing encircling coil provides the sole support of the specimen. A shielded pickup coil surrounding one end of the specimen is connected to the input of a high gain amplifier, and the amplifier output is connected in a feedback arrangement to a shielded drive coil surrounding the other end of the sample. Frequency filtering and phase shifting in the amplifier assures oscillation by magnetostrictive induction between the drive coil and the pickup coil at the fundamental, longitudinal resonant frequency of the specimen. The frequency is measured by an electronic counter.



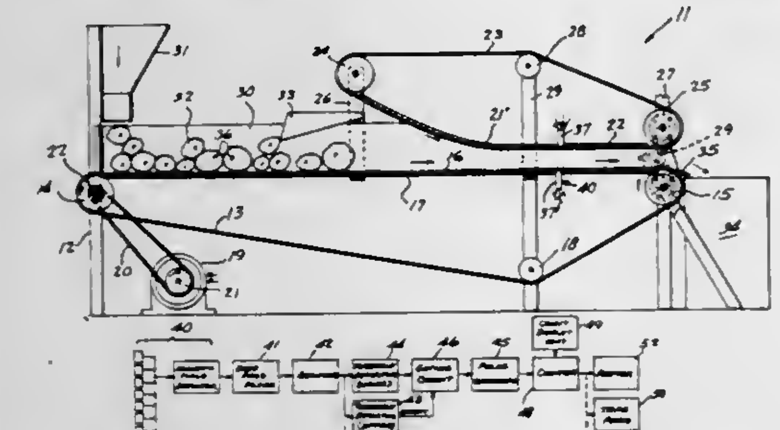
3,706,027
MATERIALS COUNTING SYSTEM UTILIZING PERMANENT MAGNETS AND THEIR ASSOCIATED FIELDS

Karl R. Grice, Jr., P.O. Box 1169, Anderson, S.C. 29621, and Dan M. Edwards, 110 Blackland Road NW., Atlanta, Ga. 30305

Continuation of abandoned application Ser. No. 831,953, June 10, 1969. This application July 13, 1971, Ser. No. 162,275

Int. Cl. G01r *33/00*

U.S. Cl. 324—34 R **6 Claims**



A system for counting pieces of laundry, or the like, by attaching a permanent magnet to each piece and passing the pieces through a conveyor with a magnetic field detector mounted thereon to generate pulses corresponding to the pieces as they pass by; the pulses are counted by a counter circuit arranged to utilize the signals only if their strength exceeds a predetermined lower threshold value and do not exceed a predetermined upper limit value; in one embodiment the system is designed to utilize a signal determined by an interval of time in the vicinity of maximum detected field rather than the total signal received.

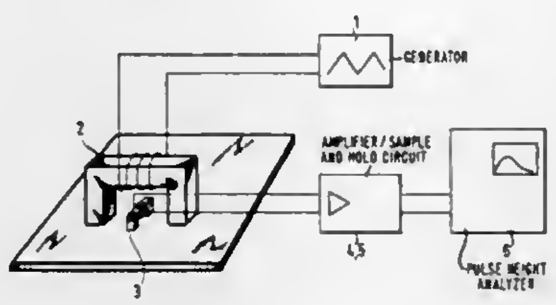
3,706,028
METHOD FOR DETERMINING THE GRAM SIZE DISTRIBUTION OF FERROMAGNETIC MATERIAL

Matti N. T. Otala, Tinatie 16, Oulu 25, Finland

Filed Sept. 22, 1971, Ser. No. 182,815

Int. Cl. G01r *33/12*

U.S. Cl. 324—34 R **1 Claim**



The invention disclosed provides a method for measuring grain size distribution of ferromagnetic materials by correlating the amplitude size distribution of the steps of the magnetization curve with the grain size distribution.

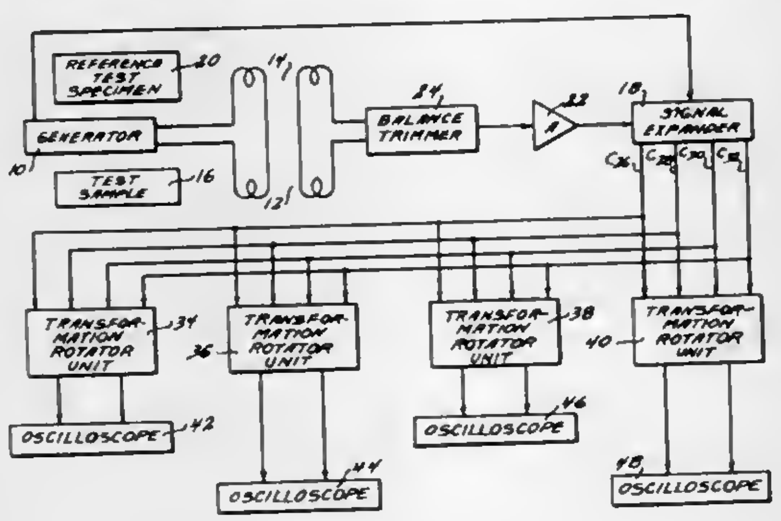
3,706,029
MULTIPLE PARAMETER EDDY CURRENT NONDESTRUCTIVE TESTING DEVICE USING PLURAL TRANSFORMATION ROTATORS TO RESOLVE EACH PARAMETER

Clarence R. Wandling, Kennewick, and Hugo L. Libby, Richland, Wash., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 16, 1971, Ser. No. 199,212

Int. Cl. G01r *33/12*

U.S. Cl. 324—40 **9 Claims**



An eddy current device for measuring multiple parameter variables of a sample comprises a test coil and signal generator means for applying a multidimensional excitation signal to the coil and magnetically coupling the coil to the sample. A signal expander expands the output signal from the test coil into N descriptors representative of the output signal. $N-1$ like transformation rotators are provided, each rotator including a pair of inputs and two ganged sine-cosine potentiometers rotationally displaced ninety degrees with respect to each other and connected via operational amplifiers and a summing amplifier to provide from the transformation rotator a first output $E_1=x\cos\phi-y\sin\phi$ and a second output

$$E_2=x\sin\phi+y\cos\phi$$

where x=an input signal applied to one of the rotator inputs, y=an input signal applied to the other of the rotator inputs, and ϕ=the variable rotational angle of the ganged potentiometer. Each input of one of the transformation rotators is connected to an associated one of the signal descriptors, the remainder of the signal descriptors each being connected to an associated one input of the remainder of the transformation rotators. The other input of each of the remainder of the transformation rotators is connected to an output of a preceding associated transformation rotator. An oscilloscope displays the first and second outputs E_1 and E_2 of the last transformation rotator to provide a display of one parameter variable of the test sample.

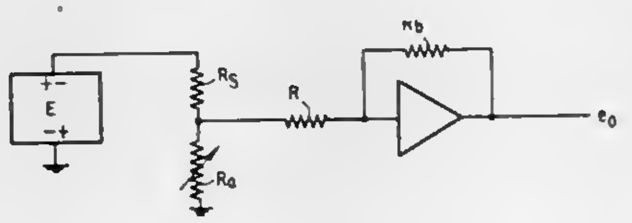
3,706,030
ELECTRONIC PARTICLE DETECTOR OF THE COULTER TYPE HAVING CONDUCTIVITY CHANGE INDEPENDENCE CIRCUITRY

Robert I. Klein, Hialeah, and Walter R. Hogg, Miami Lakes, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Dec. 28, 1970, Ser. No. 101,614

Int. Cl. G01n *27/00*

U.S. Cl. 324—71 CP **16 Claims**



Apparatus and circuitry for analyzing particles suspended in a fluid medium, including a first insulated vessel having a small aperture opening into a second insulated vessel, the fluid being in both vessels and caused to pass through the aperture. An excitation power supply source of A.C. or D.C. type produces an electric current between the two vessels, the electrical impedance of the suspension being different from that of the particles, so that a particle passing through the aperture changes the impedance of the aperture contents, thereby modulating the current in the aperture contents, and causing a signal which is applied to the input of a detector circuit comprising an amplifier. The impedance of the excitation power supply source, the impedance of the detector input and the impedance of the aperture contents are dimensioned and arranged in such a manner as to make the magnitudes of the signals independent of slow changes in electrical characteristics of the suspension.

3,706,031
TEST CIRCUIT FOR EXPLODING BRIDGEWIRE POWER SUPPLY

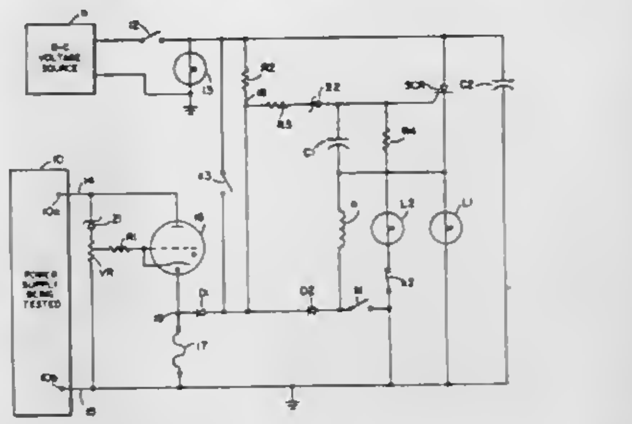
Ernest D. Boutwell, Winston-Salem, N.C., and Jack M. Longfellow, Orlando, Fla., assignors to the United States of America as represented by the Secretary of the Army

Filed Apr. 5, 1971, Ser. No. 131,314

Int. Cl. G01r *13/36;* **H01h** *85/30*

U.S. Cl. 324—122 **6 Claims**

A test circuit for determining if an output pulse from an exploding bridgewire power source has sufficient voltage and energy to fire a bridgewire. A gas filled tube such as a cold-cathode trigger and regulating tube in series with a fusible test link simulates an exploding bridgewire with a series spark gap. If a pulse from the power source is of sufficient voltage and energy, the tube conducts, and the test link fuses. If the pulse has sufficient voltage to make the tube conduct but has insufficient energy, the test link will not fuse. Indicators are lit depending on whether the tube conducts and the test link fuses. In the event that the pulse does not fuse the test link, the link is automatically fused by the test circuit, to prevent reuse of the link.



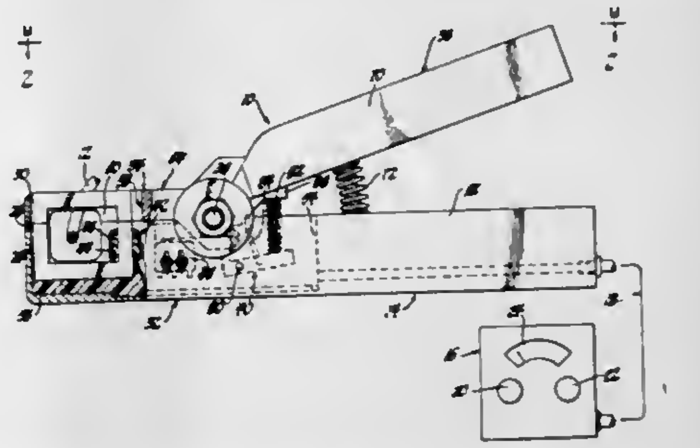
3,706,032
CLAMP ON CURRENT DETECTOR

Dennis G. Vikstrom, Madison Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 16, 1970, Ser. No. 3,361

Int. Cl. G01r *1/22, 33/00*

U.S. Cl. 324—127 **4 Claims**



A method and apparatus for measuring DC current in a conductor by surrounding the conductor with a magnetic core having first and second core sections, the second core section being adapted for movement relative to the first core section and normally biased to a certain relative position so as to present a certain reluctance to the magnetic field produced by the current in the conductor. The second core section is moved to a predetermined cocked position then rapidly returned to the certain position so as to rapidly change the magnetic flux in the magnetic core. The magnetic flux change is sensed by a sensing coil and provides an indication of the current magnitude. A resetting coil is also provided for returning the magnetic core to a predetermined magnetic condition by generating a predetermined magnetic field in the core in the same direction as the magnetic field generated by the current in the conductor.

3,706,033
INSTRUMENT FOR MEASUREMENT OF ENERGY OF AN INTERRUPTING DEVICE

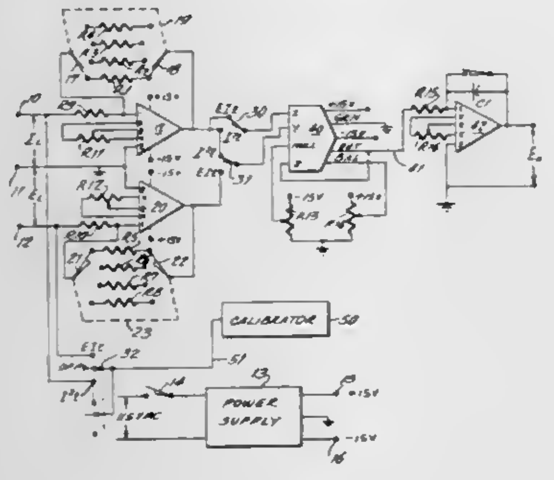
Ruben D. Garzon, Malvern, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Sept. 27, 1971, Ser. No. 184,061

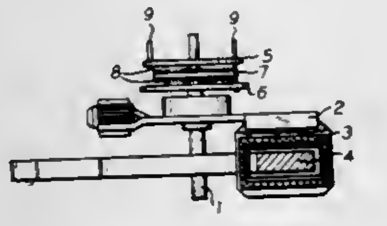
Int. Cl. G01r *7/00;* **H01h** *71/04, 85/30*

U.S. Cl. 324—140 R **6 Claims**

An instrument for measuring the energy across a circuit breaker or fuse during their interruption is indicated by measuring and indicating the product of voltage and current, integrated over a given time for the case of a circuit breaker, and the current squared, integrated over a given time for the case of a fuse. The electronic circuitry for performing these measurements includes a first operational amplifier for receiving input current signals, and a second operational amplifier for receiving input circuit voltages. The outputs of these amplifiers is connected to a multiplier circuit through a switching circuit to cause multiplication of the current signal times itself or of the current signal times the voltage signal. A third operational amplifier connected to perform an integration operation is connected to the output of the multiplier circuit and integrates the multiplier output. The integrated output is then representative of the energy being measured and may be indicated by an indicating instrument.

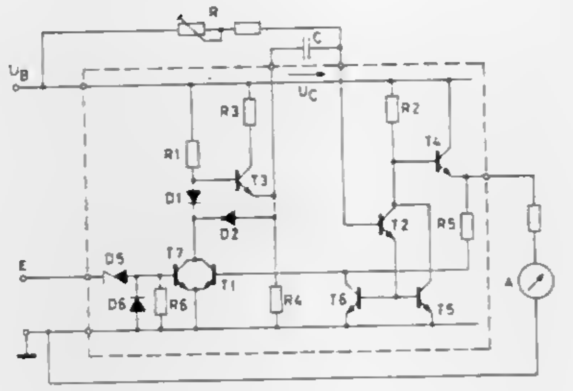


3,706,034
MOVING COIL MEASURING INSTRUMENT
Hans-Georg Sander, Steinbach, Germany, assignor to VDO Tachometer Werke Adolf Schindling GmbH, Frankfurt am Main, Germany
Filed Jan. 22, 1971, Ser. No. 108,726
Claims priority, application Germany, Jan. 23, 1970, G 70 02 264.9; Austria, Feb. 2, 1970, A 944/70; Feb. 9, 1970, A 1,158/70
Int. Cl. G01r *1/00, 1/14*
U.S. Cl. 324—154 R **13 Claims**



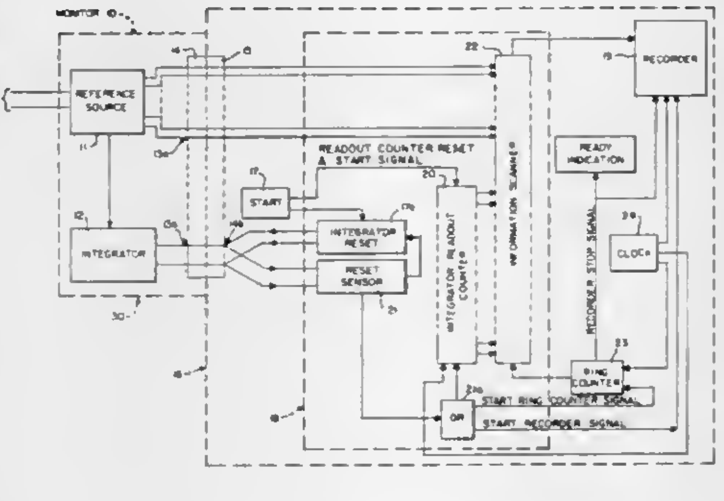
A moving coil measuring instrument, which comprises an axle having a projecting arm. A moving coil is secured to the projecting arm. An annular core is surrounded by the moving coil, and at least one spiral spring and the moving coil are adjustable against the force of the spiral spring. The spiral spring is operatively connected with the ends of the moving coil. An insulating disc is disposed adjacent the spiral spring, and a layer of soft elastic material and dampening axial oscillations of the spiral spring is applied selectively to the disc or to one side of the spiral spring.

3,706,035
INTEGRABLE REVOLUTION MEASURING CIRCUIT WITH SUPPLY VOLTAGE TRANSIENT SUPPRESSION
Wolfgang Hoehn, Freiburg, Germany, assignor to ITT Industries, Inc., New York, N.Y.
Filed May 5, 1971, Ser. No. 140,390
Claims priority, application Germany, May 23, 1970, P 20 25 245.3
Int. Cl. G01r *23/02;* **G01p** *3/48, 3/54*
U.S. Cl. 324—169 **9 Claims**



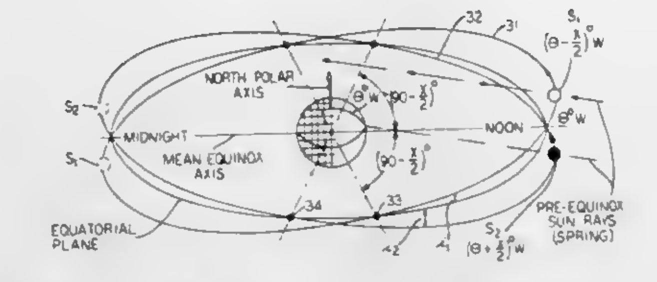
This relates to a monolithic integrable circuit for measuring the rate of revolutions of combustion engines. A monostable multivibrator is triggered by the sharp needle-shaped part of each ignition pulse and generates rectangular pulses of constant duration which are integrated by an indicating measuring instrument.

3,706,036
ELAPSED TIME COMPILING SYSTEM
Edward M. Marwell, Mount Kisco, and Eugene P. Finger, Brewster, N.Y., assignors to Curtis Instruments, Inc., Mount Kisco, N.Y.
Filed Jan. 7, 1970, Ser. No. 1,155
Int. Cl. G04f *9/00*
U.S. Cl. 324—181 **8 Claims**



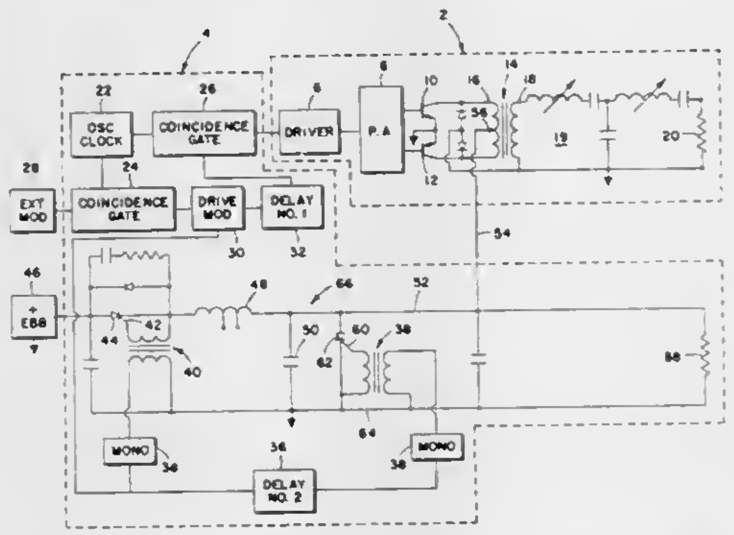
An elapsed time compiling system is described which includes elapsed time monitors, each for measuring the amount of use of an item of equipment, and a compiler for sequentially reading and storing output signals from each such monitor along with an identification signal representing the particular equipment item to which it corresponds. In a preferred embodiment, the reading of each output signal by the compiler resets the monitor to zero, thereby completely preventing error arising from reading the same monitor more than once.

3,706,037
COMMUNICATION SATELLITE SYSTEM
Carl William Lundgren, Jr., Colts Neck, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Feb. 25, 1970, Ser. No. 14,097
Int. Cl. H04b *7/14*
U.S. Cl. 325—4 **10 Claims**



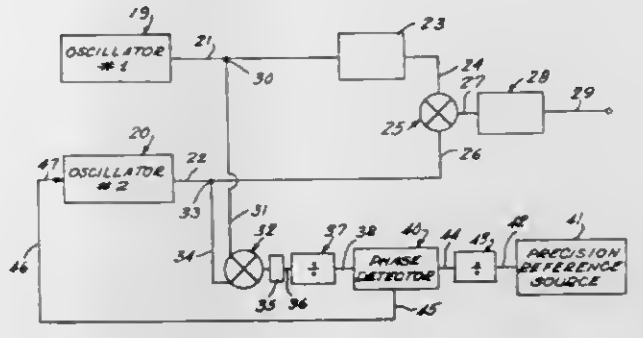
Sun-dependent service interruptions plaguing geostationary communication satellite systems are avoided throughout the year by a system utilizing sun-synchronized space diversity satellites in near-geostationary orbits stabilized with respect to the stars. Two satellites are placed in precisely oriented inclined earth-synchronous circular orbits and a prescribed separation of the mean longitudes of the resultant sidereal figure 8 patterns combined with a precise opposite phasing of the satellites in their respective orbits results in a system in which the two satellites exhibit neither concurrent nor serial outages over the particular geographic zone to be serviced. Earth terminals require only 24-hour sidereal cyclic cam drives for proper antenna pointing and slow diversity switching at infrequent noncritical times.

3,706,038
PULSE TRANSMITTER INCLUDING MEANS FOR CONTROLLING THE AMPLITUDE AND PHASE OF OUTPUT PULSES
Frederick H. Austin; Jimmy D. Rogers, and Joseph J. Wormser, all of Dallas, Tex., assignors to LTV Electrosystems, Inc., Dallas, Tex.
Continuation-in-part of Ser. No. 663,796, Aug. 28, 1967, abandoned. This application May 26, 1970, Ser. No. 41,701
Int. Cl. H04b *1/04*
U.S. Cl. 325—164 **8 Claims**



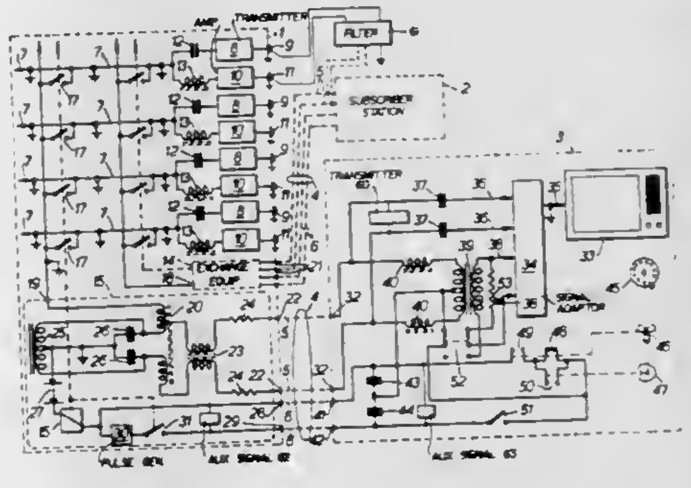
A transmission system for transmitting pulses of radio frequency energy includes a radio frequency amplifier output stage, and a source of pulses connected to the input of the amplifier stage. The output signals of the amplifier stage are modulated by means of a modulator connected to modulate the output current of the amplifier. The modulating signals is synchronized with the input pulses.

3,706,039
FREQUENCY CONTROL CIRCUIT
A. Hans Bott, Quincy, Ill., assignor to Harris Intertype Corporation, Cleveland, Ohio
Filed June 25, 1971, Ser. No. 156,800
Int. Cl. H03b *3/06;* **H04b** *1/04;* **H04n** *5/38*
U.S. Cl. 325—184 **8 Claims**



A frequency control circuit utilizing a pair of oscillators operating at different frequencies as the signal source for a television transmitter. The outputs of the two oscillators are mixed together to provide a difference frequency from which is derived the final output transmitting frequency. Also, the difference frequency is coupled to a phase detector where it is compared with a signal derived from a precision reference source. Deviation between the two inputs to the phase detector result in an error signal which is then coupled to one of the two oscillators to control the frequency thereof so that the two inputs to the phase detector have substantially equal frequencies.

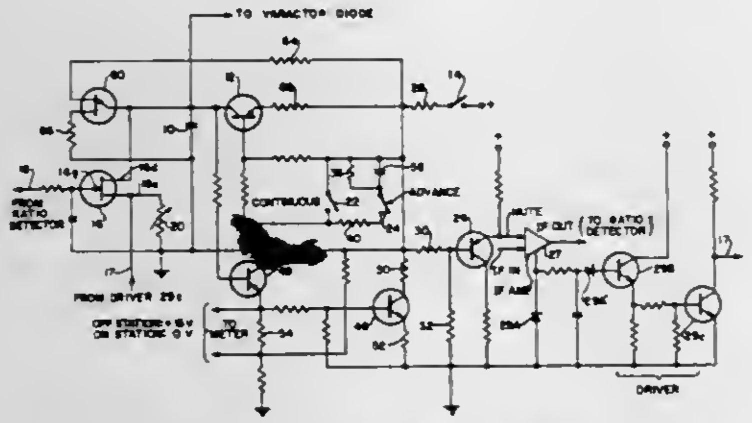
3,706,040
WIRED BROADCASTING SYSTEMS WITH PHANTOM CIRCUIT SUPPLYING CONTROL CURRENT ON PROGRAM SIGNAL WIRES
Eric J. Gargini, West Drayton, England, assignor to Communications Patents Limited
Filed May 21, 1970, Ser. No. 39,497
Claims priority, application Great Britain, May 22, 1969, 26,200/69
Int. Cl. H04c *1/04*
U.S. Cl. 325—308 **33 Claims**



A wired television system provides for two balanced conductor pairs connected between subscribers and a central station with a plurality of signal highway routes. One conductor pair passes the television signals and a control voltage which is interrupted by a dial at the subscriber station to scan a stepping switch at the central station and make a selection or to return to a datum position. Auxiliary signals may be passed along the second pair of conductors. Each program exchange includes impedance matching networks and filters to provide balanced signals and to process low frequency audio and high frequency television signals.

3,706,041
AUTOMATIC TUNING CIRCUIT

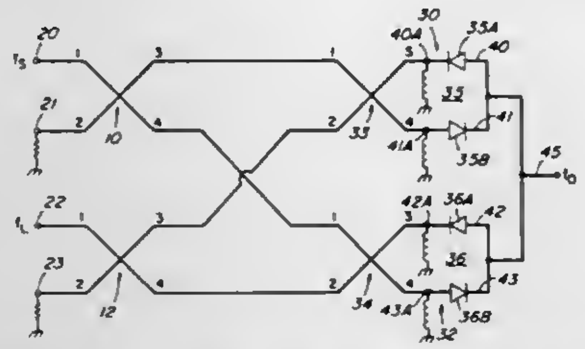
Friedrich Johann Krausser, Jericho, N.Y., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Oct. 20, 1970, Ser. No. 82,400
Int. Cl. H04b *1/32*
U.S. Cl. 325—422 **6 Claims**



An automatic tuning device for use with a radio receiver includes a capacitor for storing a voltage which determines the frequency to which the device is tuned, means for charging the capacitor, and a control element connected across the capacitor for preventing further charging or discharging of the capacitor after the receiver has been properly tuned. When it is desired to tune the receiver to a new station, an advance switch is actuated, causing the enabling voltage from the control device to be removed so that the capacitor can be further charged. When the capacitor has been charged to a voltage corresponding to the high end of the frequency band, a unijunction transistor across the capacitor is fired, causing the capacitor to discharge to a voltage corresponding approximately to the lowest frequency in the band of interest.

3,706,042
BALANCED MIXER

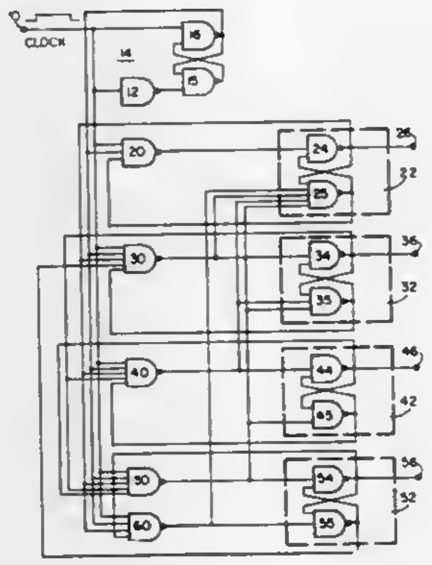
Robert Tenenholtz, Framingham, Mass., assignor to Sage Laboratories, Inc., Natick, Mass.
Filed Dec. 11, 1970, Ser. No. 97,196
Int. Cl. H04b *1/26*
U.S. Cl. 325—446 **7 Claims**



One disclosed embodiment of the invention is a balanced mixer which receives an input signal and a local oscillator signal, and generates an intermediate frequency output signal. The input signal is coupled to one port of a first quadrature hybrid while the local oscillator signal is coupled to one port of a second quadrature hybrid. The outputs of these quadrature hybrids are interconnected to first and second quadrature hybrid mixers each including a pair of oppositely poled diodes. The output of these quadrature hybrid mixers are intercoupled to an output terminal to provide the intermediate frequency output signal.

3,706,043
SYNCHRONOUS PARALLEL COUNTER WITH COMMON STEERING OF CLOCK PULSES TO BINARY STAGES

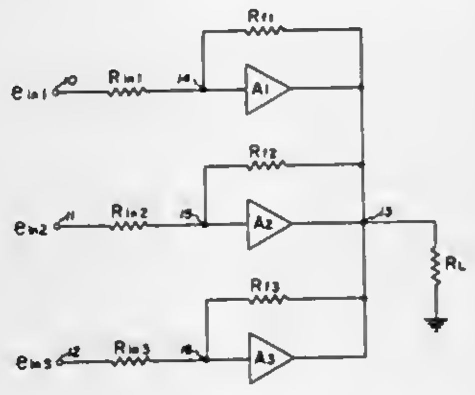
John R. Reinert, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Sept. 30, 1971, Ser. No. 185,179
Int. Cl. H03k *21/16*
U.S. Cl. 328—42 **10 Claims**



Parallel counter constructed as an integrated circuit with a plurality of pairs of NAND gates forming binary stages, and a steering circuit including input NAND gates associated with the binary stages. The steering circuit includes couplings from the outputs of the binary stages to the inputs of the higher order input NAND gate, and also couplings from the outputs of the input NAND gates to reset inputs of the lower order binary stages. The clock pulses may or may not be periodic and may have different pulse durations, and an input circuit coupled to all of the input NAND gates disables the same at a predetermined time after the beginning of each clock pulse. A reset gate is coupled to the reset input of the highest order binary stage to reset the counter at the desired count.

3,706,044
ANALOG MAJORITY VOTING CIRCUIT

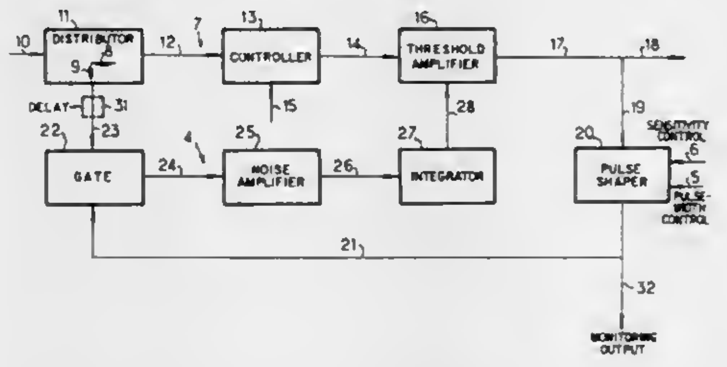
Melvin M. Hintze and John P. Mari, Littleton, Colo., Roy F. McDaniel, Los Gatos, Calif., and Eddie A. Evel, Colorado Springs, Colo., assignors to Martin Marietta Corporation, New York, N.Y.
Filed Sept. 29, 1970, Ser. No. 76,396
Int. Cl. G06f *11/08;* **H03k** *5/08*
U.S. Cl. 328—137 **1 Claim**



This is a circuit for providing to a load the middle valued analog signal of three redundant channels. Each channel is terminated in a high gain amplifier having high impedance constant current characteristics when saturated. The amplifier outputs are connected at a common point, and three negative feedback circuits connect the common point to the amplifier inputs.

3,706,045
METHOD AND A DEVICE FOR ELIMINATING THE NOISE IN A TRANSMISSION CHAIN OF RADIO-ELECTRIC SIGNALS

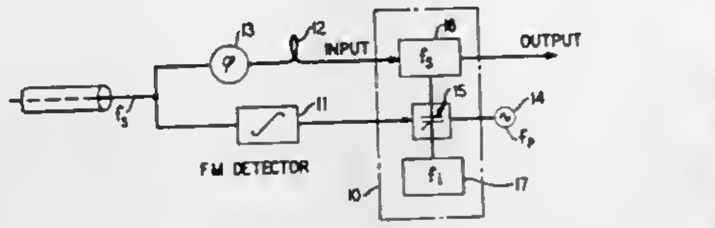
Bernard Salvert, Villejuif, France, assignor to Electronique Marcel Dassault, Paris, France
Filed Apr. 12, 1971, Ser. No. 132,983
Claims priority, application France, Apr. 17, 1970, 7014004
Int. Cl. H03k *5/00*
U.S. Cl. 328—165 **10 Claims**



A method and a device for eliminating the noise in a network traversed by radio-electric signals, such as a receiving channel, are described. The signals received are fed to a threshold amplifier via a first line and to a gate via on a second line, the output of the amplifier being applied to the gate to generate at the output thereof a signal which is representative of the noise only and which is applied to the amplifier as a control factor therefor.

3,706,046
PHASE-LOCKED SIGNAL SOURCE

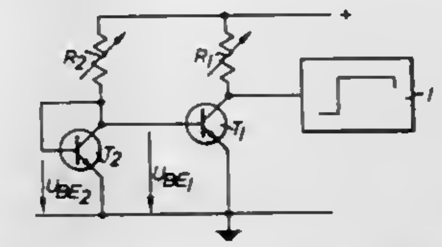
Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 13, 1971, Ser. No. 207,502
Int. Cl. H03f *1/00*
U.S. Cl. 330—4.5 **5 Claims**



Phase-locking of one or more separate power sources is a convenient method of amplifying frequency modulated signals or combining the outputs of a plurality of signal sources. Certain types of devices, however, do not submit to phase-locking. In such cases, the sources are used to pump a parametric device, and the parametric device is phase-locked. In this way, phase coherency is induced among the outputs of one or more signal sources, while the sources themselves are operated in their preferred, free-running state.

3,706,047
AMPLIFIER CIRCUIT

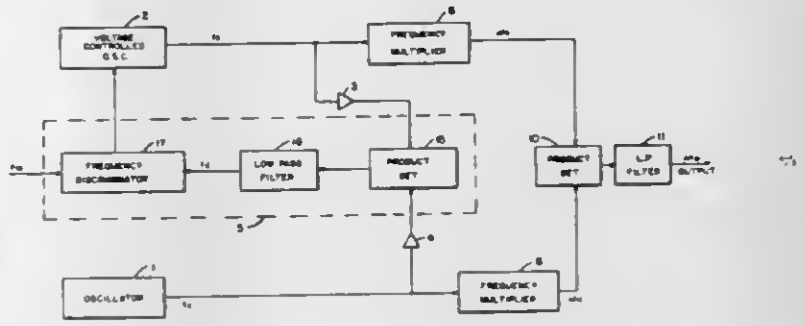
Gerhard Gunzel, Heilbronn, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Jan. 29, 1971, Ser. No. 110,882
Claims priority, application Germany, Jan. 31, 1970, P 20 04 461.5
Int. Cl. H03f *3/04;* **G01b** *7/16*
U.S. Cl. 330—24 **4 Claims**



An amplifier circuit comprises a common-emitter connected transistor into the collector path of which is connected a first resistance also connected to a voltage source and a voltage divider for adjusting the base emitter direct voltage and including a series connection of a second resistance and a diode, the second resistance being connected to the voltage source and the diode being connected in parallel with the base-to-emitter path of the transistor and the first and second resistances being semiconductor strain gauges.

3,706,048
INDIRECT FREQUENCY MULTIPLICATION SYSTEM

Stephen L. Johnston, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
Filed Jan. 19, 1972, Ser. No. 218,966
Int. Cl. H03b *19/00*
U.S. Cl. 331—53 **3 Claims**

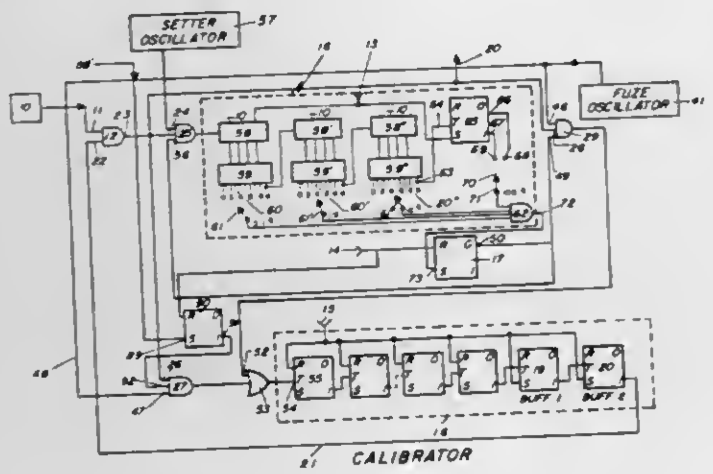


The frequencies of a controlled oscillator and a fixed oscillator are sensed by a product detector, and the difference is sent to a frequency discriminator along with the frequency to be multiplied. The difference between these two frequencies determines the output of the frequency discriminator which is fed to control the controlled oscillator. The outputs of both oscillators are multiplied and their multiplied results are subtracted to produce the desired output.

3,706,049
TIME OSCILLATOR CALIBRATOR CIRCUIT

Lester S. Kelem, Rockaway, and Stephen E. Reade, Hillside, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 4, 1972, Ser. No. 215,376
Int. Cl. H03b *3/00*
U.S. Cl. 331—44 **9 Claims**

A calibration circuit for a fuze time oscillator which includes the application of the pulses from a highly accurate oscillator to a time/base counter whose output is applied to inhibit an AND gate upon the receipt of a selectable number of pulses (time). The pulses emanating from the fuze oscillator are fed through the AND gate to an 11 stage counter and to another 11 stage binary counter of a like number of stages. After the selected fixed period the input to the 11 stage counter is inhibited but the binary counter continues to receive the pulses. Upon filling up of the binary counter the fuze oscillator output is again applied to the 11 stage counter until it fills up and provides an output which inhibits both itself and the binary counter. The binary is now left unfilled to the extent of a specific number of pulse from the fuze oscillator which is equal to the time initially set in the time base counter by the accurate oscillator. Therefore, the binary will count out at the selected time thereafter, thus providing a specific, accurate period and this time factor will be independent of the relative accuracy of the fuze oscillator and its frequency.



3,706,050

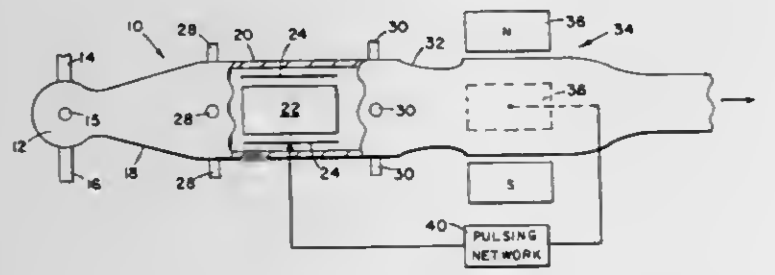
MAGNETOHYDRODYNAMIC GAS DYNAMIC LASER

Charles M. Cason III, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Nov. 2, 1971, Ser. No. 194,961

Int. Cl. H01s *3/09*

U.S. Cl. 331—94.5 **5 Claims**



A pulsed gas laser utilizes continuously expanding gases that pass through the lasing chamber and subsequently generate a direct current, pulsed electric output which is fed back to stimulate laser emission. A conventional gas burner and nozzle assembly couple flowing gases into a standard laser cavity. Gases leaving the laser cavity pass between poles of an MHD magnet, generating output electric power which is transformed into high voltage pulses of output power. An alkali metal component is introduced into the system before the flowing gases reach the MHD magnet for increasing electrical conductivity of the gas therein and thereby enhancing large pulses of electrical energy feedback for stimulating additional laser action.

3,706,051

LIQUID LASER

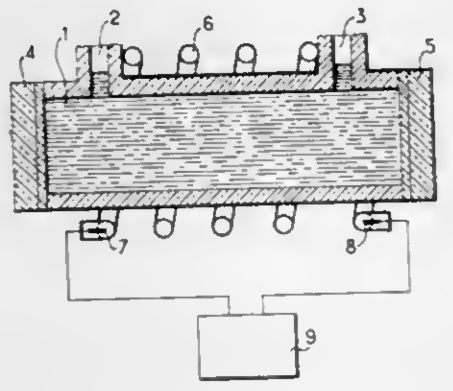
Franck Collier, Longjumeau, Jean-Daniel Dauchy, Paris, Christian Le Sergent, Sainte-Genevieve-des-Bois, and Maurice Michon, Dravell, France, assignors to Compagnie Generale d'Electricite, Paris, France

Filed Sept. 3, 1971, Ser. No. 177,721

Claims priority, application France, Sept. 4, 1970, 32,265

Int. Cl. H01s *3/20*

U.S. Cl. 331—94.5 **6 Claims**



A laser generator having a liquid active medium consisting of a solvent comprising products of the hydrolysis of thionyl chloride and of antimony chloride in which a doping medium is dissolved.

3,706,052

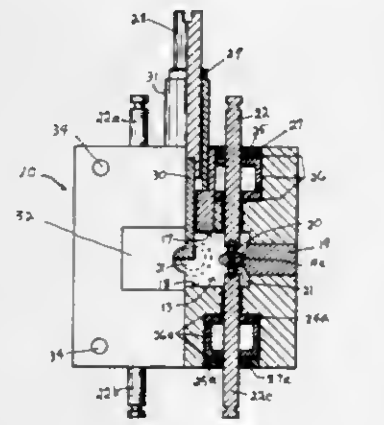
SATURABLE CORE SQUARE WAVE OSCILLATOR WITH SWITCHING TRANSIENT REDUCING MEANS

Robert F. Canup, Richmond, Va., assignor to Texaco Inc., New York, N.Y.

Filed Mar. 1, 1971, Ser. No. 120,033

Int. Cl. H03k *3/30*

U.S. Cl. 331—113 A **6 Claims**



Transistor oscillator of saturable core square wave type, it employs an output transformer and a saturable core transformer plus magnetic feedback means to absorb leakage-inductance effects.

3,706,053

SYNTHESIZED NETWORK FOR SIGNAL TRANSMISSION

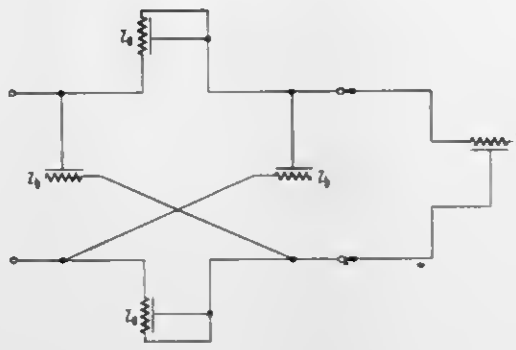
Takuya Iwakami, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed Feb. 18, 1971, Ser. No. 116,360

Claims priority, application Japan, Feb. 21, 1970, 45/14,891

Int. Cl. H04b *3/40*

U.S. Cl. 333—23 **4 Claims**



A synthesized network is formed equivalent to a coaxial cable of any desired length using distributed RC networks of finite length constructed by integrated circuit techniques. A symmetrical network having two input and two output ports includes a first pair of uniformly distributed RC elements in series branches of the symmetrical circuit and a second pair of uniformly distributed RC elements in parallel branches. The first and second pairs of uniformly distributed elements are of substantially identical length with each of the first pair having a pair of terminals short circuited and each of the second pair having a pair of terminals open circuited. A third uniformly distributed RC element is connected to the output terminals of said symmetrical circuit and has a driving point impedance substantially equal to the image impedance of said symmetrical network. The synthesized network is equivalent to a coaxial cable of length L and having a coaxial cable constant K where the total resistance R_T and capacitance C_T of each of said first and second uniformly distributed RC networks satisfy the condition

$$R_T C_T = \left(\frac{KL}{2}\right)^2$$

3,706,054

CHANNEL SHAPING FILTER

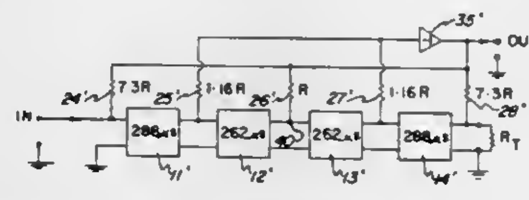
Arthur T. Starr, New Barnet, and David G. Edwards, Tonbridge Wells, England, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 6, 1970, Ser. No. 87,547

Claims priority, application Great Britain, Apr. 21, 1970, 19,040/70

Int. Cl. H04b *3/14*

U.S. Cl. 333—28 R **6 Claims**



A channel shaping filter for location between the modulator and the demodulator of a channel of a data transmission system, the filter being formed by at least one transversal network of the kind comprising at least two time delay network circuits each having an input and an output and connected together in series so as to form a chain having an input, which constitutes the network input, and an output and a number of intermediate junctions each formed where the output of one said circuit is connected to the input of the next succeeding said circuit in the chain, the network also including a separate corresponding pick-off resistance associated with and connected to each of the said chain input, the said chain output and the said intermediate junctions so as to provide in response to an input signal appearing at the network input, a number of pick-off signals equal in number to the number of the resistances, and the network also including means for combining the pick-off signals in predetermined relationship to produce a network output signal, the time delay circuits and the pick-off resistances and the said combining means of the network being selected to provide a preselected relationship between the output and the input signals of the network.

3,706,055

ELECTROMECHANICAL DELAY WITH CONTINUOUSLY ADJUSTABLE DELAY

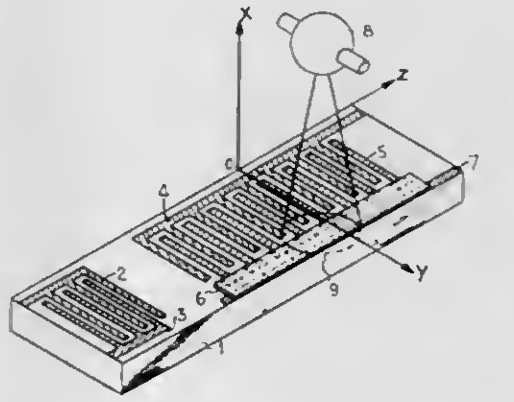
Eugene Jean Dieulesaint and Pierre Hartman, Paris, France, assignors to Thomson-CSF

Filed Aug. 6, 1971, Ser. No. 169,764

Claims priority, application France, Aug. 27, 1970, 7031300

Int. Cl. H03h *7/36, 9/30*

U.S. Cl. 333—30 R **8 Claims**



The present invention relates to continuously adjustable delay lines based upon propagation of a surface vibrational wave in a piezoelectric wave guide which is provided at its extremities with interdigitated comb-shaped electrodes.

The delay line in accordance with the invention comprises at least one comb structure the teeth of which are linked to a common connection by a semiconductor layer which is rendered locally conductive by means of a displaceable light spot.

This type of line can be utilised in a frequency range extending from one megacycle to several hundreds of megacycles, in order to produce delays adjustable from a fraction of a microsecond to several tens of microseconds.

3,706,056

PARALLEL-POLE CIRCUIT BREAKER

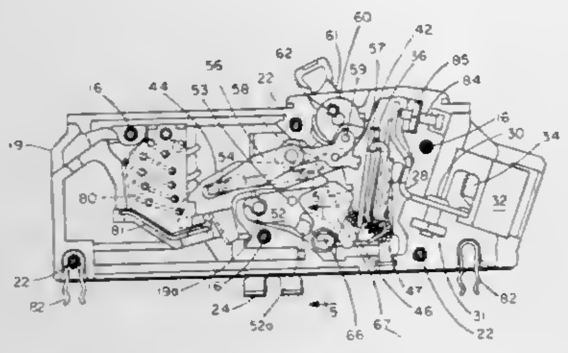
Ferdinand E. Chabot, Cedar Rapids, Iowa, assignor to Square D Company, Park Ridge, Ill.

Filed Aug. 9, 1971, Ser. No. 170,106

Int. Cl. H01h *73/48*

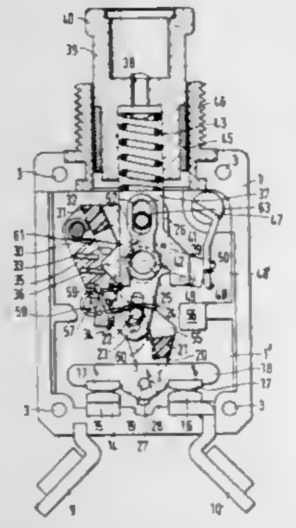
U.S. Cl. 335—10 **2 Claims**

A four-pole circuit breaker having two line terminals and two load terminals, each terminal serving two poles electrically connected in parallel. The movable contact arms of each pair of parallel poles are connected to a single thermal and magnetic tripping device in one pole space, the other pole space having no tripping device but being provided with a latch which also serves as a trip indicator for the circuit breaker when the pole space is provided with a window.



3,706,057
SINGLE OR MULTIPOLE PUSH BUTTON ACTUATED EXCESS CURRENT SWITCH HAVING THERMAL AND/OR ELECTROMAGNETIC TRIP

Jakob Ellenberger, Altdorf, Germany, assignor to Ellenberger & Poensgen G.m.b.H., Altdorf, near Nurenberg, Germany
Filed Dec. 29, 1971, Ser. No. 213,382
Claims priority, application Germany, May 13, 1971, P 21 23 765.0
Int. Cl. H01b *73/48*
U.S. Cl. 335—23 **9 Claims**

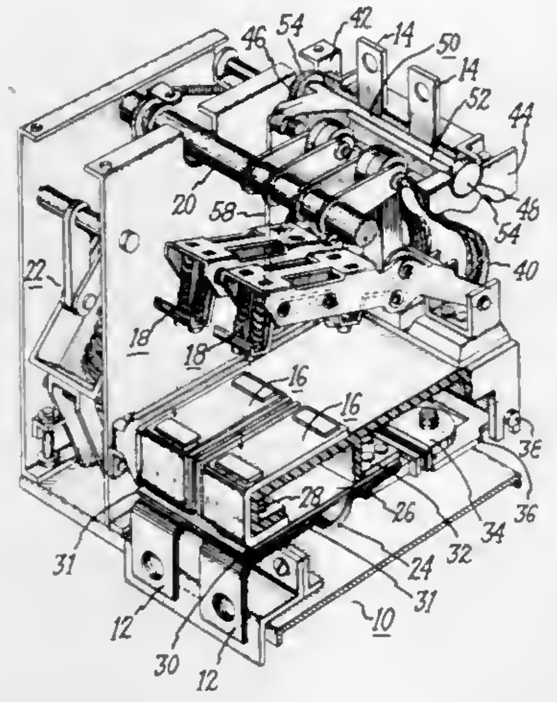


A single or multipole push button actuated excess current switch having a thermal and/or electromagnetic trip. In this switch the push button is connected to a contact bridge by means of a lever arrangement. The lever connected to the contact bridge is pivoted about a pin which is moveable in a groove. This groove is provided with a detent which is engaged by the pin during switching on. The lever connected to the contact bridge is provided with a protuberance which co-operates with a stop on the housing of the switch to raise the pin to disengage from the detent to thereby cause instantaneous switching on of the switch.

3,706,058
MAGNETIC TRIPPING MECHANISM FOR THERMAL CIRCUIT BREAKER

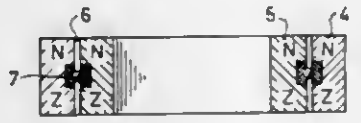
Philip J. Hopkinson, Pittsfield, Mass., assignor to General Electric Company
Filed Sept. 22, 1970, Ser. No. 74,407
Int. Cl. H01b *9/00*
U.S. Cl. 335—174 **8 Claims**

A circuit breaker having a thermal bimetal operating member with an independent magnetic trip actuating mechanism. The bimetal trip member is in circuit with the current flow through the circuit breaker and on heating pivots in a direction to trip the circuit breaker. A plastic armature is pivotally mounted adjacent the breaker leads on one side of the breaker and is provided with magnetic inserts. A push rod is provided connected between the plastic armature and the breaker latch mechanism. On severe fault currents the current flow through the breaker leads attracts the magnetic inserts pivoting the plastic armature in a direction to trip the circuit breaker.



3,706,059
ANNULAR MAGNET

Frederik H. Theyse, Voorschoten, Netherlands, assignor to Reactor Centrum Nederland, The Hague, Netherlands
Filed Apr. 12, 1971, Ser. No. 133,122
Claims priority, application Netherlands, Apr. 20, 1970, 7005648
Int. Cl. H01f *7/02*
U.S. Cl. 335—302 **5 Claims**

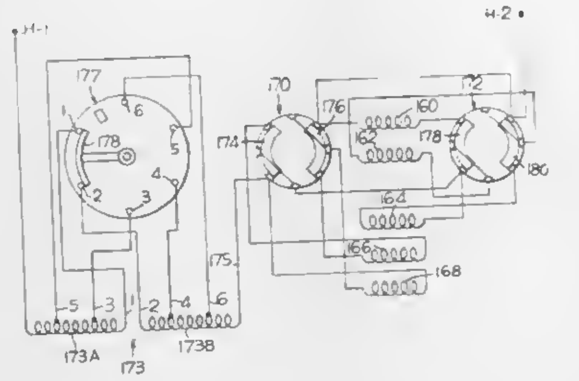


Annular magnet composed of a plurality of cylindrical permanent magnets, with similar poles pointing in the same direction, at least one of these magnets being rotatable around its cylinder axis.

3,706,060
SERIES-MULTIPLE TRANSFORMER

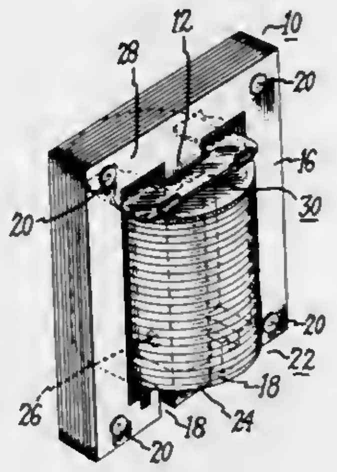
Ernest A. Goodman, Pittsburgh, Pa., assignor to Allis-Chalmers Manufacturing Company
Filed May 14, 1971, Ser. No. 143,317
Int. Cl. H01f *21/12*
U.S. Cl. 336—147 **11 Claims**

An electrical transformer having a plurality of untapped primary winding sections connectable in either series or in parallel for alternatively either a higher primary voltage rating or a lower primary voltage rating, a tapped primary winding section connected in series with the plurality of untapped winding sections in both the series and in the parallel connection thereof and permitting adjustment by a tap changer switch of the effective number of primary turns, whereby to adjust alternatively either the higher primary voltage rating or the lower primary voltage rating of the transformer.



3,706,061
INDUCTION WATT-HOUR METER POTENTIAL COIL MOUNTING

Alexander Loika, Jr., Somersworth, N.H., assignor to General Electric Company
Filed June 11, 1971, Ser. No. 152,173
Int. Cl. H01f *27/30*
U.S. Cl. 336—197 **4 Claims**

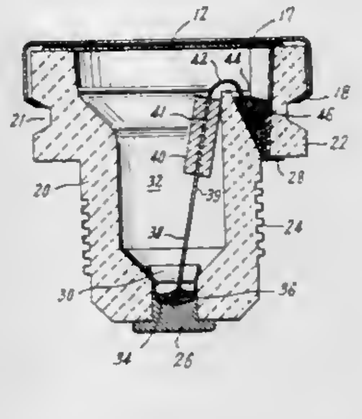


The potential coil of an induction watt-hour meter is encapsulated in an electrically insulating resinous material and mounted on the core leg of the potential electromagnet of the meter. The lower end of the encapsulated coil which is closest to the voltage pole face is generally fixed to the core leg of the electromagnet preferably by a plastic adhesive material. The upper end of the coil is movably held by a spring member or crushable plastic bosses between the top of the encapsulated coil and the yoke portion of the potential electromagnet.

3,706,062
REMAKE PROOF TIME DELAY FUSE

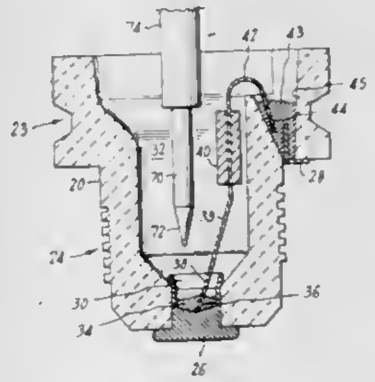
Edwin B. Judd, East Greenwich, R.I., assignor to General Electric Company
Filed Apr. 30, 1971, Ser. No. 138,989
Int. Cl. H01h *85/10, 85/20, 85/62*
U.S. Cl. 337—159 **1 Claim**

Plug fuses of "type S" or Edison base varieties in which the fuse link is so formed and disposed in the fuse body that once the fuse has blown it is not possible for the remaining fuse link parts to move within the fuse body so as to cause a reconnection of these remaining parts such as will allow electrical current to again flow through the fuse.



3,706,063
TYPE (S) FUSE AUTOMATION

Colin Gillett, East Greenwich, R.I., assignor to General Electric Company
Filed Apr. 30, 1971, Ser. No. 138,987
Int. Cl. H01h *85/10, 85/20, 85/62*
U.S. Cl. 337—262 **1 Claim**

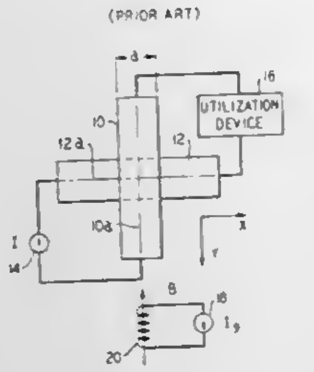


The present invention relates to plug fuses referred to in the wiring device field as of a "type S" or Edison base varieties and to improvements in the manufacture of these fuses. More specifically it relates to such fuses in which manufacturing may be accomplished with automatic equipment and for which the structure of the fuses includes an alignment of the fuse link mostly parallel to the axial direction in the fuse and which permits a reliable parallel entry of a tool or other article into the full depth of the plug fuse.

3,706,064
MAGNETICALLY CONTROLLED SUPERCURRENT SWITCH

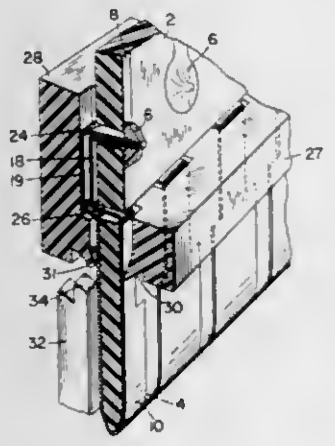
Robert Carr Dynes and Theodore Alan Fulton, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 7, 1971, Ser. No. 141,142
Int. Cl. H01c *7/16*
U.S. Cl. 338—32 S **12 Claims**

In a conventional magnetically controlled supercurrent device the relationship between the critical supercurrent and the applied magnetic field resembles the absolute value of a Fraunhofer diffraction pattern having an absolute maximum at zero magnetic field and decreasing secondary maxima at periodic intervals of non-zero magnetic field. In order to reduce the magnitude of the secondary maxima, the direction of the applied magnetic field and the geometry of the weak-link interfacial region are mutually adapted so that the critical supercurrent density distribution normal to the direction of the field has a central maximum and gradually decreasing values on either side thereof.



3,706,065
ELECTRIC CONTACT ARRANGEMENT

Heinz Knitter, Heilbronn, and Paul Sorg, Fuerfeld, Germany, assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed June 18, 1971, Ser. No. 154,394
Claims priority, application Germany, July 24, 1970, P 20 36 829.0
Int. Cl. H05k *1/02*
U.S. Cl. 339—17 LC **12 Claims**

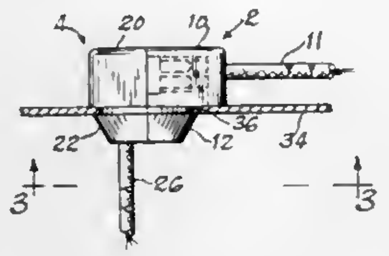


This invention relates to a plurality of electrical contacts coupled to a non-conductive carrier board. The electrical contacts have a contact surface exposed on at least one surface of the carrier board and have another surface for connecting the electrical contacts to conducting paths on the carrier board. A protective barrier strip is attached to the carrier board at a location between the contact surfaces and the connecting surfaces. The protecting barrier strip protects the contact surfaces from exposure to damage by solder and flux or other materials used when the connecting surfaces are joined to the conducting paths.

3,706,066
ELECTRICAL CONNECTOR

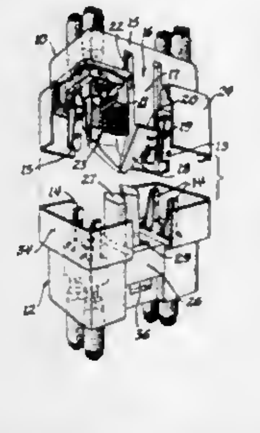
Larry L. Shroyer, Kendallville, Ind., assignor to Lyall Electric, Inc., Albion, Ind.
Filed Apr. 19, 1971, Ser. No. 135,128
Int. Cl. H01r *13/54, 13/66, 21/16*
U.S. Cl. 339—59 R **21 Claims**

An electrical connector to be mounted in an opening in a wall by means of mechanical retaining portions formed on the connector elements is disclosed. The connector consists of male and female elements, each of which has a retaining portion or portions formed thereon, so that when they are mated the retaining portions of each element will engage around the sides of a wall opening. The male and female elements will be maintained in electrical contact with each other and then the assembled connector will be held in the wall opening. In one embodiment the retaining elements constitute groove segments which, when the elements are mated, form a grommet which engages the wall opening completely around its sides.



3,706,067
ELECTRICAL CONNECTOR ASSEMBLY

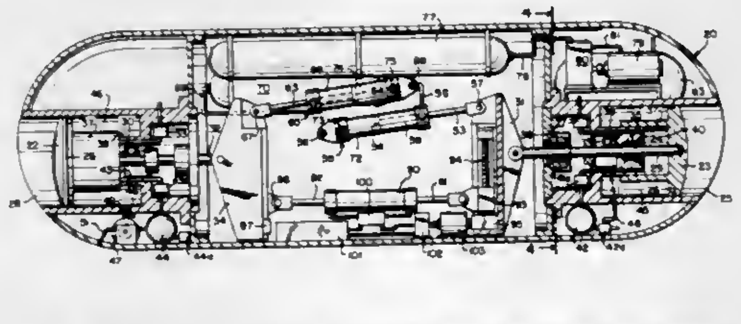
Richard J. Hanson, Warren, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Dec 11, 1970, Ser. No. 97,129
Int. Cl. H01r *13/54, 13/62, 13/64*
U.S. Cl. 339—45 M **3 Claims**



An electrical connector assembly is disclosed as comprising two connector members having alignable electrical terminals, integral alignment members for aligning the electrical terminals prior to their engagement, integral latching members for locking the connector members in engagement, and a spring to separate the connector members unless they are locked in engagement.

3,706,068
FISH LOCATOR WITH AUDIO MONITOR

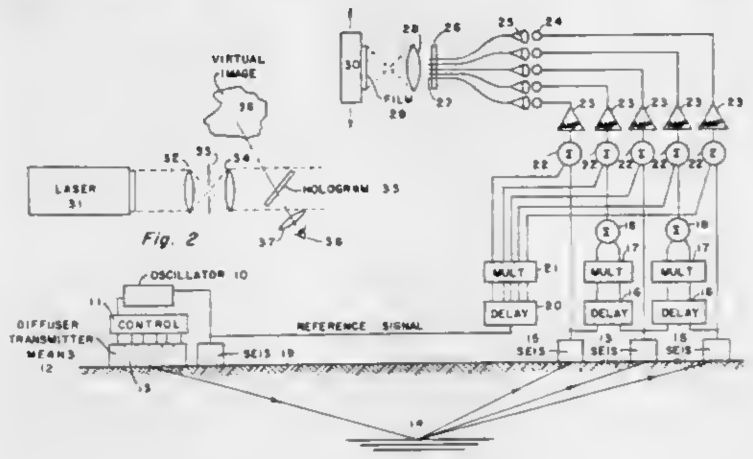
Thurman O. Bradshaw Tulsa, Okla. (129 W. Spruce, Liberal, Kans. 67901), and William W. Rogers, 1317 S. 99th East Ave., Tulsa, Okla. 74128
Filed Jan. 15, 1971, Ser. No. 106,710
Int. Cl. G01s *9/70*
U.S. Cl. 340—3 R **6 Claims**



A new and improved fish locator with an audio monitor for indicating a change depth at which marine objects are located or moving, including visual means, with audio means to instantly and accurately indicate the change in depth by an audio tone change of all moving marine objects between the fish locator and the lowest depth of the water and by a "beep" indicating the surface of the water and a second beep of lower tone indicating the bottom of the water—the second beep delayed from the surface tone relative to the depth of the water by a time delay.

3,706,069
METHOD OF GEOPHYSICAL PROSPECTING BY MEASURING THE ATTENUATION OF SEISMIC WAVES IN THE EARTH

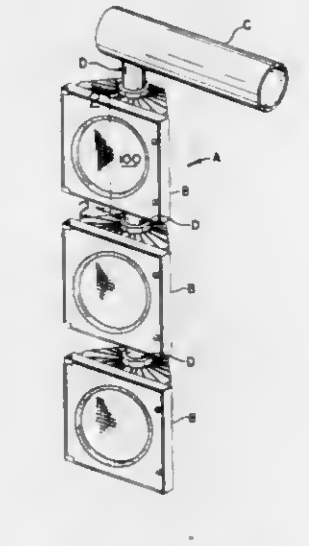
Carl H. Savit, Houston, Tex., assignor to Western Geophysical Company of America, Houston, Tex.
Filed June 18, 1970, Ser. No. 47,415
Int. Cl. G01v *1/30*
U.S. Cl. 340—15.5 CP **5 Claims**



This invention contemplates a method of seismographic exploration by recording reflection seismic signals and obtaining a measure of the signal attenuation between two reflecting interfaces of the geologic strata.

3,706,070
VEHICULAR TRAFFIC CONTROL SIGNAL AND GASKET

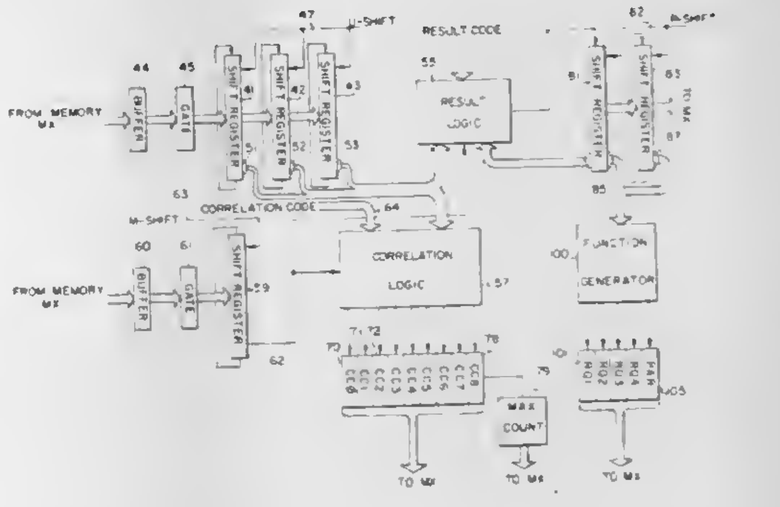
Willis M. Elkenberry, Bettendorf, Iowa, assignor to Gulf + Western Industries, Inc., New York, N.Y.
Filed Nov. 9, 1970, Ser. No. 88,054
Int. Cl. G08b *5/36*
U.S. Cl. 340—119 R **8 Claims**



A light assembly particularly adapted for use as a traffic control signal having a molded plastic assembly housing with at least one open end area. A molded plastic end cover door is pivotally mounted to one side of the open end area in order that it might be arcuately swung into and out of a covering relationship with the open end. The cover door includes therein a generally circular light component receiving area therein. A resilient gasket member which includes a plurality of circumferentially extending component receiving grooves is received on the receiving area to extend therearound. A light diffusing lens and a light reflector associated with a light source are resiliently received in clamping engagement by one of the receiving grooves such that they are disposed in a desired relationship with the cover door.

3,706,071
BINARY IMAGE PROCESSOR

Stephen B. Gray, Pacific Palisades, Calif., assignor to Information International, Inc., Los Angeles, Calif.
Filed June 22, 1970, Ser. No. 48,124
Int. Cl. G06k *9/12*
U.S. Cl. 340—146.3 Q **7 Claims**

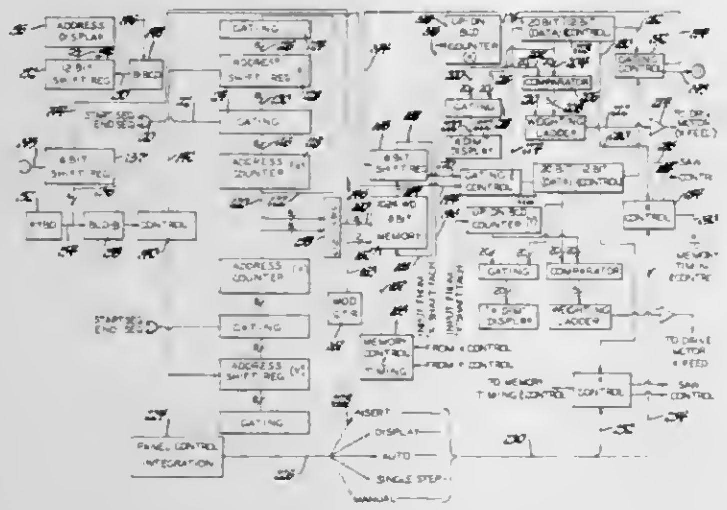


In the image processor disclosed herein, unknown images are correlated with known images, both images being represented by arrays of binary data adapted to be arranged along first and second axes so as to form a matrix corresponding to the respective image. The processor operates in conjunction with a general purpose digital computer and random access memory which provide the processor with the image data arrays and certain operating parameters. According to one aspect of the invention, the unknown image is scanned in blocks comprising a plurality of bits and respective correlation function are generated so that the effect of shifting of the unknown image or correlation values may be readily determined. In another aspect of the invention, the unknown image is modified or treated to develop a result image and various characteristics of the result image are measured and counted. This latter process may, under program control, provide a result image which is an improved, i.e. more easily recognized, version of the original unknown image. Alternatively, this process may be utilized to provide information useful in analyzing and characterizing an unknown image.

3,706,072
DIGITAL COMMAND CONTROL SEQUENCER AND MACHINE CONTROLLED THEREBY

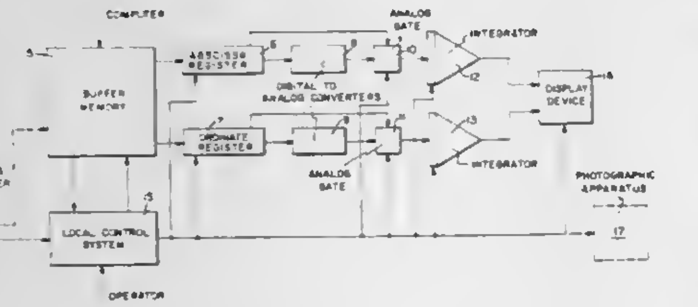
Henry R. Greenley, Bloomfield Hills, and William E. Craig, Wyoming, Mich.; said Greenley assignor to C. O. Porter Machinery Company, said Craig assignor to Computer Specialties Corporation, both of Grand Rapids, Mich.
Filed Jan. 21, 1970, Ser. No. 4,629
Int. Cl. H04g *1/00*
U.S. Cl. 340—147 P **8 Claims**

A panel saw for cutting panels into smaller pieces has a first carriage for moving the panels in steps in one direction to be sawed in a direction at right angles thereto and a second carriage for moving the sawed pieces in steps in the second direction to be sawed in the first direction into still smaller pieces and is controlled by a digital command sequencer including memory and logic units through which a desired sequence of feed movements and sawing actions may be commanded automatically in accordance with a program introduced manually or from an external source directly into the memory of the sequencer. Selector means enable the sequencer to be operated in several modes for either inserting data to produce a particular program, or for utilizing an inserted program to carry out a particular sequence of cuts on panels introduced into the machine. A manual keyboard and digital display panels allow the operator to generate dimensional data and to insert it into the controller's memory directly for subsequent utilization to command a sequence of sawing and feeding operations in accordance with the particular program selected.



3,706,073
GRAPHIC DISPLAY APPARATUS FOR DIRECT ANALYSIS OF ELECTRIC POWER SYSTEMS

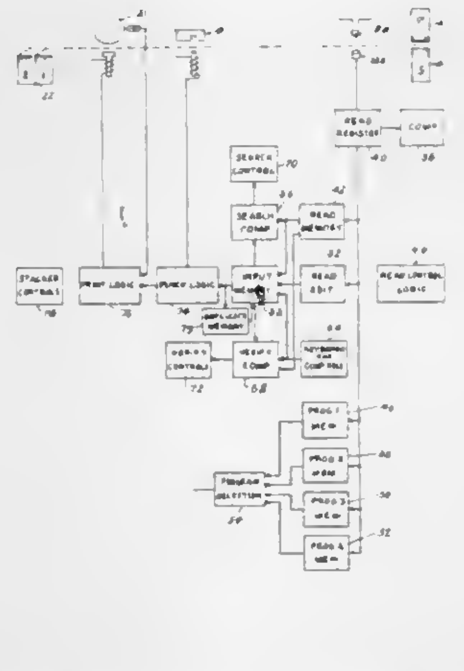
Paul G. Dimo and Dimitrie P. Dimo, Bucharest, Rumania, assignors to Ministerul Energiei Electrice, Bucharest, Rumania
Continuation-in-part of application Ser. No. 590,780, Oct. 31, 1966. This application Mar. 27, 1970, Ser. No. 23,284
Claims priority, application Rumania, Nov. 12, 1965, 50,537
Int. Cl. G06f *3/14*
U.S. Cl. 340—172.5 5 Claims



The operation of an electrical power system is visually analysed by means of "nodal images" displayed on the screen of a cathode ray tube. Nodal images are a graphical representation of the vectorial sum of short-circuit current vectors, in the central node of a standard, equivalent network, named REI. The components of the REI network and of the corresponding "nodal images," are computed in a digital computer. The necessary computed values are transferred from computer's memory to the proposed apparatus, which is a specialized peripheral equipment to the above-mentioned computer and consists of buffer memory, registers, counters, comparators, digital to analog converters, integrators, gates, displaying device and means for establishing a man-computer dialog. This apparatus takes in charge the conversion of the computed values from digital to analog form and the display of the nodal image, as well as the accounting of operator's requests.

3,706,074
DATA RECORDER

Frank H. McPherson, Rosemont, Irvin S. Lownes, Jr., Norristown, and Thomas L. Richardson, Horsham, Pa., assignors to Decision Data Corporation, Warminster, Pa.
Filed Oct. 16, 1970, Ser. No. 81,250
Int. Cl. G06f *7/06, 7/10*
U.S. Cl. 340—172.5 9 Claims

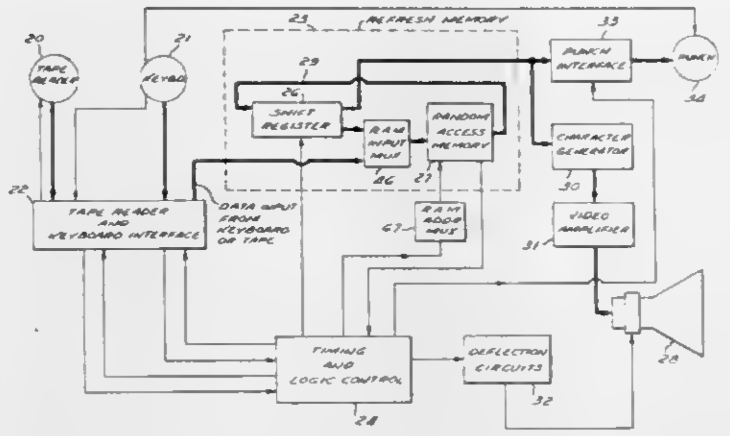


A data recorder characterized by plurality of input hoppers and output stackers, which together with other design features represent the first key entry card preparation machine fully automated so as to obviate the need for card handling in the performance of the normal operations of a data recorder including card punching and verification.

3,706,075
APPARATUS FOR EDITING AND CORRECTING DISPLAYED TEXT

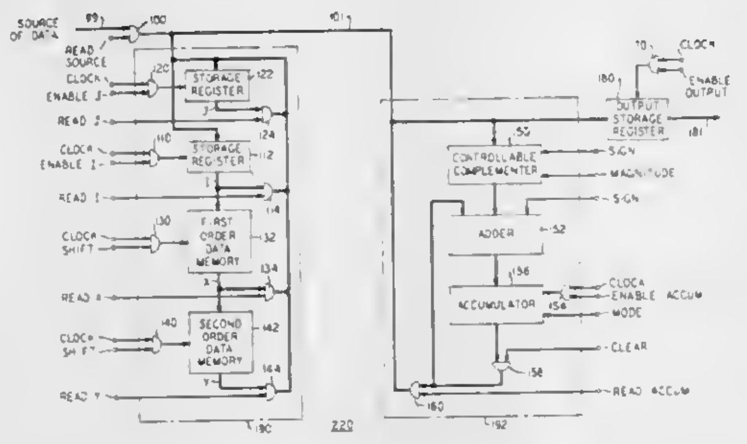
Walter G. Fredrickson, Indialantic, Albert W. Heitmann, Melbourne, George M. Jones, Indian Harbour Beach, and Howard A. Thrailkill, Indialantic, Fla., assignors to Harris-Intertype Corporation, Cleveland, Ohio
Filed May 14, 1970, Ser. No. 37,177
Int. Cl. G06f *3/14*
U.S. Cl. 340—172.5 22 Claims

A console for keyboard editing and correcting of text, such as newspaper copy, displayed on the screen of a cathode ray tube. The encoded text copy is recirculated in a refresh memory having a large capacity dynamic shift register and a small capacity random access memory where various editing and correcting changes may be made. The text displayed on the cathode ray screen may be "rolled up" or "rolled down" one line at a time as the editing proceeds. Any selected block of the text may be transmitted from the output of the recirculating memory to an output device, such as a punch, and deleted from the refresh memory at the same time.



3,706,076
PROGRAMMABLE DIGITAL FILTER APPARATUS

Paul Alfred Schuster, Parsippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 21, 1970, Ser. No. 99,747
Int. Cl. H04b *3/04*
U.S. Cl. 340—172.5 15 Claims

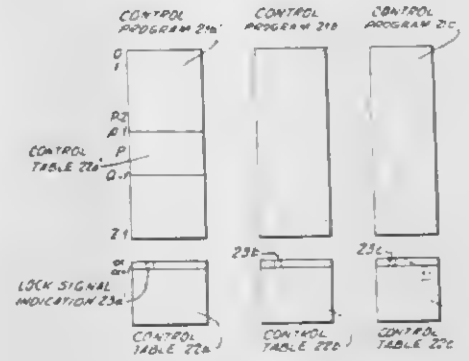


A digital filter with data memories arranged in the configuration of a filter of relatively low order (e.g., second order) and with a single time-shared arithmetic unit under the control of instruction and coefficient memories. The data, instruction, and coefficient memories of the filter are arranged to permit the realization of filter transfer functions of arbitrary order on data from an arbitrary number of sources. The filter is readily programmable with respect to the order of the filter functions to be realized, the number of sources of data to be processed, and the filter coefficients to be used.

3,706,077
MULTIPROCESSOR TYPE INFORMATION PROCESSING SYSTEM WITH CONTROL TABLE USAGE INDICATOR

Takashi Mori, Kawasaki, and Tatsuya Yoshikawa, Tokyo, Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed Jan. 6, 1971, Ser. No. 104,206
Claims priority, application Japan, Jan. 12, 1970, 45/3,356
Int. Cl. G06f *15/16*
U.S. Cl. 340—172.5 4 Claims

An indicator indicates whether a control table utilized in the execution of a control program is being occupied by a processor, each of a plurality of processors being subject to control programs. Each of the processors includes a control for initially checking the indication of the indicator when a processor is to utilize a control table and permits the utilization of the control table when the checking indicates that the control table is not occupied by another processor.



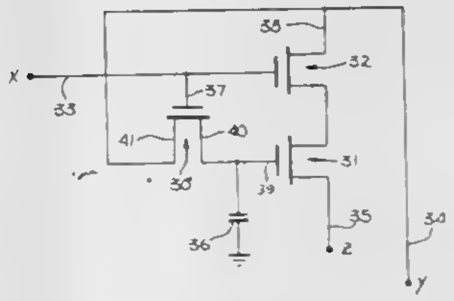
3,706,078
MEMORY STORAGE MATRIX WITH LINE INPUT AND COMPLEMENTARY DELAY AT OUTPUT

Wolfgang Hilberg, Thalfingen, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Sept. 8, 1971, Ser. No. 178,659
Claims priority, application Germany, Sept. 11, 1970, P 20 44 947.2; July 16, 1971, P 21 35 636.5
Int. Cl. G11c *7/00*
U.S. Cl. 340—173 R 9 Claims

A matrix memory having the input ends of its column and row conductors and the output ends of its readout conductors provided with delay elements producing respectively different amounts of delay so that the matrix provides a constant delay time between the application of readout signals and the delivery of the resulting information to an amplifier connected to the outputs of the readout conductor delay elements.

3,706,079
THREE-LINE CELL FOR RANDOM-ACCESS INTEGRATED CIRCUIT MEMORY

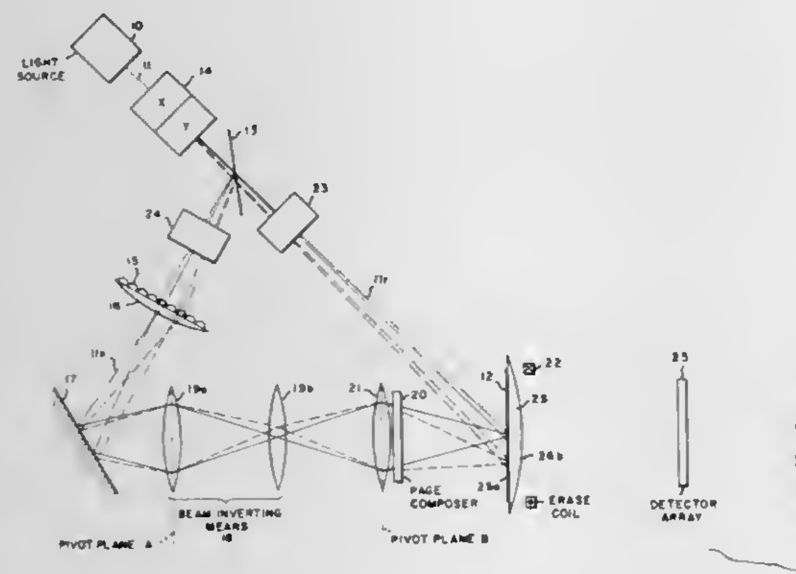
Leslie L. Vadasz, Sunnyvale, and Joel A. Karp, Cupertino, Calif., assignors to Intel Corporation, Mountain View, Calif.
Filed Sept. 16, 1971, Ser. No. 180,987
Int. Cl. G11c *11/24*
U.S. Cl. 340—173 CA 7 Claims



A three-line dynamic storage cell readily adaptable for use in a random-access integrated circuit memory which utilizes metal-oxide-semiconductor (MOS) devices or metal-insulated-semiconductor (MIS) devices is disclosed. The cell, which includes three field effect devices, utilizes the parasitic capacitance (associated with a lead coupling one field effect device with another device and the substrate supporting the cell) for storing an electrical charge. Three control lines are used with the cell for reading and writing information into and from the cell.

3,706,080
HOLOGRAPHIC OPTICAL MEMORY HAVING PIVOT LENS APPARATUS

Tzuo-Chang Lee, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed June 1, 1971, Ser. No. 148,505
Int. Cl. G11c *11/14, 11/42*
U.S. Cl. 340—174 YC **16 Claims**



A holographic optical memory system includes pivoting lens apparatus positioned proximate the memory medium. This arrangement allows the holograms to be read out using the same beam as that which acted as the reference beam during the storage of the holograms. The pivoting lens apparatus pivots the portion of the read out beam which is diffracted by each hologram into a common reconstructed image plane. A photodetector array is positioned at the reconstructed image plane.

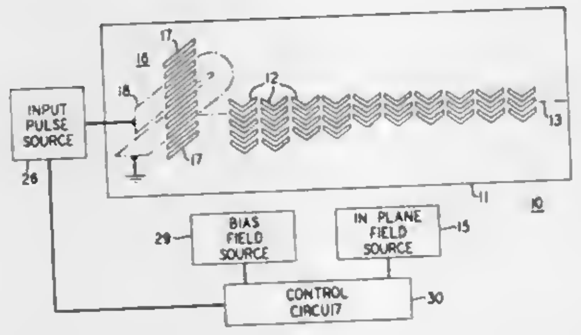
3,706,081
FAIL-SAFE DOMAIN GENERATOR FOR SINGLE WALL DOMAIN ARRANGEMENTS

Andrew Henry Bobeck, Chatham, Roman Kowalchuk, Somerville, and John Peter Reekstin, Jr., Morristown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 22, 1971, Ser. No. 210,906
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **8 Claims**

A generator for single wall domain arrangements of the field access type is provided by locally reducing the separation between the plane in which the pattern of magnetically soft channel-defining elements lies and the domain layer. A domain is generated at that portion of the pattern, where the separation is reduced, for each rotation of the familiar rotating field which moves domains along the channel.

3,706,082
SINGLE WALL DOMAIN GENERATOR

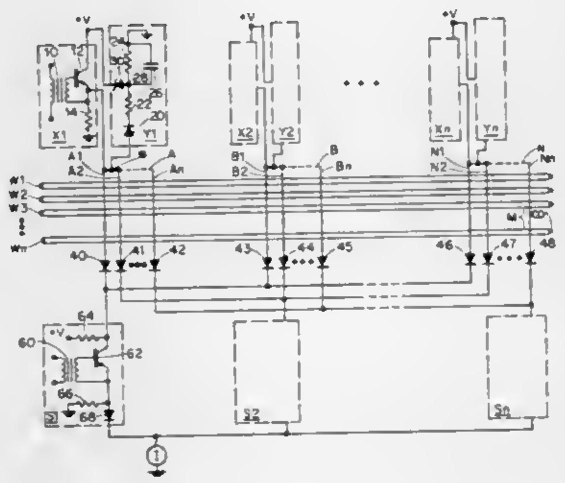
Andrew Henry Bobeck, Chatham, and Irynej Danylchuk, Morris Plains, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Feb. 22, 1972, Ser. No. 227,966
Int. Cl. G11c *11/14, 19/00*
U.S. Cl. 340—174 TF **8 Claims**



Magnetic domains are generated during high speed operation of a single wall domain arrangement by a domain shuttling generator operative to selectively separate a portion of a seed domain for transfer to a propagation channel.

3,706,083
DAMPING TECHNIQUE FOR A MEMORY DRIVE SCHEME

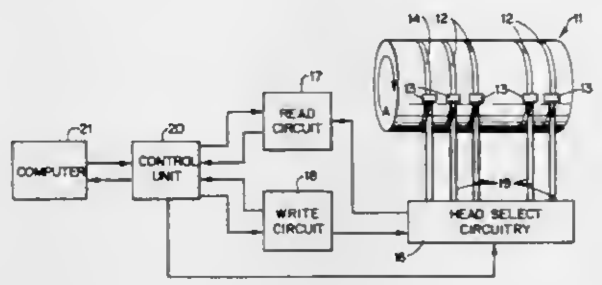
Alan C. Wu, Watertown, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Apr. 20, 1970, Ser. No. 29,974
Int. Cl. G11b *5/00*
U.S. Cl. 340—174 TB **8 Claims**



A memory drive circuit has a switch for applying voltage from a voltage source to a number of conductive lines and another switch for selecting one of these conductive lines. A resistive element and a diode are serially connected between the conductive lines and a junction having a reference voltage which biases the diode for conduction.

3,706,084
MASS MEMORY SYSTEM

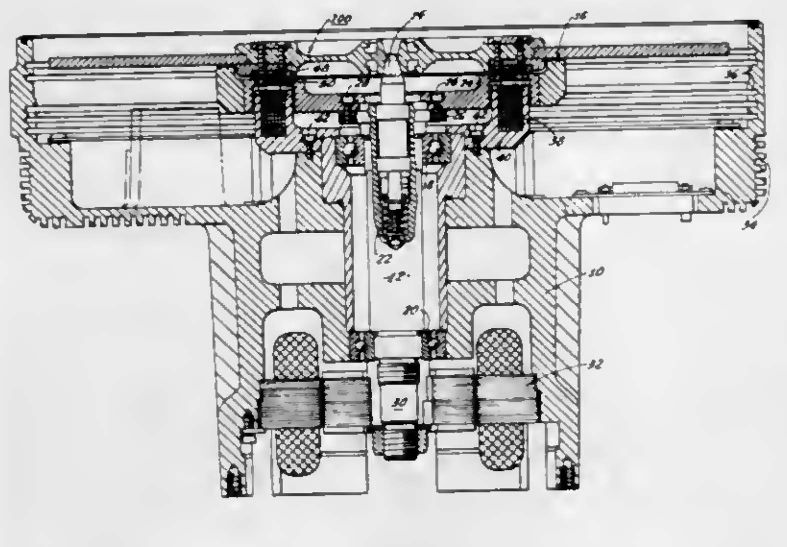
William M. Regitz, Franklin, and Thomas M. Dundon, Southboro, Mass., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Oct. 27, 1969, Ser. No. 869,618
Int. Cl. G11b *5/00*
U.S. Cl. 340—174.1 **9 Claims**



In the recording of binary information by a phase modulation technique, a single guard bit is used between independently written data blocks. This guard bit is chosen to be the complement of the first data bit in the data block.

3,706,085
MAGNETIC HOLDDOWN FOR MAGNETIC DISC SYSTEM

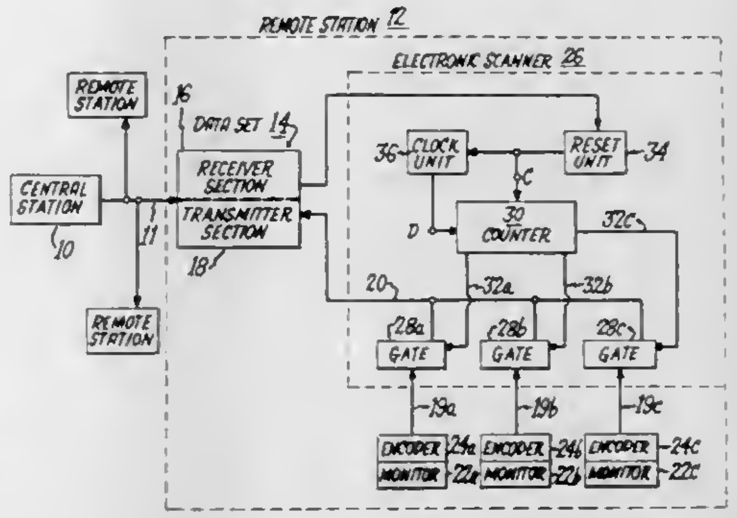
Albert V. Mowrey, Canoga Park, John H. Holskes, Los Angeles, and Abraham Brand, Encino, Calif., assignors to General Instrument Corporation
Filed June 9, 1971, Ser. No. 151,270
Int. Cl. G11b *5/82, 17/00*
U.S. Cl. 340—174.1 C **16 Claims**



A magnetic holddown system for providing at selected times a magnetic holddown of a magnetic disc wherein the disc includes a ring of magnetic material and wherein the disc is to be held on a spindle assembly in a magnetic disc recording and reproducing system. The spindle assembly includes a central spindle, a rim member and an interconnecting web portion and with the web portion including magnetic sections spaced apart by a nonmagnetic section. A stationary electromagnet is located below the spindle assembly and provides when energized a magnetic field to pass through the magnetic sections of the web portion to interact with the ring of magnetic material which is part of the magnetic disc to hold the magnetic disc against the spindle assembly. The stationary electromagnet is always energized when the motor driving the spindle assembly is energized. The stationary electromagnet is energized for a predetermined period of time after the motor driving the spindle assembly is de-energized and the stationary electromagnet is energized for a predetermined period of time when power is applied to the system but before the motor driving the spindle assembly is energized.

3,706,086
SOLID STATE SCANNER FOR A REMOTE METER READING SYSTEM

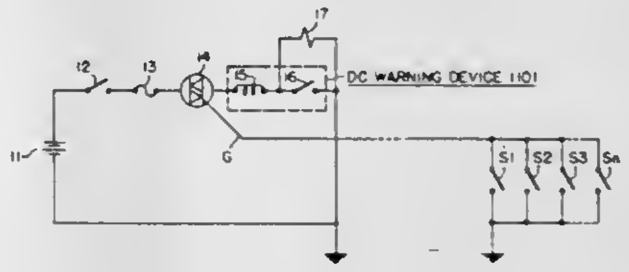
Richard G. Farnsworth, York, Maine, assignor to General Electric Company
Filed July 22, 1971, Ser. No. 165,279
Int. Cl. G08c *15/00, 19/16*
U.S. Cl. 340—180 **7 Claims**



An electronic scanner for a remote meter reading system, comprising, a plurality of gating devices each controlled by a counter and each adapted to sequentially connect individual meter monitoring data sources at a remote station to a remote station transmitter in response to a control signal from a central station. The electronic scanner further comprises a reset unit which is operated in response to the control signal to set the counter into a predetermined state such that the electronic scanner always begins operation with a predetermined data source.

3,706,087
ALARM LATCHING CIRCUIT

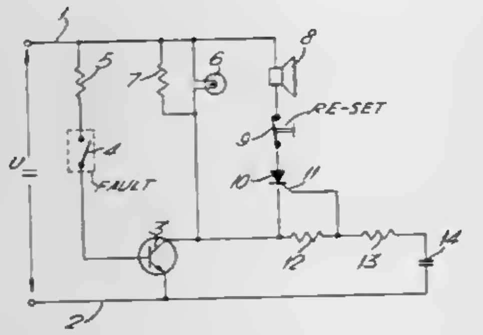
Charles Berns, Brookfield, Conn., assignor to Edwards Company, Inc., Norwalk, Conn.
Filed Feb. 19, 1971, Ser. No. 116,993
Int. Cl. G08b *3/10*
U.S. Cl. 340—213 R **3 Claims**



A remote control circuit for a D.C. actuated alarm apparatus has been provided which includes a coil, an armature actuated in response to energization of the coil, a normally closed set of spring biased breaker points serially coupled to the coil and opened by the actuation of the armature. An impedance bridges the points for maintaining circuit continuity regardless of the condition of the points. An alarm condition sensing means completes the circuit in response to the alarm condition. A normally non-conductive triac semi-conductor has its main conduction path serially coupled with the coil and its gate electrode coupled to the alarm condition sensing device for triggering conduction of the triac and actuating the coil in response to said circuit completion.

3,706,088
SWITCHING MEANS FOR AN ALARM SYSTEM

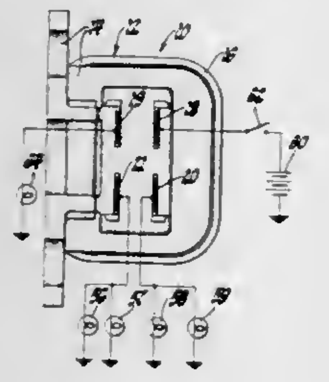
Aage Hojgaard Jorgensen, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark
Filed June 28, 1971, Ser. No. 157,109
Claims priority, application Germany, Aug. 8, 1970, P 20 39 532.8
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 R **5 Claims**



The invention relates to an alarm system switching arrangement in which a transistor is switched on by a fault sensing or response switch in the base circuit. A first circuit branch in series with the transistor contains an alarm device, a hand operated switch and a controllable rectifier. A storage capacitor is connected to the rectifier control terminal and a capacitor charging branch is in parallel with said first circuit branch. The hand operated switch may be momentarily actuated to turn off the alarm device but this does not interfere with the resetting of the circuit after the sensed fault has been eliminated by reason of the capacitor being rechargeable through the parallel branch charging line.

3,706,089
LAMP FAILURE INDICATOR

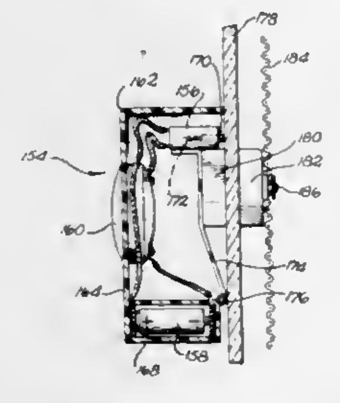
Gerald O. Huntzinger and Norris J. Bassett, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Sept. 7, 1971, Ser. No. 178,256
Int. Cl. G08b *21/00;* **H01b** *61/04*
U.S. Cl. 340—253 N **3 Claims**



Apparatus for indicating when one of several electrical loads has ceased to draw current. Certain loads are energized through a first bimetal member and other loads are energized through a second bimetal member, the members being positioned so thermal forces generated therein move them in opposite directions. An insulating spacer member connecting the movable sections of the bimetal members prevents their movement until the forces become unequal. The bimetal members then move in the same direction until the one in which the greatest force is generated engages a contact member connected to an indicator device. Current drawn by the device tends to facilitate the electrical connection with the contact member.

3,706,090
BURGLAR ALARM TRIGGERED BY BREAKING OF A MAGNETIC CIRCUIT

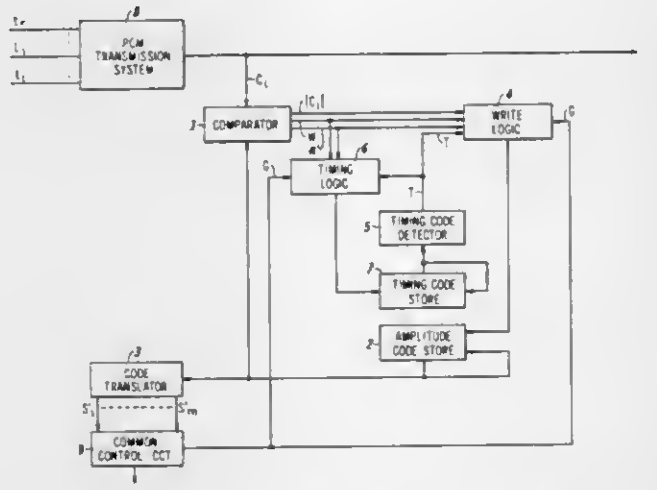
James I. Callaghan, 11229 Camarillo St., North Hollywood, Calif.
Filed Oct. 12, 1970, Ser. No. 79,832
Int. Cl. G08b *13/08*
U.S. Cl. 340—274 **17 Claims**



A burglar alarm for use on a window in which the alarm is triggered by breaking of a magnetic circuit across the window. The magnetic circuit is defined by a pair of movable bar magnets carried on opposite sides of the window. One bar magnet is carried by a window screen or other movable member which when displaced carries it away from the window to break the magnetic circuit. The other bar magnet then moves to close an electrical alarm circuit.

3,706,091
DIGITAL THRESHOLD DETECTOR

Carl Jerome May, Jr., Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 4, 1970, Ser. No. 69,752
Int. Cl. H04l *3/00*
U.S. Cl. 340—347 DD **12 Claims**

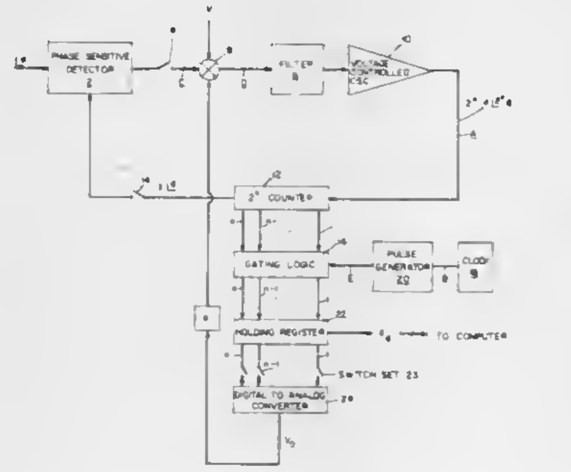


A method of, and circuitry for, converting PCM code groups generated by sampling the analogue signal level on a line into a set of signals representing discrete analogue

amplitude levels present in the sampled signal is disclosed. Each newly generated code group is applied to a comparator which compares its absolute value with a stored code. The stored code is simultaneously applied to a code translator which converts it into a set of discrete amplitude signals. When the comparison indicates that a selected relation has existed between the code groups generated by samples of the line and the stored code for a selected interval, the current code group replaces the stored code to indicate the changes in signal magnitude on the sampled line.

3,706,092
ELECTRONIC INSTRUMENT SERVO

Duncan B. Cox, Jr., Manchester, and Kenneth Fertig, Brookline, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Continuation of abandoned application Ser. No. 764,505, Oct. 2, 1968. This application Apr. 21, 1971, Ser. No. 136,231
Int. Cl. H03k *13/20*
U.S. Cl. 340—347 AD **1 Claim**



An electronic instrument servo for continually measuring a differential in a received input signal, whether modulated or unmodulated, and generating an instantaneous, synchronous, encoded output proportional to the measured differential. The servo basically comprises a feedback loop which generates a tracking signal differing in phase from a reference in proportion to the measured differential, and apparatus for reading out (strobing) the content of the loop at very precise time intervals relative to the reference, thereby generating an instantaneous and synchronous encoding of the phase angle of the tracking signal.

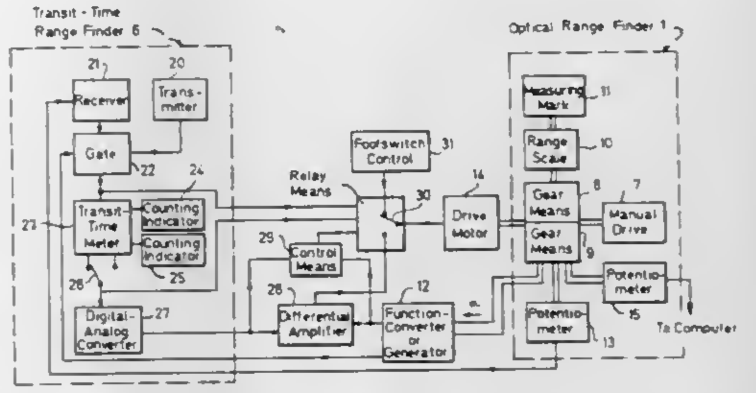
ERRATUM

For Class 343—7 see:
Patent No. 3,705,936

3,706,093
RANGE FINDER

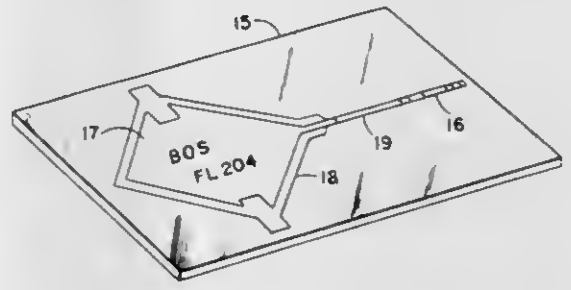
Hans Staeudle, Heidenheim-Schnaitheim, Germany, assignor to Carl Zeiss Stiftung, doing business as Carl Zeiss, Wurttemberg, Germany
Filed June 1, 1970, Ser. No. 42,143
Claims priority, application Germany, June 3, 1969, P 19 28 274.7
Int. Cl. G01c *3/08;* **G01s** *9/00*
U.S. Cl. 343—6 R **13 Claims**

The invention contemplates coordinated optical and echo-ranging range finders on the same directional alignment whereby echo-range data may be available to improve the range setting of the optical range finder, for high-quality ranging in the presence of masking objects. Conversely, the improved resolution achieved by visual ranging can be utilized to up-grade the selection of the particular echo (among a spread of masking echoes) for which a range determination is to be measured by the echo-ranging range finder. Various specific coordinating relationships are described for the two range finders.



3,706,094
ELECTRONIC SURVEILLANCE SYSTEM

Peter Harold Cole, 103 Strangways Terrace, N., Adelaide, and Richard Vaughan, 6 Taylor St., Sydney, New South Wales, both of Australia
Filed Feb. 26, 1970, Ser. No. 14,607
Int. Cl. G01s *9/56*
U.S. Cl. 343—6.5 SS **27 Claims**

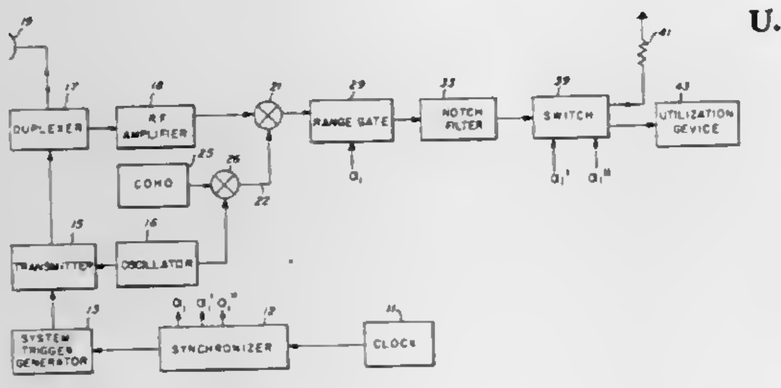


A passive label is interrogated by transmitting electromagnetic energy to the label and receiving electromagnetic energy from the label. Time delay means are provided in the label, preferably by utilization of surface acoustic waves, so that the returned energy is transmitted from the label after the interrogation energy has ceased. The label includes a substrate of piezo-electric material having coded information thereon, and serving to receive electromagnetic energy, convert it to acoustic energy, store the converted energy for a suitable time, reconvert the stored energy to electromagnetic energy and to transmit the electromagnetic energy to the receiver.

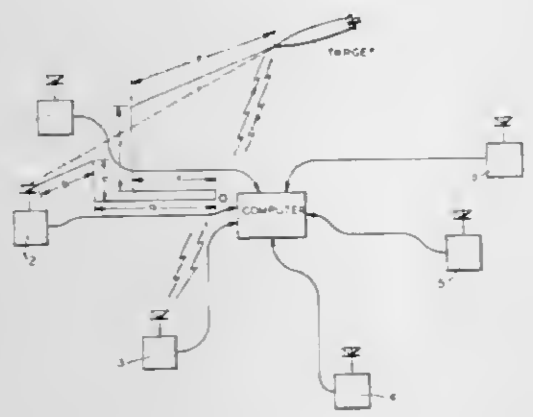
3,706,095
SIGNAL PROCESSOR

Roland A. Cherwek, Lynnfield, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Nov. 23, 1970, Ser. No. 91,723
Int. Cl. G01s *9/42*
U.S. Cl. 343—7.7 **4 Claims**

A signal processor wherein both desired and undesired signals are processed simultaneously to improve the ratio between the energy of the desired signals to the energy of the undesired signals. All signals being processed during a selected period of time are passed first through a filter wherein the frequency spectrum of the undesired signals is materially changed and the frequency spectrum of the desired signals is but slightly changed. The material change in the frequency spectrum of the undesired signals, in addition to reducing the energy of the undesired signals, engenders transients at the beginning and end of the selected period of time. Such transients are diverted to a dummy load along with a relatively small amount of the desired signals. The switch is also operative to pass the remaining steady state portion of both the desired signals and the remanent of the undesired signals to a utilization device.

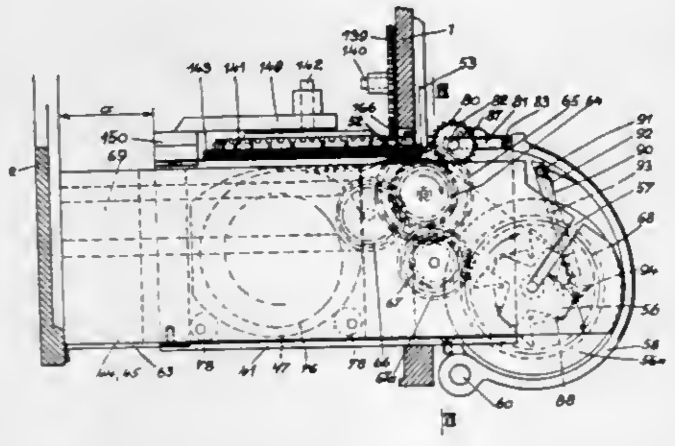


3,706,096
POLYSTATION DOPPLER SYSTEM TRACKING OF VEHICLES, MEASURING DISPLACEMENT AND RATE THEREOF AND SIMILAR APPLICATIONS
Calvin Miles Hammack, P.O. Box 304,
Saratoga, Calif. 95070
Filed Feb. 2, 1961, Ser. No. 86,770
Int. Cl. G01s *9/04, 9/44*
U.S. Cl. 343—9 **7 Claims**



2. A method for the determination of the position of a moving object without knowledge of or reference to the type of path followed by the moving object or the forces acting on the object or knowledge of any previous point occupied by the object, comprising the steps of identifying each of a plurality of fixed points in space determining simultaneously the instantaneous value of the component of velocity of the moving object in the direction of each of a number of fixed points such that the otherwise unknown and unbounded position of the moving object is uniquely defined by said determinations and the known parameters related thereto and calculating the position of said moving object in orthogonal coordinates relative to said identified fixed points.

3,706,097
APPARATUS FOR INDICATING AND RECORDING THE SPEED OF MOTOR VEHICLES AND THE DISTANCE TRAVELED THEREWITH
Alfons Bauer, Bad Reichenhall, Germany (% Dipl.-Ing. A. Berglein, 49 Widenmayerstr., 8 Munich 22, Germany)
Filed May 23, 1969, Ser. No. 827,425
Claims priority, application Austria, May 30, 1968,
A 5,181/68
Int. Cl. G01d *9/00*
U.S. Cl. 346—18 **10 Claims**

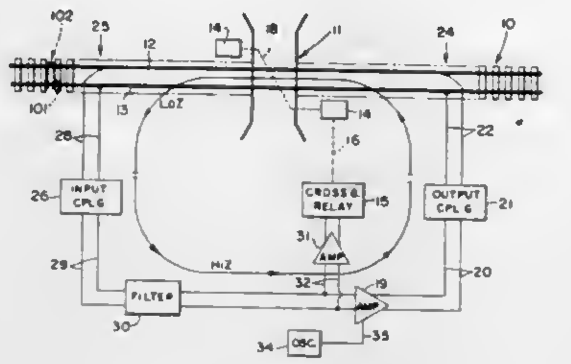


An apparatus for indicating and recording the speed of a motor vehicle and the distance traveled by the motor vehicle comprising a casing defining an open compartment and a writing lever apparatus connected to said casing. The writing lever apparatus is adapted to indicate and record vehicle speed and distance traveled. A clockwork drive connected to the casing is used for a record strip advancement. A removable housing is mounted in the casing compartment and comprises a roller cartridge mounted to the housing, the roller cartridge being adapted to hold a record strip and defining an outlet slot for the record strip end. A transporting cylinder and a wind-up spool are rotatably mounted to the housing in series connection, the transporting cylinder being in rotatable cooperation with the clockwork drive and the wind-up spool. A pulling out apparatus for the record strip end is in cooperation with the transporting cylinder and is adapted to automatically pull the record strip end forward during insertion of the housing into the casing. A catching apparatus for the record strip end cooperates with the wind-up spool and is automatically adapted to connect the record strip end with the wind-up spool after a certain advance movement of the record strip.

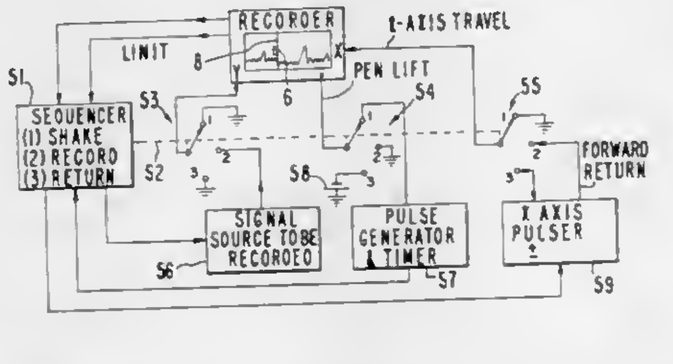
3,706,098
RAILWAY SIGNAL SYSTEM
Willard L. Geiger, Chagrin Falls, Ohio, assignor to Erico Products, Inc., Cleveland, Ohio
Filed Oct. 23, 1970, Ser. No. 83,512
Int. Cl. B61l *21/06*
U.S. Cl. 246—40 **6 Claims**

A railway crossing signaling system in which an audio frequency signal coupled into the tracks is affected by the presence of a train near the crossing location and utilized to control operation of a conventional crossing signal relay. A relatively high impedance amplifier is transformer coupled to a section of the tracks, the latter acting as a part of a low impedance feedback path to cause oscillations at a fixed frequency determined by a high Q resonant reed filter. In preferred embodiments of the invention, oscillation is sustained via either direct connection of the feedback loop or connection through the tracks and interrupted by the shunting effect of the train, however, one embodiment of the invention

relies on the presence of a train to complete the feedback circuit to produce oscillation. In all embodiments of the invention a relatively low frequency high power signal is impressed upon the track circuit through the common amplifier both to enhance oscillation and to cause frittering or establishment of the track circuit in spite of surface contamination and the like.

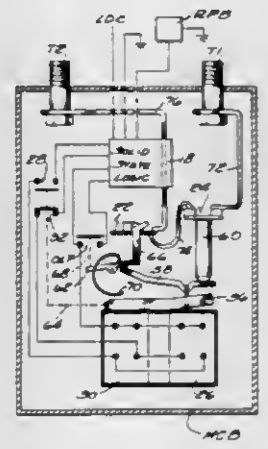


3,706,099
GRAPHIC RECORDER EMPLOYING A RESERVOIR LETTERING PEN TYPE STYLUS
Robert C. Jones and William Siebert, Jr., Santa Clara County, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Dec. 14, 1970, Ser. No. 97,634
Int. Cl. G01d *15/16*
U.S. Cl. 346—140 **4 Claims**



A graphic recorder employing a reservoir lettering pen type stylus is disclosed. The stylus includes a reservoir for ink interconnected to the stylus by means of an ink passageway. A movable and weighted cleaning plunger is disposed in the ink passageway for unclogging the pen. A motorized pen shaker, responsive to a train of pulses, shakes the pen prior to the recording phase of the operating cycle of the recorder to assure that the pen will write. A sequencer or programmed general purpose computer sequences the shaking of the pen.

3,706,100
REMOTE CONTROL CIRCUIT BREAKER SYSTEM
Werner B. Halbeck, Cedarburg, John A. Quaal, Wauwatosa, Clyde F. Robbins, Milwaukee, and Walter L. Rutchik, Wauwatosa, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.
Filed Jan. 19, 1972, Ser. No. 218,956
Int. Cl. H02b *1/00*
U.S. Cl. 317—58 **10 Claims**

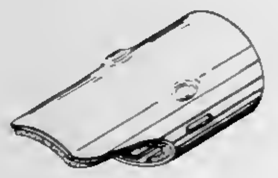


A remote control circuit breaker system in which an electronic logic unit is built into a main electromagnetically operated circuit breaker to act as the controlling interface between the latter and a remotely located pilot control-circuit breaker unit. In addition to directing main circuit breaker operation to provide closing and opening of the same in correspondence with the operation of the pilot unit, the logic unit responds on overload trip open of the main circuit breaker to subject the pilot unit to a controlled value of simulated overload current as will cause the latter to trip open and afford indication of the occurrence of overload tripping in the main circuit breaker. The logic unit also affords coordination of a plurality of such circuit breakers in a multiphase A.C. system so that all will be responsive to the operation of a single remote pilot unit, and will also trip open following overload response of any thereof. Further the logic unit automatically functions in the event of a fault occurring in the pilot unit or the line connecting it with the main breaker to limit the value of fault to a non-destructive value, and prevent repeated circuit breaker cycling in the event the pilot breaker fails to open. The main circuit breaker uses double-break contacts and permanent magnet latching to improve its arc rupture withstandability and eliminate the necessity of continuous energization of its electromagnetic operating coils. The overload trip mechanism in the main circuit breaker uses a low friction latch, and together with ambient temperature compensation in the bimetal latch release enhances the trip point precision.

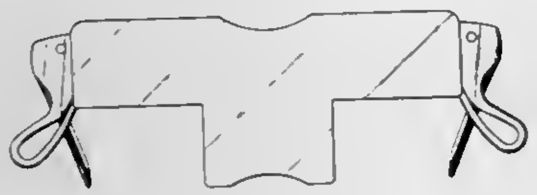
DESIGNS

DECEMBER 12, 1972

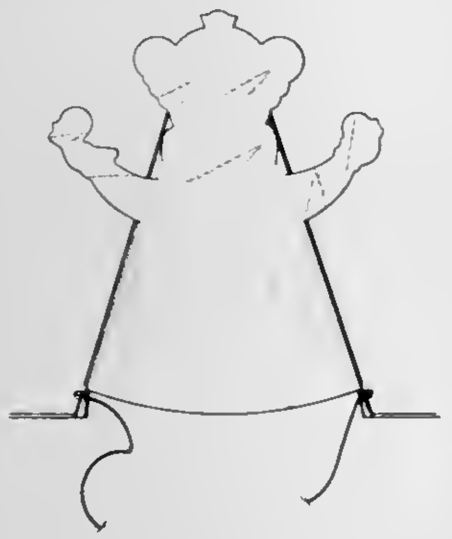
225,389
WRISTLET FOR A BOWLER
Donald J. Carter, Tarzana, Calif., assignor of a fractional part interest to Frank Esposito, Eagle Pass, Tex.
Continuation of abandoned design application Ser. No. 16,744, Apr. 14, 1969. This application May 8, 1970, Ser. No. 22,533
Term of patent 14 years
Int. Cl. D2—*99*
U.S. Cl. D2—27



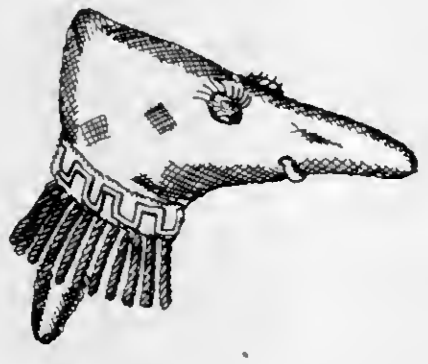
225,390
LIGHT REFLECTING MIRROR FOR VISIBILITY AID
Jibu Hori, 87, 2-chome Tozukamachi, Shinjuku-ku, Tokyo, Japan
Filed Jan. 29, 1971, Ser. No. 110,861
Claims priority, application Japan Aug. 13, 1970
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—234



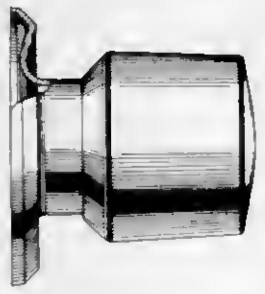
225,391
CONE CAP
Alberto Birlain Schafler, Amsterdam 218-201, Mexico City, Mexico
Filed Jan. 14, 1971, Ser. No. 106,638
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—250



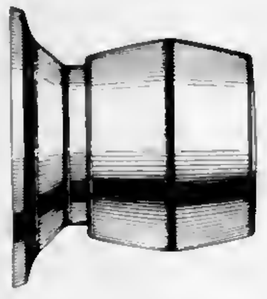
225,392
PILLOW OR SIMILAR ARTICLE
Linda Ellen Levine, 7530 Stonecrest, Dallas, Tex. 75240, and Deborah Ann Zippel, 4407 Mill Run, Dallas, Tex. 75234
Filed Mar. 17, 1971, Ser. No. 125,460
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D3—9



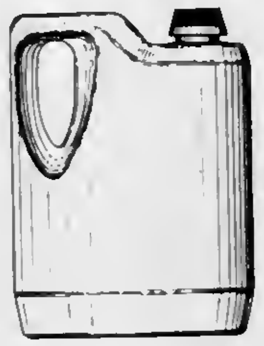
225,393
COMBINED DOOR KNOB AND ROSE
Nicholas Giandomenico, West Covina, Calif., assignor to Acme General Corporation, Monrovia, Calif.
Filed Mar. 5, 1971, Ser. No. 121,624
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—143



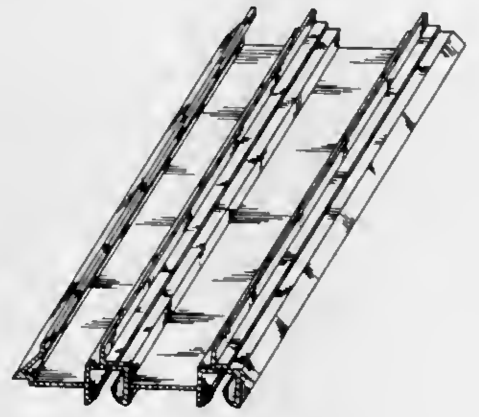
225,394
COMBINED DOOR KNOB AND ROSE
Nicholas Giandomenico, West Covina, Calif., assignor to Acme General Corporation, Monrovia, Calif.
Filed Mar. 5, 1971, Ser. No. 121,625
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—143



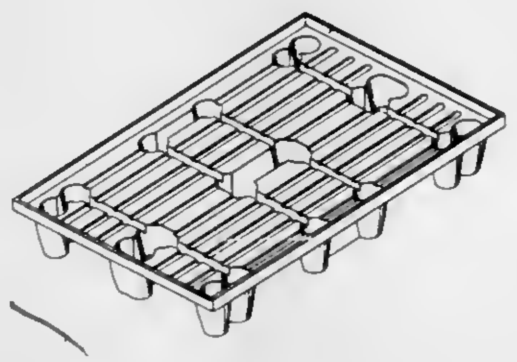
225,395
COMBINED JUG AND CAP THEREFOR
Albert Jacob, Paris, France (℅ Colgate-Palmolive Company, 300 Park Ave., New York, N.Y. 10022)
Filed Nov. 2, 1971, Ser. No. 195,063
Claims priority, application France June 1, 1971
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—40



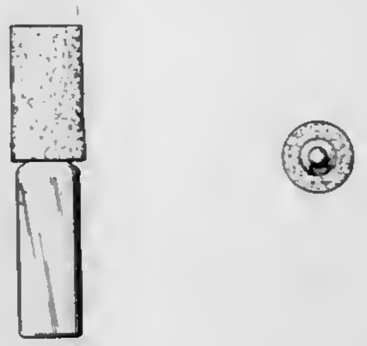
225,396
EXTRUDED PLASTIC TRACK FOR A WINDOW UNIT
Dominique Dallaire and Raymond M. Dallaire, St. David, Quebec, Canada, assignors to P. H. Plastics Inc., Lauzon, Quebec, Canada
Filed Jan. 13, 1971, Ser. No. 106,302
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D13—6



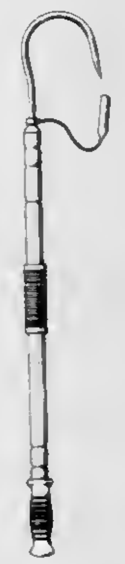
225,397
PALLET
Donald C. Lindley, William W. Kinzie, and Gary L. Runyan, Tulsa, Okla., assignors to Rotec, Inc., Tulsa, Okla.
Filed May 12, 1971, Ser. No. 142,703
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—3



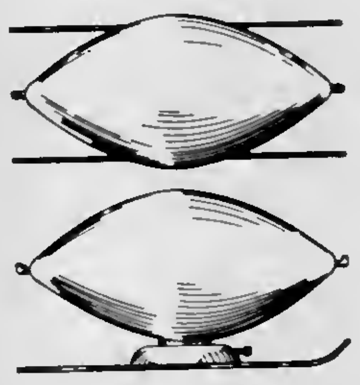
225,398
MEDICAL REAGENT BOTTLE
Clarence J. David, Belle Mead, N.J., assignor to Ortho Pharmaceutical Corporation
Filed Jan. 10, 1969, Ser. No. 15,306
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D16—1



225,399
GAFF
Hugh R. Bolen, Jr., Lexington, Va., assignor to Magnetic Forming Corporation, Lexington, Va.
Filed Nov. 2, 1970, Ser. No. 25,792
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—22



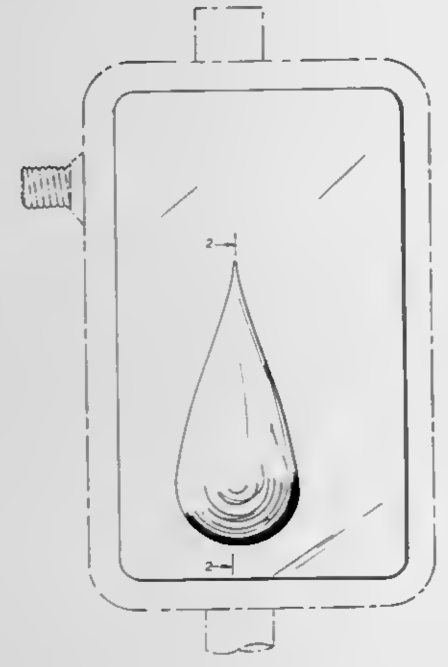
225,400
LAWN SPRINKLER
Richard R. Williams, Ithaca, Nebr. 68033
Filed Mar. 18, 1971, Ser. No. 125,912
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—7



225,401

COVER PANEL FOR A WATER CONDITIONER CABINET

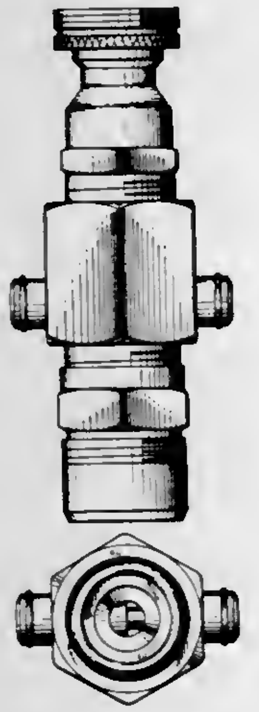
John H. Horn, Erie, Pa., assignor to Uniflow Manufacturing Company, Erie, Pa.
Continuation-in-part of design application Ser. No. 17,517, June 4, 1969. This application Dec. 14, 1970, Ser. No. 26,448
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—3



225,402

COMBINED VALVE AND AERATOR FOR FAUCETS

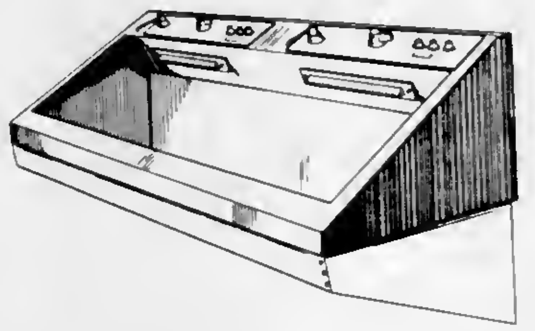
Sol N. Koblick, 41 Susan Drive, New City, N.Y. 10956
Filed Oct. 21, 1970, Ser. No. 25,583
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—20



225,403

SURGEON'S SCRUB SINK

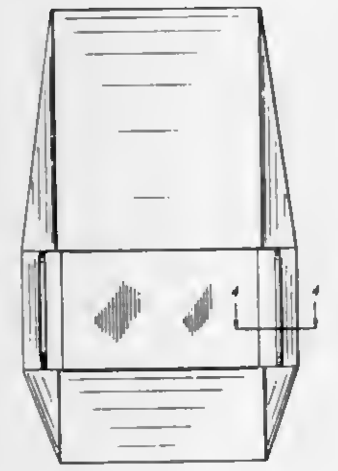
Thomas Brendgord, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.
Filed Aug. 18, 1970, Ser. No. 24,558
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—58



225,404

ENCLOSURE FOR WALL MOUNTED FIREPLACE

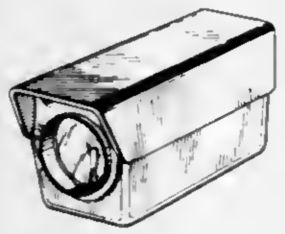
Harold N. Minick, Marshall, Mich., assignor to Leigh Products, Inc., Coopersville, Mich.
Filed May 25, 1971, Ser. No. 146,859
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—94



225,405

RADIANT ENERGY DETECTOR

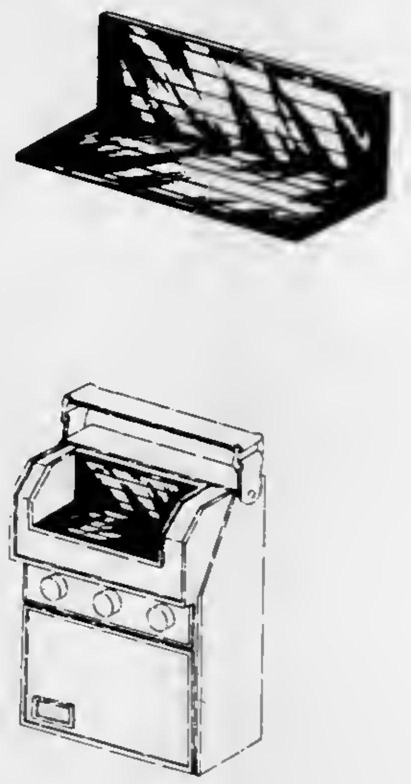
Donald M. Szeles, Ann Arbor, Mich., assignor to Sensors, Inc.
Filed Mar. 2, 1971, Ser. No. 120,377
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D26—1



225,406

RADIO TUNING INDICATOR FACE PLATE

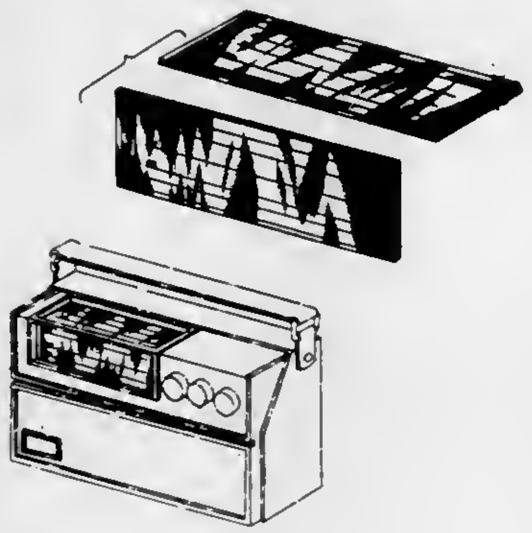
Maurice D. Katz, 35 Broadway, Lawrence, N.Y. 11559
Filed Mar. 12, 1971, Ser. No. 123,927
Term of patent 14 years
Int. Cl. D14—*03, 99*
U.S. Cl. D26—1



225,407

TRANSVERSE RADIO TUNING INDICATOR FACE PLATE

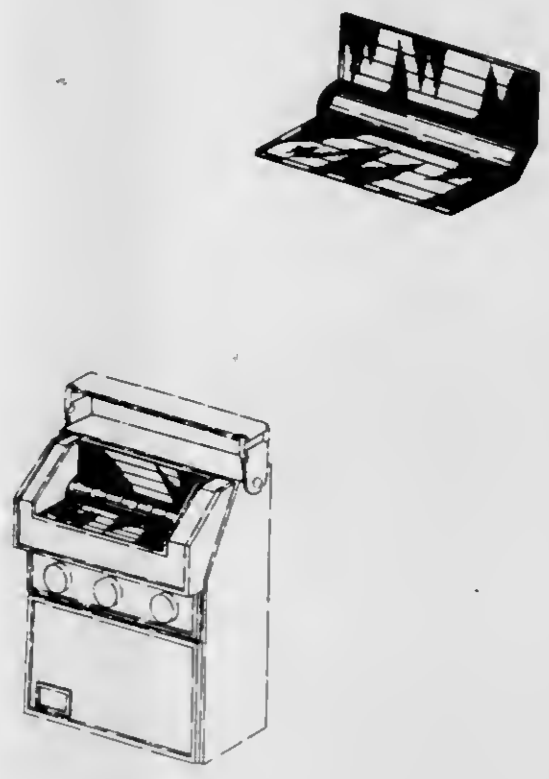
Maurice D. Katz, 35 Broadway, Lawrence, N.Y. 11559
Filed Mar. 12, 1971, Ser. No. 123,928
Term of patent 14 years
Int. Cl. D14—*03, 99*
U.S. Cl. D26—1



225,408

COMBINED RADIO TUNING INDICATOR AND MAGNIFIER

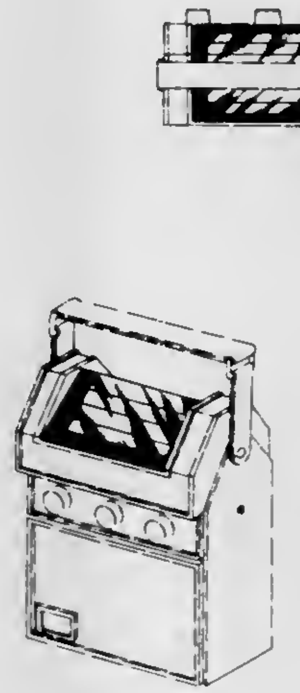
Maurice D. Katz, 35 Broadway, Lawrence, N.Y. 11559
Filed Mar. 12, 1971, Ser. No. 123,940
Term of patent 14 years
Int. Cl. D14—*03, 99*
U.S. Cl. D26—1



225,409

ANGULAR TUNING INDICATOR FACEPLATE

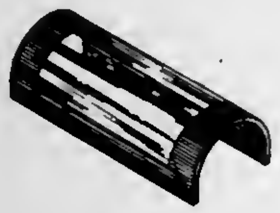
Maurice D. Katz, 35 Broadway, Lawrence, N.Y. 11559
Filed May 18, 1971, Ser. No. 144,701
Term of patent 14 years
Int. Cl. D14—*03, 99*
U.S. Cl. D26—1

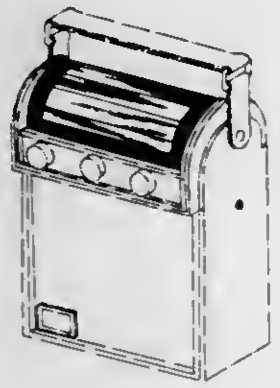


225,410
ARCUATE RADIO TUNING INDICATOR FACEPLATE

Maurice D. Katz, 35 Broadway, Lawrence, N.Y. 11559
Filed May 18, 1971, Ser. No. 144,708
Term of patent 14 years
Int. Cl. D14—*03*

U.S. Cl. D26—1

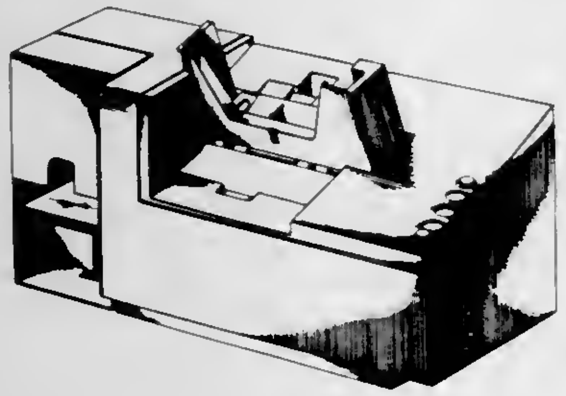




225,411
CARD READER OR SIMILAR ARTICLE

Robert B. Chaffee, Boston, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Sept. 1, 1970, Ser. No. 24,791
Term of patent 14 years
Int. Cl. D14—*02*

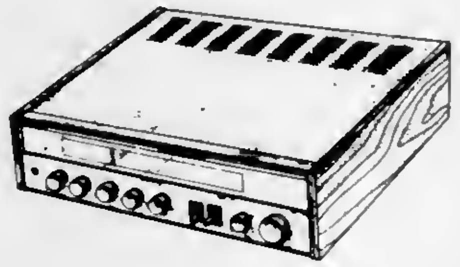
U.S. Cl. D26—5



225,412
AMPLIFIER

Hiroaki Yazawa, Yamatokoriyama, and Yoshiaki Iida, Neyagawa, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Oaza-Kadoma, Kadoma-shi, Osaka, Japan
Filed Apr. 6, 1971, Ser. No. 131,840
Term of patent 14 years
Int. Cl. D14—*03*

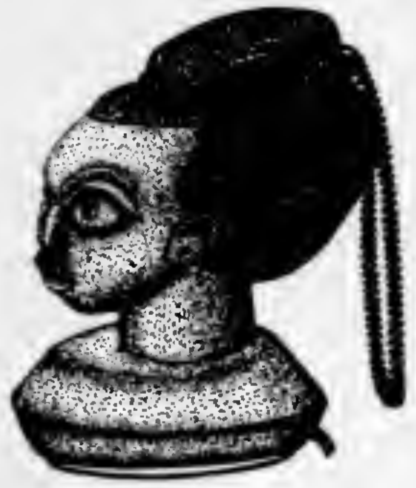
U.S. Cl. D26—14

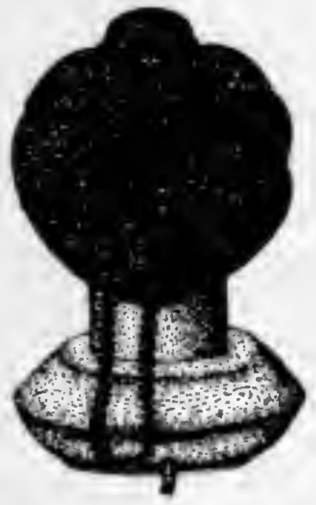


225,413
TELEPHONE MOUNT

Allen W. Scoggins, 1415 S. Rita Mae Ave., Merced, Calif. 95340
Filed June 1, 1971, Ser. No. 149,119
Term of patent 14 years
Int. Cl. D14—*03*

U.S. Cl. D26—14

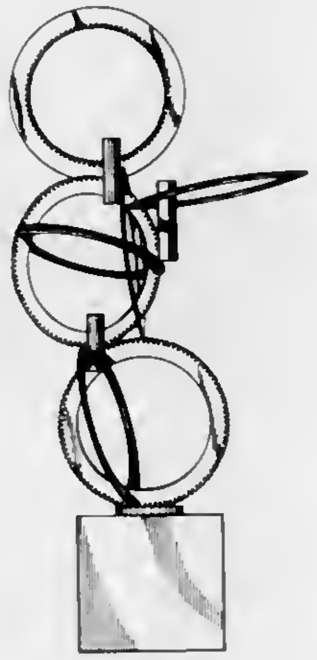




225,414
SCULPTURE

Nelda H. Brandenburger, 1555 13th Ave., Sacramento, Calif. 95818
Filed Dec. 17, 1971, Ser. No. 209,508
Term of patent 14 years
Int. Cl. D11—*02*

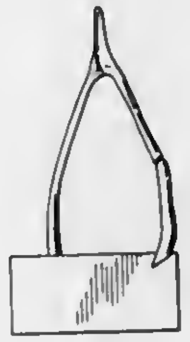
U.S. Cl. D29—23



225,415
TROPHY OR SIMILAR ARTICLE

Dorothy J. Baughan, Royal Oak, Mich., assignor to Woodrow W. Baughan, Royal Oak, Mich., and Anthony V. Sorci, Tonawanda, N.Y.
Filed Oct. 9, 1970, Ser. No. 25,407
Term of patent 14 years
Int. Cl. D6—*13*

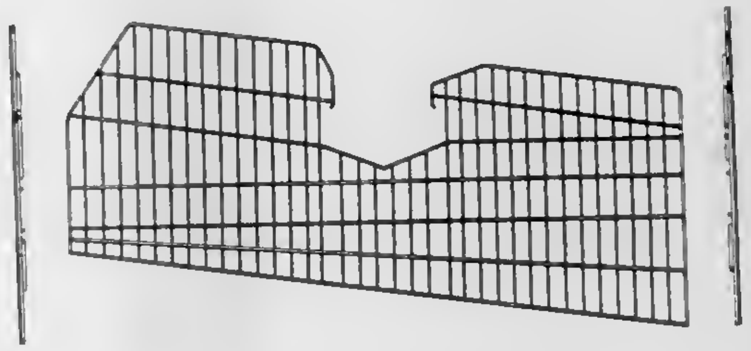
U.S. Cl. D29—28



225,416
LAYING CAGE DIVIDER

Gerald L. Kitson, 9709 Belding Road, Rockford, Mich. 49341
Filed Mar. 1, 1971, Ser. No. 119,980
Term of patent 14 years
Int. Cl. D30—*02*

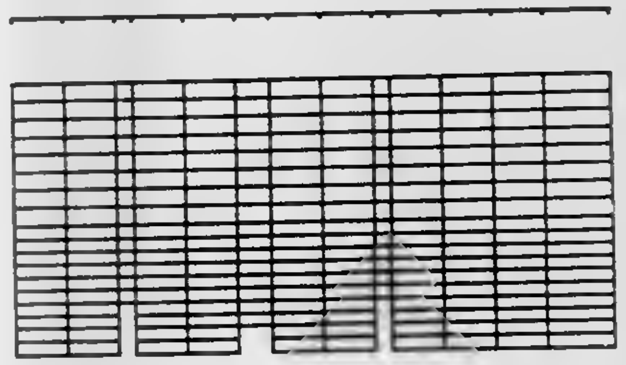
U.S. Cl. D30—1



225,417
WIRE MESH PANEL FOR POULTRY CAGES

Gerald L. Kitson, 9709 Belding Road, Rockford, Mich. 49341
Filed May 14, 1971, Ser. No. 143,733
Term of patent 14 years
Int. Cl. D30—*02*

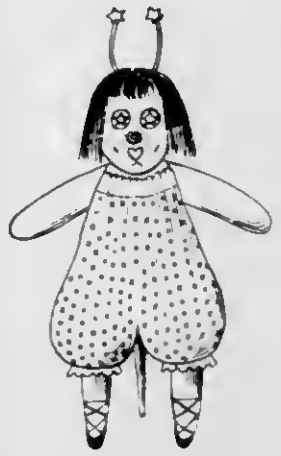
U.S. Cl. D30—2



225,418
DOLL

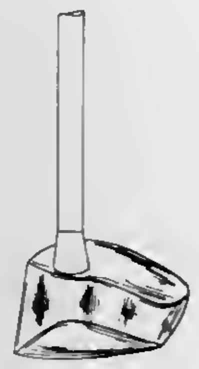
Phyllis J. Reed, 502 Q St., Bedford, Ind. 47421
Filed Jan. 20, 1971, Ser. No. 108,237
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—4



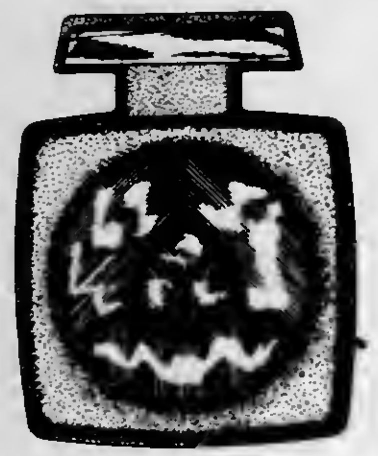
225,419
GOLF CLUB

Truett P. Mills, 1700 2nd Ave., Tuscaloosa, Ala. 35401
Filed Sept. 23, 1970, Ser. No. 25,155
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5



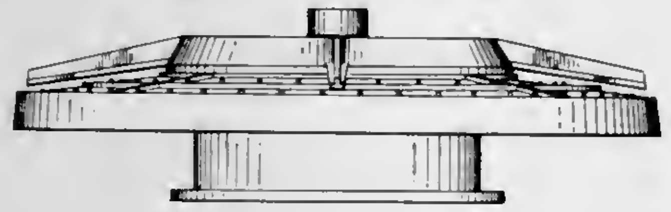
225,420
DART BOARD

Dennis G. Wyman, Owings Mills, and Marnie C. Averitt, Timonium, Md., assignors to Granta Corporation, Baltimore, Md.
Filed Mar. 1, 1971, Ser. No. 119,991
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



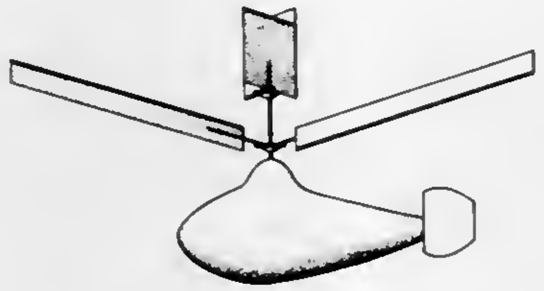
225,421
ROTATABLE PLAYING BOARD FOR TABLE GAME OR SIMILAR ARTICLE

Harry Zelenko, 150 E. 61st St., New York, N.Y. 10021
Filed June 1, 1971, Ser. No. 149,129
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



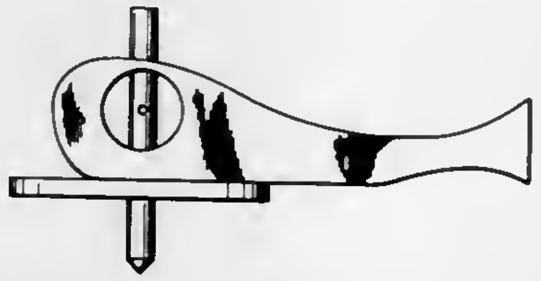
225,422
HELICOPTER KITE

Benjamin F. Richardson, Hebron, Ky., assignor to Aeropro Enterprises, Inc., Cincinnati, Ohio
Filed Feb. 12, 1971, Ser. No. 115,152
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



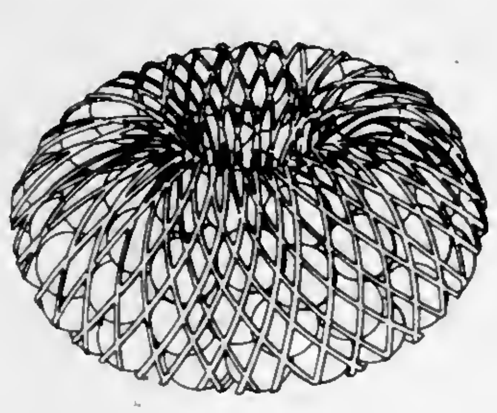
225,423
COMBINED TOY TOP AND HANDLE

Marvin W. Tanis, 2331 38th St. SW., and Richard A. Kwekel 2325 38th St. SW., both of Wyoming, Mich. 49509
Filed Mar. 22, 1971, Ser. No. 127,059
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



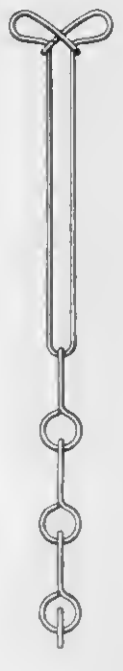
225,424
HOLDER FOR FLOWER STEMS OR THE LIKE

Lawrence E. Green, Stinson Beach, and William G. McDermott, Sausalito, Calif., assignors to McDermott & Green, Inc., San Francisco, Calif.
Filed Jan. 5, 1972, Ser. No. 215,705
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D35—3



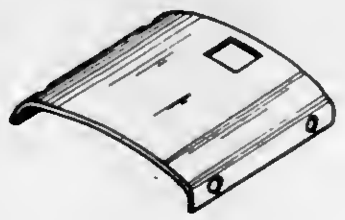
225,425
PUZZLE OR SIMILAR ARTICLE

Jane L. Brown, 1360 W. Granada Court, Ontario, Calif. 91762
Filed May 27, 1971, Ser. No. 147,728
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



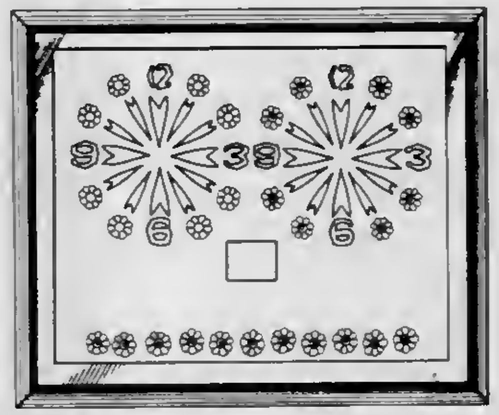
225,426
COVER PIECE FOR A WRISTWATCH

Francois de Baschmakoff, Fontainebleau, France, assignor to Lip Societe Anonyme d'Horlogerie, Besancon-Palente, France
Filed Nov. 12, 1970, Ser. No. 25,938
Claims priority, application France May 13, 1970
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1



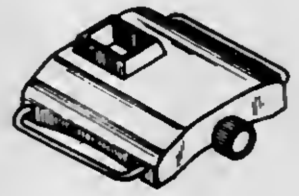
225,427
HOUSING FOR A CLOCK

William R. Lindner, 4105 Feidler Drive, Erie, Pa. 16506
Filed June 9, 1970, Ser. No. 23,405
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7



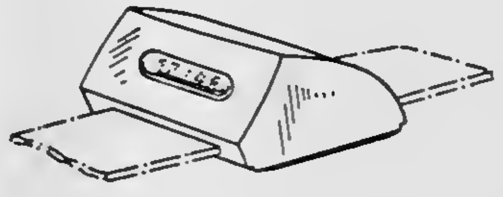
225,428
WATCHCASE

Francois de Baschmakoff, Fontainebleau, France, assignor to Lip Societe Anonyme d'Horlogerie, Besancon-Palente, France
Filed Nov. 12, 1970, Ser. No. 25,950
Claims priority, application France May 13, 1970
Term of patent 7 years
Int. Cl. D10—*02*
U.S. Cl. D42—8



225,429
WRISTWATCH

Gaston Vuilleumier, Le Landeron, Switzerland, assignor to Ebauches Electroniques S.A., Marin, Neuchatel, Switzerland
Filed Feb. 18, 1971, Ser. No. 116,749
Claims priority, application Switzerland Sept. 14, 1970
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D42—8

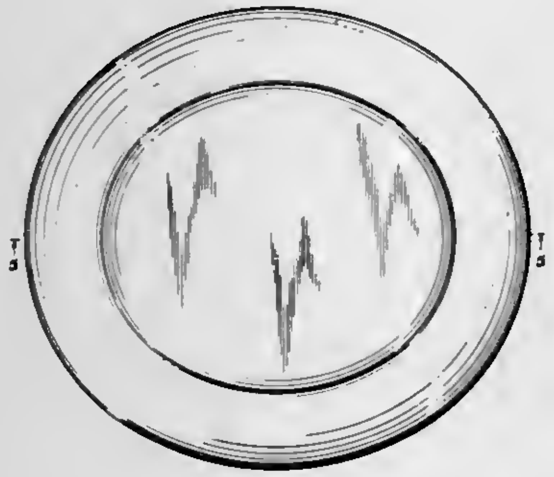


225,430

PLATE

Gerald Gulotta, New City, N.Y., assignor to Block China Corporation, New York, N.Y.
Filed Dec. 16, 1970, Ser. No. 26,528
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—15

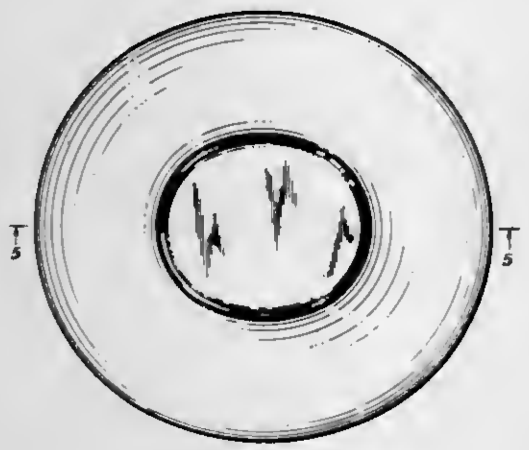


225,431

SAUCER

Gerald Gulotta, New City, N.Y., assignor to Block China Corporation, New York, N.Y.
Filed Dec. 16, 1970, Ser. No. 26,529
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—9

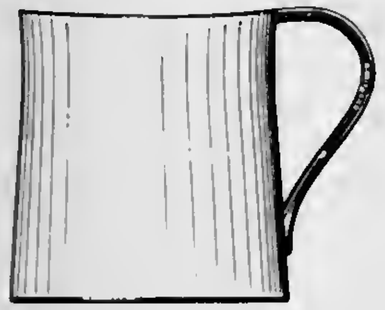


225,432

CUP

Gerald Gulotta, New City, N.Y., assignor to Block China Corporation, New York, N.Y.
Filed Dec. 16, 1970, Ser. No. 26,530
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—9

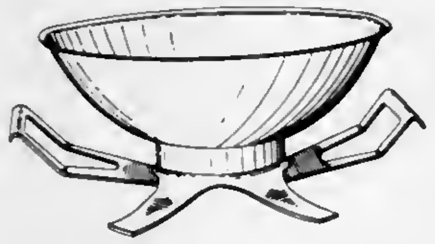


225,433

COOKING VESSEL

Gordon T. Rosenlund, Savage, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Dec. 14, 1970, Ser. No. 26,493
Term of patent 14 years
Int. Cl. D7—*04*

U.S. Cl. D44—15

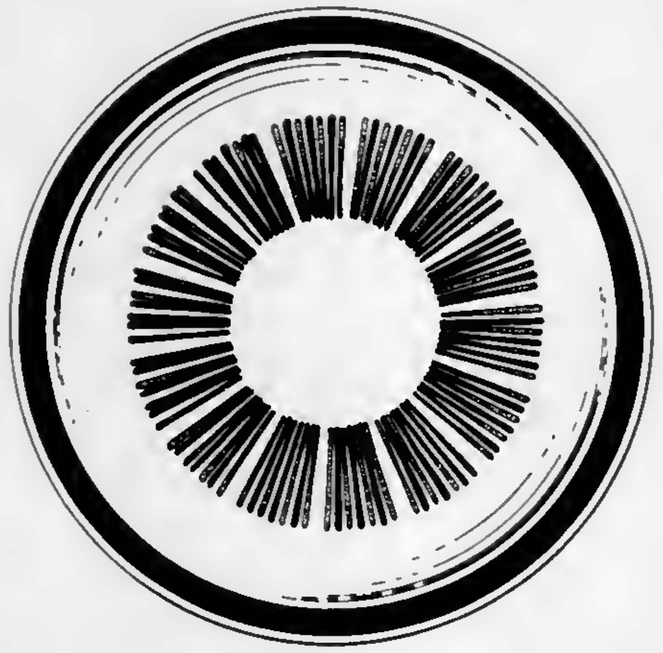


225,434

DINNER PLATE OR SIMILAR ARTICLE

Raymond T. Cleeland, Freehold, N.J., assignor to American Home Products Corporation, New York, N.Y.
Filed Aug. 13, 1971, Ser. No. 171,805
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—15

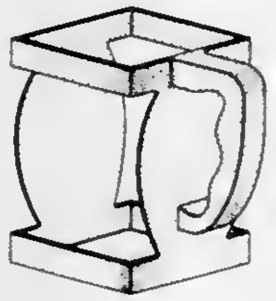


225,435

MILK CARTON HOLDER

Benjamin G. Anthony, Conneaut, Ohio, assignor to Promotions International, Inc., Southfield, Mich.
Filed Mar. 12, 1971, Ser. No. 123,937
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—21

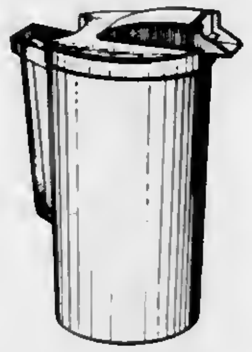


225,436

CARAFE

Delmas E. Collins, West Lafayette, Ohio, assignor to Jones-Zylon, Inc., West Lafayette, Ohio
Filed May 27, 1971, Ser. No. 147,717
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—21

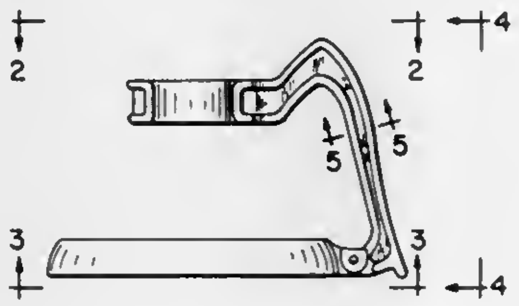


225,437

DETACHABLE HANDLE FOR A DECANTER OR SIMILAR ARTICLE

Daniel L. Killigrew, Jr., Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Apr. 26, 1971, Ser. No. 137,724
Term of patent 14 years
Int. Cl. D7—*99*

U.S. Cl. D44—21

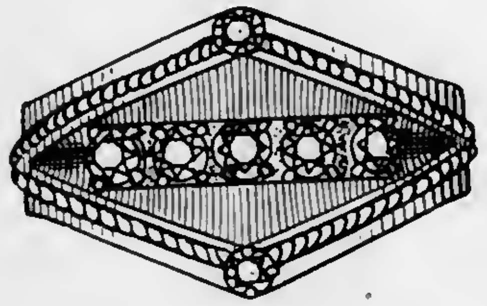


225,438

FINGER RING

Bernard I. Mechanic, 9314 Lincolnwood Drive, Evanston, Ill. 60202
Filed Jan. 22, 1971, Ser. No. 109,077
Term of patent 14 years
Int. Cl. D11—*01*

U.S. Cl. D45—10

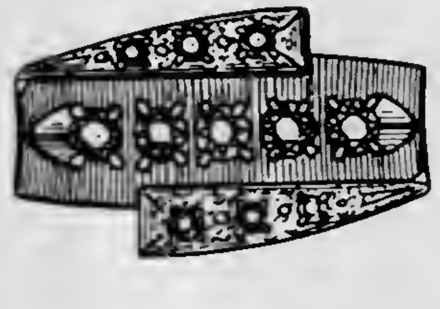


225,439

FINGER RING

Bernard I. Mechanic, 9314 Lincolnwood Drive, Evanston, Ill.
Filed Jan. 22, 1971, Ser. No. 109,079
Term of patent 14 years
Int. Cl. D11—*01*

U.S. Cl. D45—10

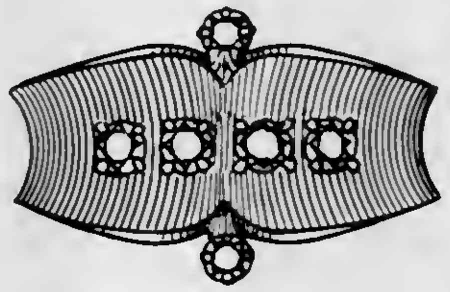


225,440

FINGER RING

Bernard I. Mechanic, 9314 Lincolnwood Drive, Evanston, Ill. 60202
Filed Jan. 22, 1971, Ser. No. 109,080
Term of patent 14 years
Int. Cl. D11—*01*

U.S. Cl. D45—10

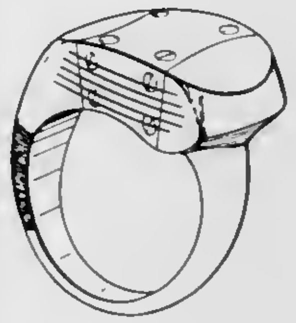


225,441

RING

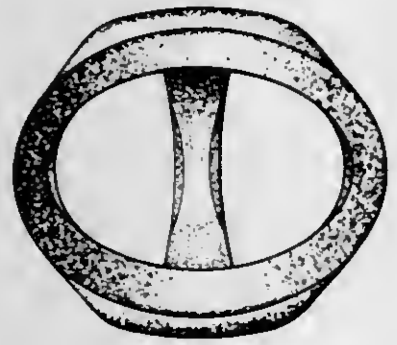
Ronald A. Thompson, 7 Glazebrook Ave., Suite 5, Toronto, Ontario, Canada
Filed Feb. 22, 1971, Ser. No. 117,883
Term of patent 14 years
Int. Cl. D11—*01*

U.S. Cl. D45—10



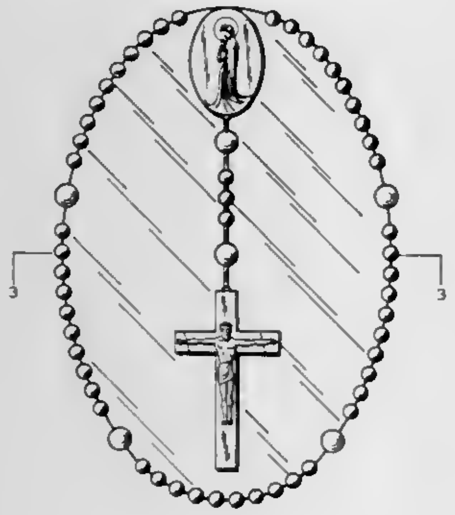
225,442
FINGER RING

Jacob Stein, 210 E. Broadway, New York, N.Y. 10002
Filed Feb. 22, 1971, Ser. No. 117,885
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—10



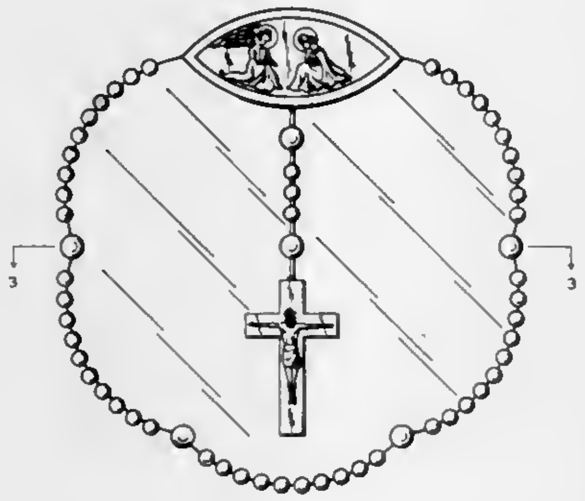
225,443
ROSARY MEDAL

Raymond J. McMahon, 3185 Bellevue Ave., Apt. B–6, Camillus, N.Y. 13219
Filed Nov. 23, 1970, Ser. No. 26,129
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D45—16



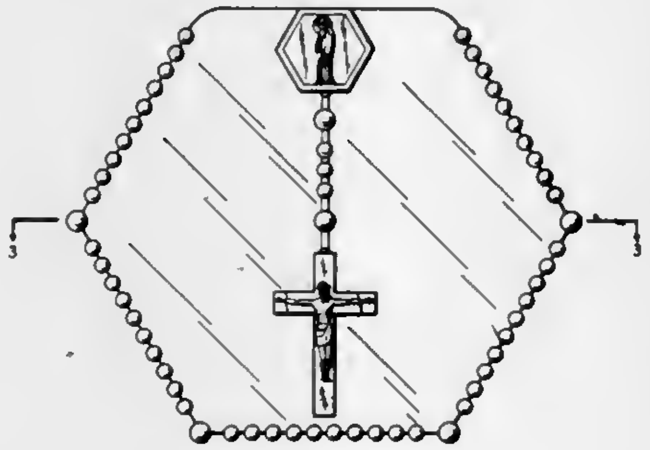
225,444
ROSARY MEDAL

Raymond J. McMahon, 3185 Bellevue Ave., Apt. B–6, Camillus, N.Y. 13219
Filed Nov. 23, 1970, Ser. No. 26,130
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D45—16



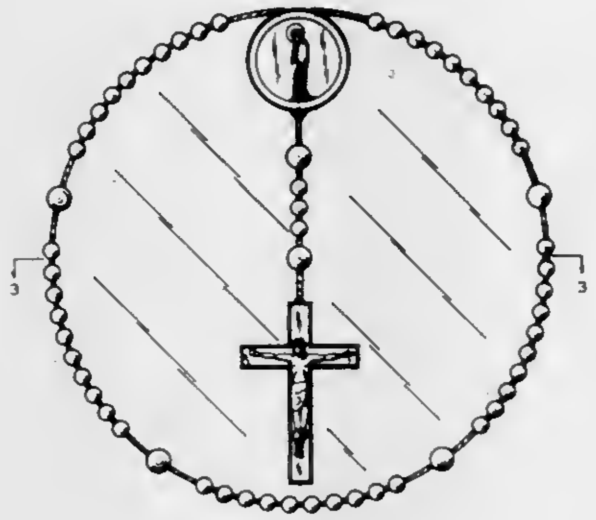
225,445
ROSARY MEDAL

Raymond J. McMahon, 3185 Bellevue Ave., Apt. B–6, Camillus, N.Y. 13219
Filed Nov. 23, 1970, Ser. No. 26,131
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D45—16



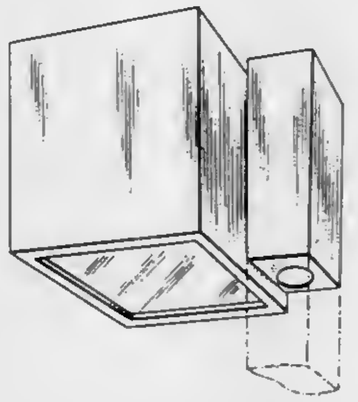
225,446
ROSARY MEDAL

Raymond J. McMahon, 3185 Bellevue Ave., Apt. B–6, Camillus, N.Y. 13219
Filed Nov. 23, 1970, Ser. No. 26,132
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—16



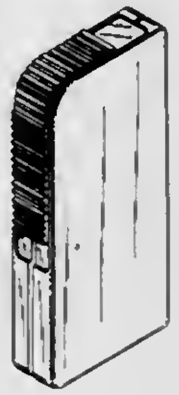
225,447
FLOODLIGHT

Eldon L. Anderson, Jr., Fletcher, N.C., assignor to General Electric Company
Filed Nov. 18, 1971, Ser. No. 200,269
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—20



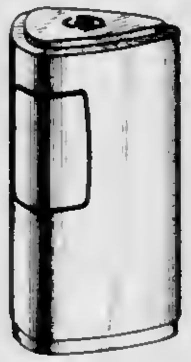
225,448
LIGHTER

Dieter Rams, Konigstein, Taunus, Germany, assignor to Braun AG, Frankfurt am Main, Germany
Filed July 17, 1970, Ser. No. 24,006
Claims priority, application Germany Feb. 17, 1970
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27

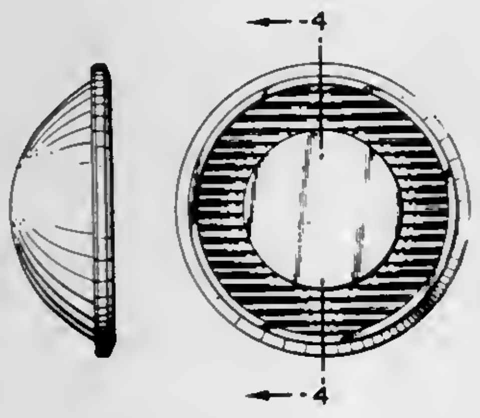


225,449
TABLE LIGHTER

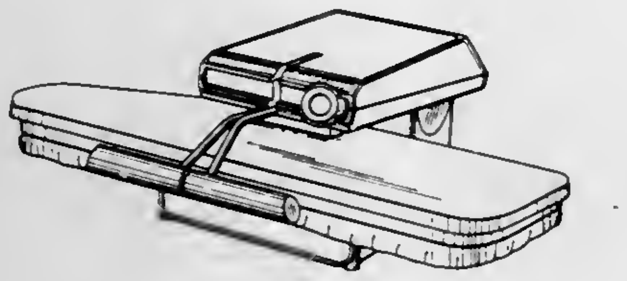
Gotz Florian Strzelczyk, Bad Homburg, Germany, assignor to Rowenta-Werke GmbH, Offenbach am Main, Germany
Filed Jan. 4, 1971, Ser. No. 103,953
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27



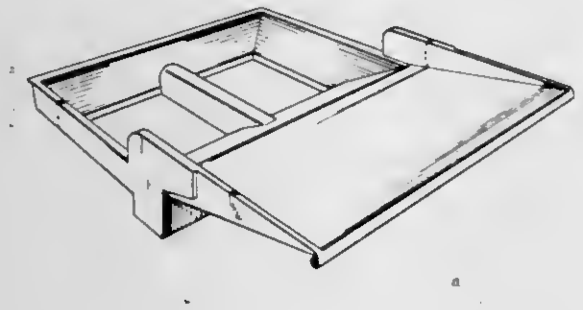
225,450
FLUTED PLANO-ASPHERIC LENS
Howard A. Schaefer, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Original design application Feb. 25, 1970, Ser. No. 21,604. Divided and this application Sept. 1, 1971, Ser. No. 177,199
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D48—32



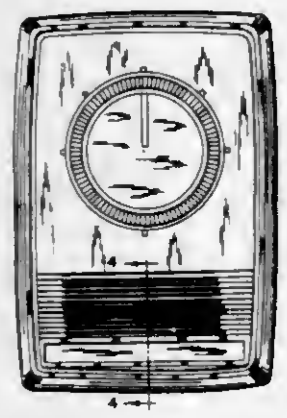
225,451
IRONING PRESS
Antonio Jimenez, Meyrin-Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland
Filed Feb. 19, 1971, Ser. No. 117,214
Claims priority, application Switzerland Sept. 2, 1970
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D49—1



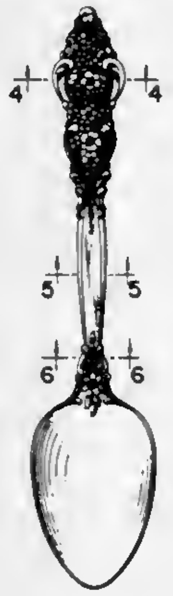
225,452
TRASH RECEPTACLE HOPPER
Floyd R. Gladwin, 21000 E. River Road, Grosse Ile, Mich. 48138
Filed Apr. 15, 1971, Ser. No. 134,525
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D49—35



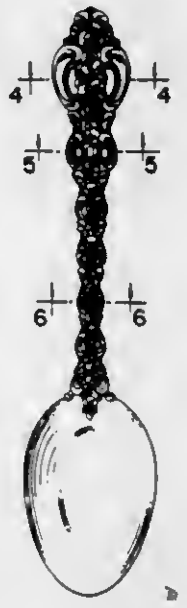
225,453
WALL THERMOSTAT
Frederick M. Hill, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio
Filed Apr. 29, 1971, Ser. No. 138,860
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—7



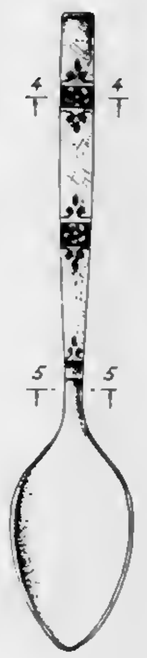
225,454
SPOON OR SIMILAR ARTICLE OF FLATWARE
Milton Gonsborek, Meriden, Conn., assignor to International Silver Company, Meriden, Conn.
Filed Nov. 19, 1971, Ser. No. 200,641
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12



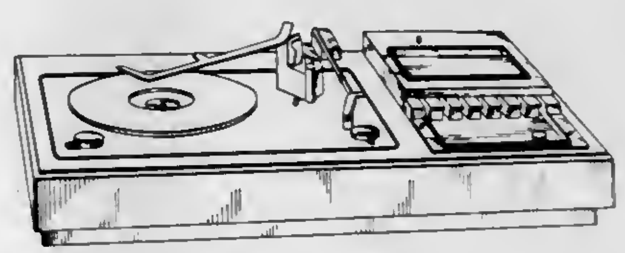
225,455
SPOON OF SIMILAR ARTICLE OF FLATWARE
William J. Knope, Meriden, Conn., assignor to International Silver Company, Meriden, Conn.
Filed Nov. 19, 1971, Ser. No. 200,642
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12



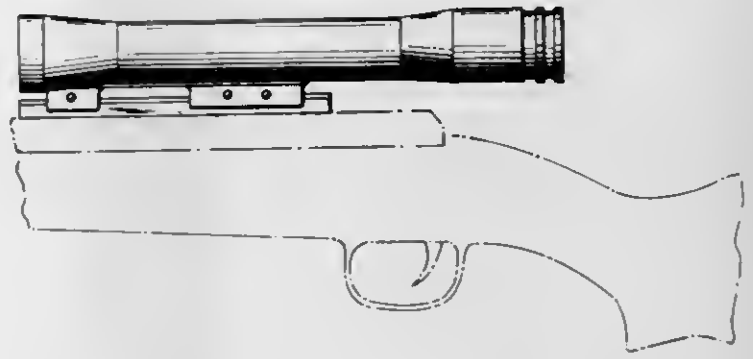
225,456
SPOON OR SIMILAR ARTICLE
Frank R. Perry, Oneida, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Dec. 29, 1971, Ser. No. 213,791
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12

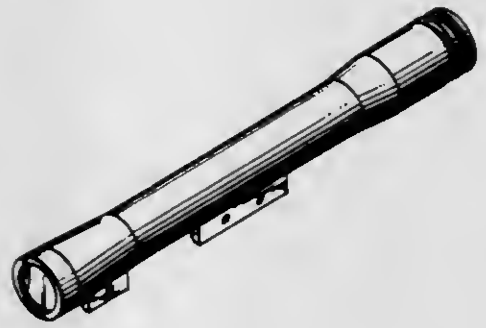


225,457
COMBINED PHONOGRAPH TURNTABLE, BASE, AND CASETTE PLAYER OR SIMILAR ARTICLE
Lawrence Levow, Huntington, N.Y., assignor to Harman-Kardon, Incorporated, Plainview, Long Island, N.Y.
Filed Oct. 15, 1969, Ser. No. 19,578
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4



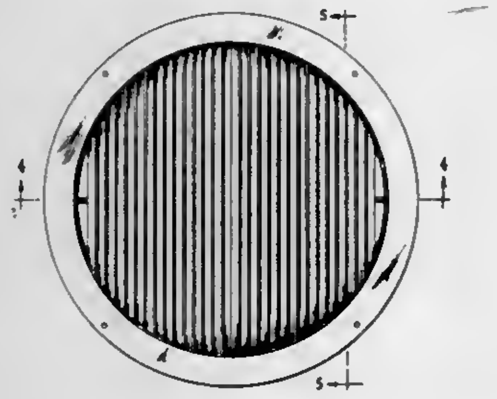
225,458
COMBINED TELESCOPIC SIGHT AND GUN MOUNTING
Rolf Heym, Kreis Kissingen, Coburger Strasse 8, Munnerstadt, Germany
Filed May 13, 1970, Ser. No. 22,953
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1





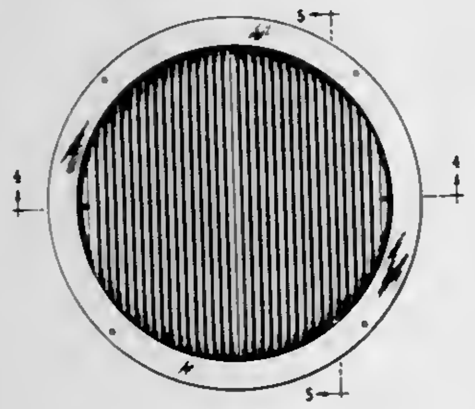
225,459
GRATED VAULT COVER
Emil A. Altobello, 555 Preston Ave.,
Meriden, Conn. 06450
Filed Apr. 19, 1971, Ser. No. 135,520
Term of patent 14 years
Int. Cl. D25—*02*

U.S. Cl. D60—2



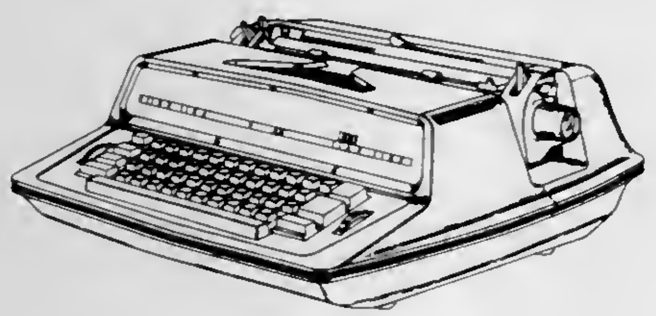
225,460
VAULT COVER GRATING
Emil A. Altobello, 555 Preston Ave.,
Meriden, Conn. 06450
Filed Apr. 19, 1971, Ser. No. 135,521
Term of patent 14 years
Int. Cl. D25—*02*

U.S. Cl. D60—2



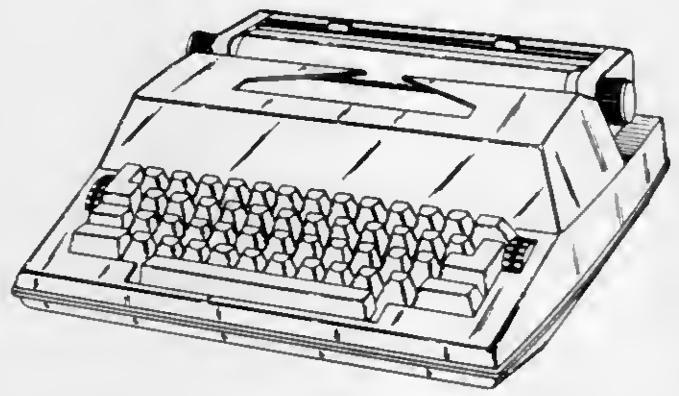
225,461
TYPEWRITER
William B. Sklaroff, Narberth, Pa., assignor to Litton Business Systems, Inc., New York, N.Y.
Filed Oct. 2, 1970, Ser. No. 25,309
Term of patent 14 years
Int. Cl. D18—*01*

U.S. Cl. D64—11



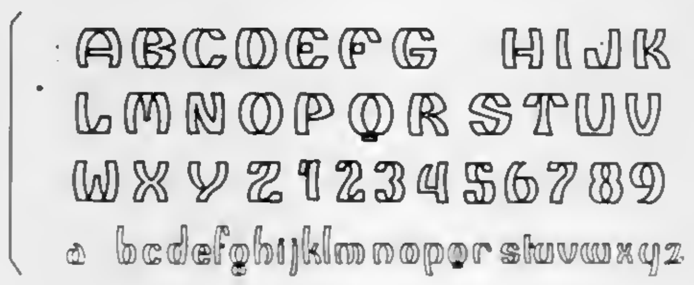
225,462
TYPEWRITER
Gerhard Dietrich, Furth, Bavaria, and Alfred Mamet, Nuremberg, Germany, assignors to Adlerwerke vorm. Heinrich Kleyer A.G., Frankfurt am Main, Germany
Filed Mar. 31, 1971, Ser. No. 130,065
Claims priority, application Germany Nov. 17, 1970
Term of patent 14 years
Int. Cl. D18—*01*

U.S. Cl. D64—11



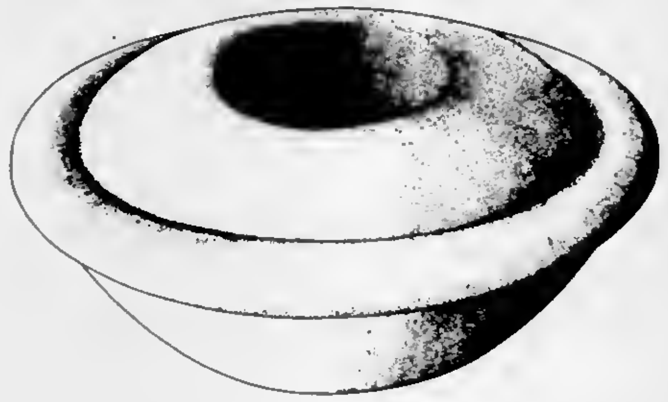
225,463
FONT OF TYPE
Charles R. Lee, 7228 Spruce Ave.,
Takoma Park, Md. 20012
Filed Dec. 24, 1970, Ser. No. 26,634
Term of patent 14 years
Int. Cl. D18—*03*

U.S. Cl. D64—12



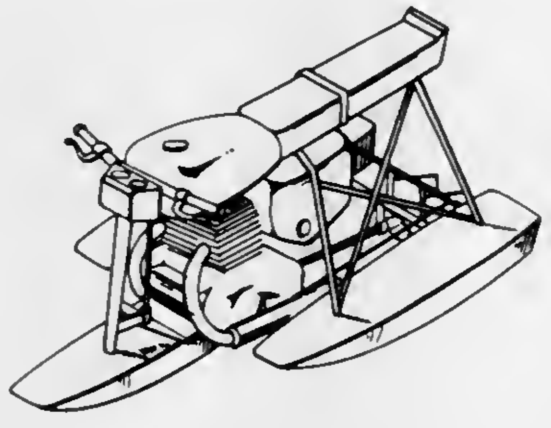
225,464
AERODYNAMIC DECELERATOR
William C. Alexander, Barberton, and Fred R. Nebiker, Akron, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio
Filed Mar. 25, 1968, Ser. No. 11,133
Term of patent 14 years
Int. Cl. D12—*07*

U.S. Cl. D71—1



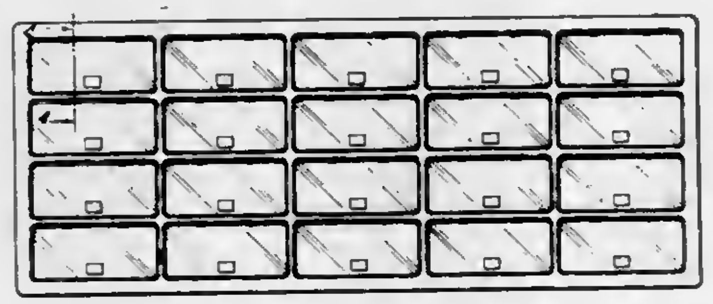
225,465
WATER VEHICLE
Lee G. Yntzler, 522 N. Matlock, Mesa, Ariz. 85203
Filed Mar. 2, 1971, Ser. No. 120,379
Term of patent 14 years
Int. Cl. D12—*14*

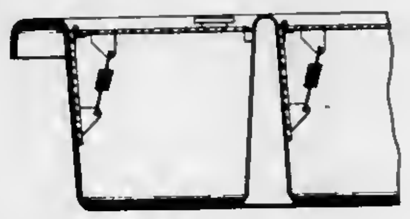
U.S. Cl. D71—1



225,466
COMPARTMENTIZED MEDICINE TRAY FOR REST HOMES
Donald J. Miller, 2831 Bristol N. 25,
Costa Mesa, Calif. 92626
Filed Jan. 29, 1971, Ser. No. 111,174
Term of patent 14 years
Int. Cl. D24—*04, 99*

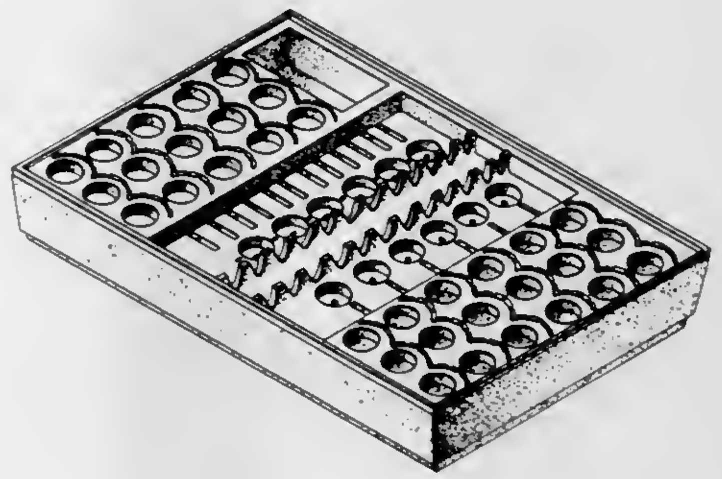
U.S. Cl. D83—1





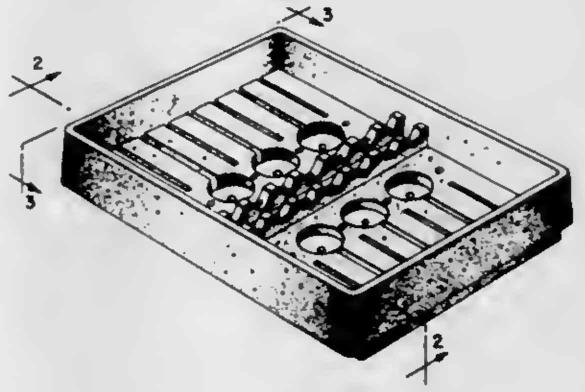
225,467
MEDICAL EQUIPMENT TRAY
George K. Burke and Kenneth Raines, Bethlehem, Pa., assignors to Burron Medical Products, Inc., Bethlehem, Pa.
Filed Feb. 3, 1971, Ser. No. 112,511
Term of patent 14 years
Int. Cl. D24—*04, 99*

U.S. Cl. D83—1



225,468
MEDICAL EQUIPMENT TRAY
George K. Burke and Kenneth Raines, Bethlehem, Pa., assignors to Burron Medical Products, Inc., Bethlehem, Pa.
Filed Feb. 3, 1971, Ser. No. 112,512
Term of patent 14 years
Int. Cl. D24—*04, 99*

U.S. Cl. D83—1

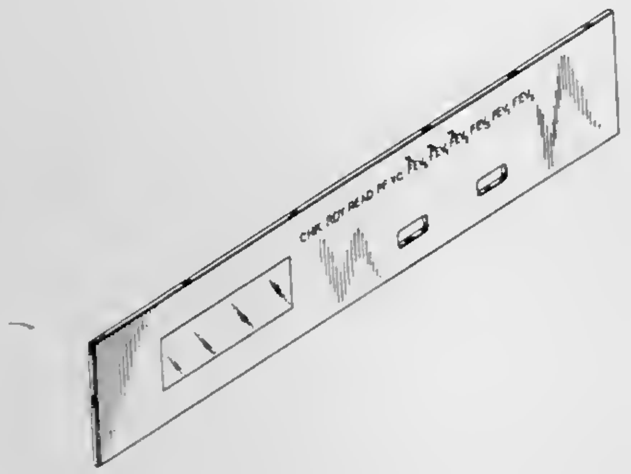


225,469

FACE PLATE FOR SPIROMETER MEDICAL APPARATUS

Bernard N. Gray, East Pepperell, and John W. Burke, Melrose, Mass., assignors to Life Support Equipment Corp., Burlington, Mass.
Filed Feb. 26, 1971, Ser. No. 119,443
Term of patent 14 years
Int. Cl. D24—*01*

U.S. Cl. D83—1

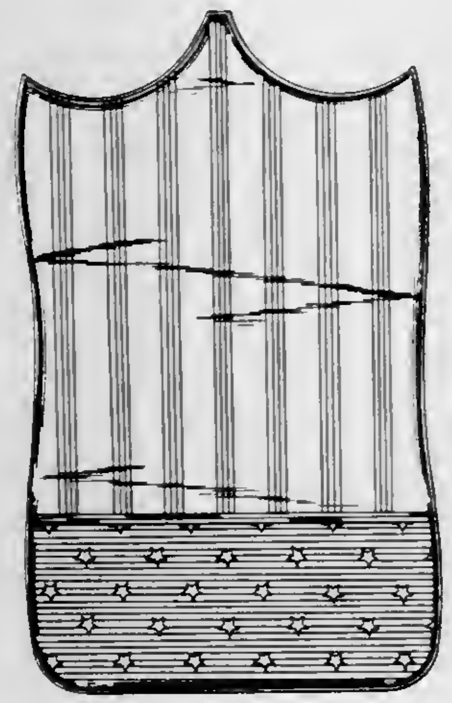


225,470

GARMENT BAG

Sidney Annis, 16 W. 16th St., New York, N.Y. 10011
Filed Mar. 8, 1971, Ser. No. 122,276
Term of patent 14 years
Int. Cl. D3—*99*

U.S. Cl. D87—1

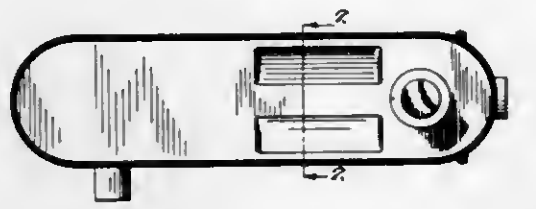


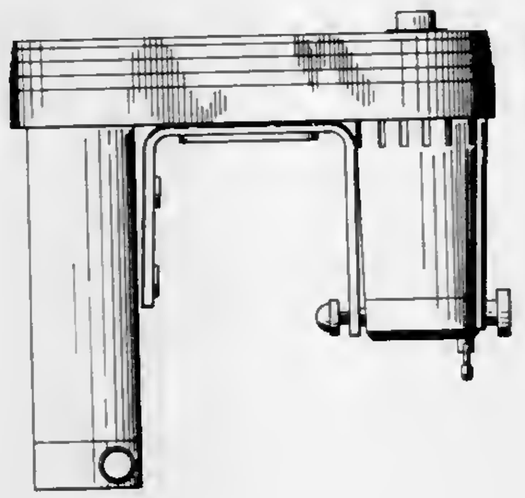
225,471

HYDROTHERAPY BATH UNIT

Samuel L. McNair, Overland Park, Kans., assignor to The Songrand Corporation
Filed Apr. 20, 1971, Ser. No. 134,112
Term of patent 14 years
Int. Cl. D24—*01*

U.S. Cl. D83—1



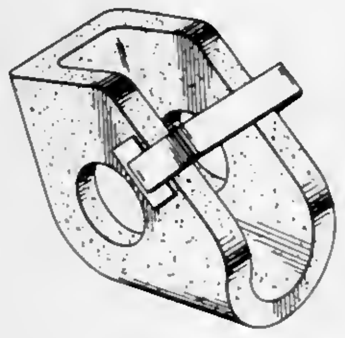


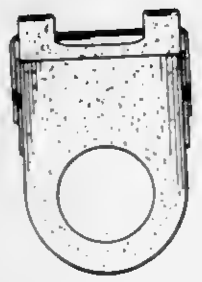
225,472

PROTECTIVE PAD FOR BED PATIENTS

Ernest E. Lowrey and Oliver W. Lowrey, Gatesville, Tex., assignors to Medical Plastics Laboratory, Inc., Gatesville, Tex.
Filed Aug. 19, 1971, Ser. No. 173,340
Term of patent 14 years
Int. Cl. D24—*05*

U.S. Cl. D83—1



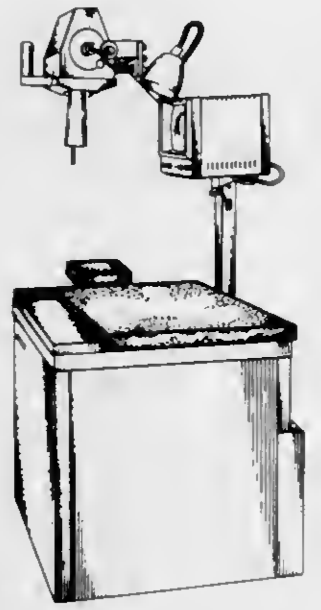


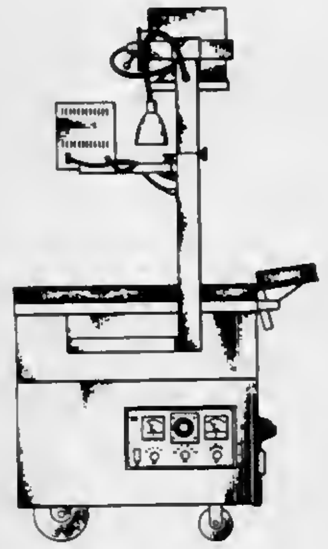
225,473

MOBILE FLUOROSCOPIC UNIT

Lewis S. Carey, 45 Blackbourn Crescent, Kilworth Heights, London, Ontario, Canada, and George L. Mansour, 8126 Stevens Ave., Minneapolis, Minn. 55420
Filed Oct. 13, 1971, Ser. No. 189,069
Term of patent 14 years
Int. Cl. D24—*01*

U.S. Cl. D83—1



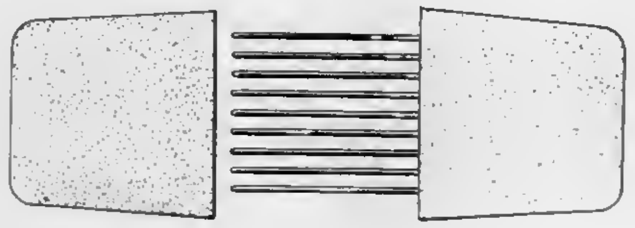


225,474

POCKET COMB

Paul E. Brooks, 14351 Woodmont, Detroit, Mich. 48227
Filed Nov. 24, 1969, Ser. No. 20,262
Term of patent 14 years
Int. Cl. D28—*03*

U.S. Cl. D86—8

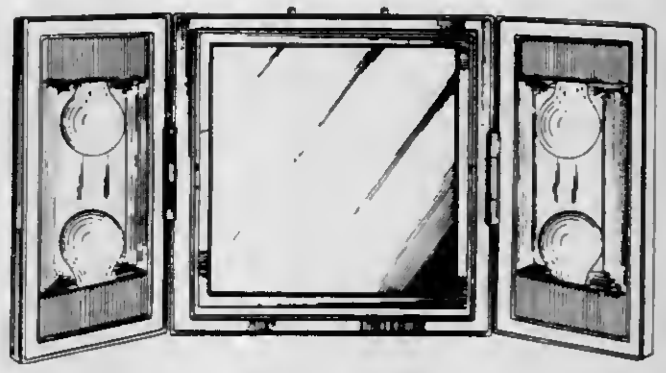


225,475

ILLUMINABLE ROTATABLE DOUBLE-FACED MIRROR

Stanford Pavenick, South Orange, N.J. (℅ Aljen Manufacturing Corp., 115 Grand St., New York, N.Y.)
Original design application Feb. 2, 1970, Ser. No. 21,189. Divided and this application Dec. 30, 1970, Ser. No. 26,709
Term of patent 7 years
Int. Cl. D28—*03*

U.S. Cl. D86—10

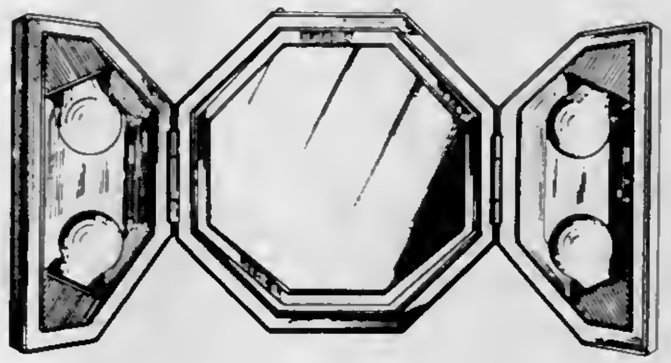


225,476

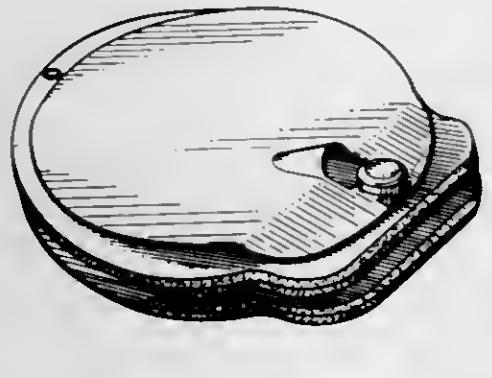
ILLUMINABLE ROTATABLE DOUBLE-FACED MIRROR

Stanford Pavenick, South Orange, N.J. (℅ Aljen Manufacturing Corp., 115 Grand St., New York, N.Y.)
Original design application Feb. 2, 1970, Ser. No. 21,189. Divided and this application Dec. 30, 1970, Ser. No. 26,710
Term of patent 7 years
Int. Cl. D28—*03*

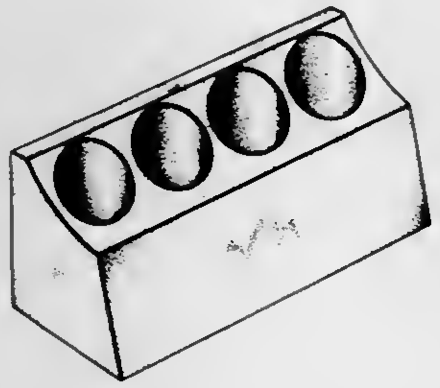
U.S. Cl. D86—10



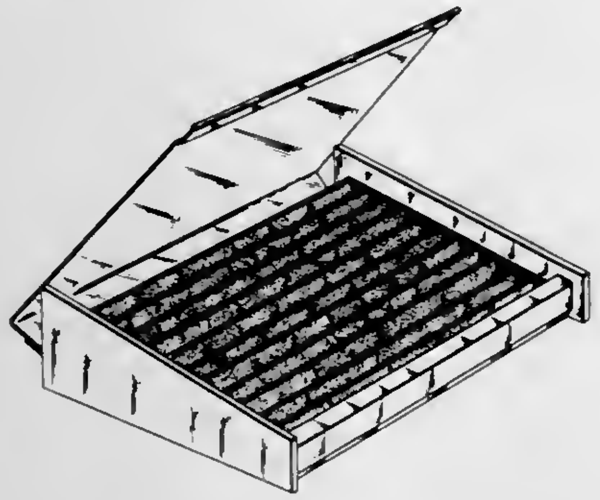
225,477
FINGERNAIL CLIPPER OR THE LIKE
Bernard M. Rock, 1311 York St., Denver, Colo. 80206
Filed Feb. 18, 1971, Ser. No. 116,740
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10



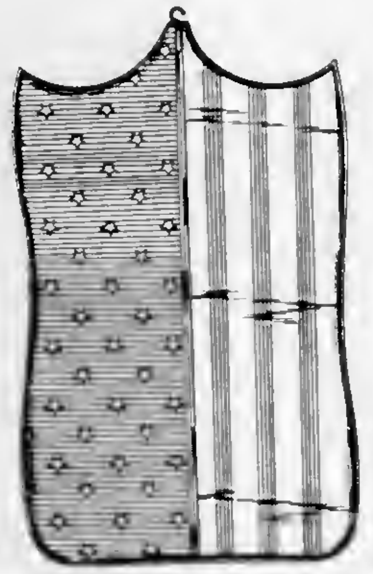
225,478
HOLDER FOR LIPSTICK CONTAINERS
David S. Wyse, ℅ Projects Unlimited, Inc., P.O. Box 1426, Northridge Station, Dayton, Ohio 45414
Filed Apr. 16, 1971, Ser. No. 134,927
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D86—10



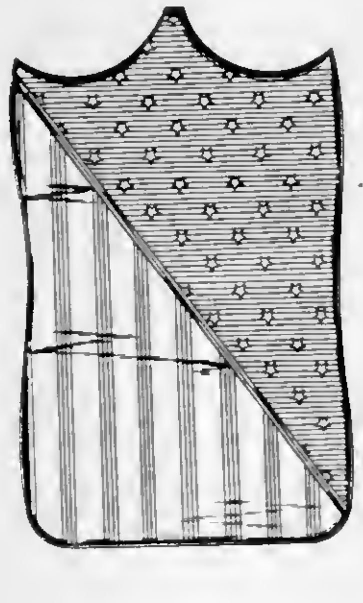
225,479
STORAGE CONTAINER FOR CASSETTES OR THE LIKE
Robert F. Zottola, 225 Greenwich Ave., Greenwich, Conn. 06830
Filed Jan. 21, 1971, Ser. No. 108,667
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—1



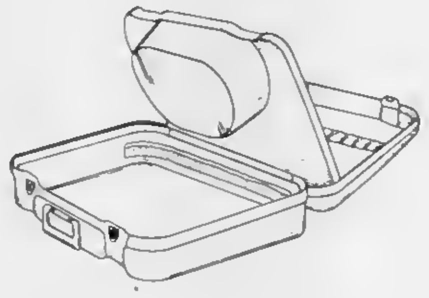
225,480
GARMENT BAG
Sidney Annis, 16 W. 16th St., New York, N.Y. 10011
Filed Mar. 8, 1971, Ser. No. 122,277
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1



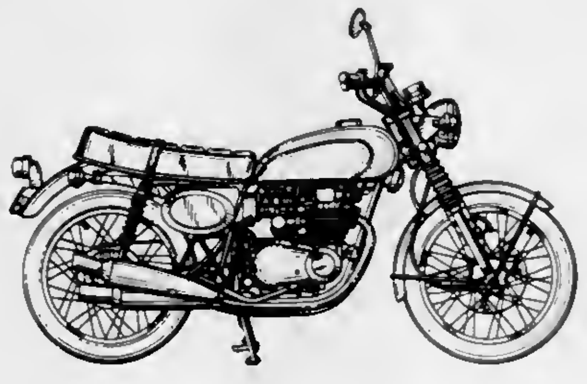
225,481
GARMENT BAG
Sidney Annis, 16 W. 16th St., New York, N.Y. 10011
Filed Mar. 8, 1971, Ser. No. 122,278
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1



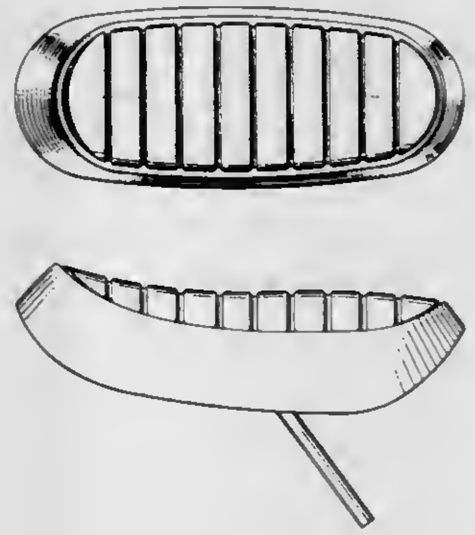
225,482
COMBINED HEAD AND FOOT GEAR CARRYING CASE
Michael W. Bamburger, 17 Wurzerstr., 8 Munich, Germany
Filed Aug. 18, 1970, Ser. No. 24,561
Claims priority, application Germany Feb. 20, 1970
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—5



225,483
MOTORCYCLE
Hitoshi Ikeda, 21 Nobidome Kamikitagawa, Niiza-machi, Kitaadachi-gun, and Kiyoshi Ukai, 3436 Fujimi-cho Mizuko, Iruma-gun, both of Saitama, Japan
Filed Mar. 22, 1971, Ser. No. 127,085
Claims priority, application Japan Sept. 22, 1970
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D90—8

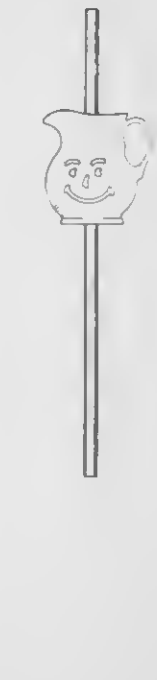


225,484
CYCLE SEAT
Frederick E. Purdy, Olney, Ill., assignor to AMF Incorporated
Filed May 24, 1971, Ser. No. 146,605
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D90—16

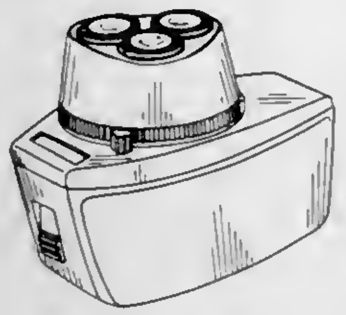


225,485
WITHDRAWN

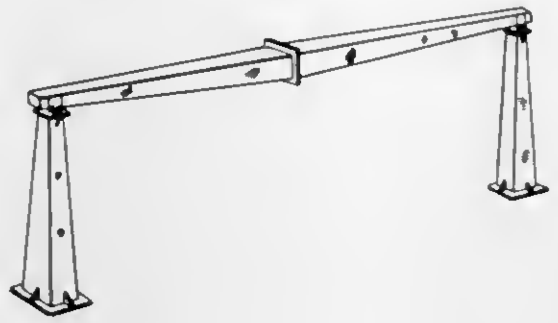
225,486
DRINKING STRAW
Philip D. Bart, Monsey, N.Y.
(3070 NE. 43rd St., Fort Lauderdale, Fla. 33306)
Filed Apr. 5, 1971, Ser. No. 131,582
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D94—3



225,487
COMBINED DRY SHAVER AND HAIR CLIPPER
Knut Otto Yran, Eindhoven, Netherlands, assignor to United States Philips Corporation
Filed June 16, 1971, Ser. No. 153,919
Claims priority, application Switzerland Dec. 21, 1970
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



225,488
OVERHEAD SIGN SUPPORT
Clifton E. Jones, Flint, Mich., assignor to Anderson Safeway Guard Rail Corporation, Flint, Mich.
Filed June 7, 1971, Ser. No. 150,877
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. 96—12



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF DECEMBER, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A/S Fredriksstad mek. Verksted: *See—*
  - Wilhelmsen, Jens, 3,705,564.
- Abbey, Nelson D.: *See—*
  - Vassar, Clyde W., 3,705,458.
- Abbott Laboratories: *See—*
  - Garmaise, David Lyon; Paris, Gerard Yvon; and Plotnikoff, Nicholas Peter, 3,705,902.
- Adler, Norman R., to Ilco Corporation. Panic lock device. 3,705,739, Cl. 292-92.000.
- Aepli, Otto T.: *See—*
  - Sedliar, Ronald M.; Aepli, Otto T.; and Burkard, Perle N., 3,705,856.
- Affiliated Hospital Products, Inc.: *See—*
  - Einstein, Alfred C., 3,705,724.
- Agfa-Gevaert Aktiengesellschaft: *See—*
  - Lermann, Peter, 3,705,536.
  - Nittel, Fritz; Sobel, Johannes; and Himmelmann, Wolfgang, 3,705,805.
  - Putscher, Johann, 3,705,538.
  - Wagner, Karl; Nicolay, Klaus; Schuchardt, Gerhard; and Putscher, Johann, 3,705,539.
- Agfa-Gevaert, Mortsel-Belgium: *See—*
  - De Schamphelaere, Lucien Amede, 3,705,978.
- Ahmed, Kamal, to AMP Incorporated, mesne. Slip ring assembly. 3,705,996, Cl. 310-232.000.
- Aichi Steel Works Limited: *See—*
  - Fukui, Hiroshi; Iwatsu, Gakuji; and Kato, Junichi, 3,705,718.
- Air-Lock Plastic, Inc.: *See—*
  - Confer, Raymond C.; and Talmon, Floyd H., 3,705,931.
- Aisin Seiki Kabushiki Kaisha: *See—*
  - Yoshimura, Noboru, 3,705,738.
- Akatsu, Mitsuharu; Kinoshita, Tomoo; and Iwasaki, Tadahiko, to Hitachi, Ltd. High voltage regulating circuit. 3,706,003, Cl. 315-18.000.
- Aksamit, Stephen M., to Standard Alliance Industries, Inc. Trolley retarder for power and free conveyors. 3,705,554, Cl. 104-250.000.
- Aktiebolaget Svenska Metallverken: *See—*
  - Bergqvist, Ake Torgny, 3,705,647.
- Alaimo, Robert J., to Morton-Norwich Products, Inc. Certain 4-amino-2-(5-nitro-2-thienyl) quinazolines and the intermediate 4-chloro-(5-nitro-2-thienyl) quinazolines therefor. 3,705,898, Cl. 260-247.100.
- Allegre, Raymond: *See—*
  - Allegre, Rene; and Allegre, Raymond, 3,705,815.
- Allegre, Rene; and Allegre, Raymond, to Societe Anonyme dite Ciments. Lime and silica-rich high alumina cement, and process for manufacturing same. 3,705,815, Cl. 106-104.000.
- Allen, Charles R. Snap on drywall fastening system II. 3,705,471, Cl. 52-243.000.
- Allied Chemical Corporation: *See—*
  - Garofano, Norman R.; and Follows, Alan G., 3,705,790.
  - Lazarus, Stanley David, 3,705,878.
  - Woolf, Cyril; Oxenrider, Bryce C.; and Beyleveld, Wilhelmus M., 3,705,917.
- Alliegro, Richard A., to Norton Company. Silicon nitride kiln furniture. 3,705,714, Cl. 263-47.00r.
- Allis Chalmers Manufacturing Company: *See—*
  - Goodman, Ernest A., 3,706,060.
- Allis-Chalmers Manufacturing Company: *See—*
  - Pflanz, Herbert M., 3,706,012.
- Allwood Searle & Timney Limited: *See—*
  - Searle, John Gilbert, 3,705,678.
- Almstead, James L., to Eastman Kodak Company. Disengageable anti-backup mechanism for a film cartridge. 3,705,763, Cl. 352-78.00r.
- Alouisa, Frank B., to United States of America, Army. Hybrid routing technique for switching communication network. 3,705,523, Cl. 179-18.0ea.
- Alpert, Seymour B.; and Chervenak, Michael C., to Hydrocarbon Research, Inc. Fuel oil desulfurization. 3,705,849, Cl. 208-59.000.
- Amann, Herbert; and Bader, Erich, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Method of making polyoxymethylenes. 3,705,876, Cl. 260-67.0fp.
- Amano, Takashi: *See—*
  - Hanyu, Susumu; and Amano, Takashi, 3,705,562.
- Ambrosius, Manfred, to Bremshey & Co. Vehicle seat. 3,705,745, Cl. 297-308.000.
- American Cyanamid Company: *See—*
  - Dundon, John Peter, 3,705,822.
  - Levy, Stephen David; and Wayne, Richard Steven, 3,705,895.
- American Gage & Machine Company: *See—*
  - Lulay, John R.; Marusarz, Bruno J.; and Mateja, Edward J., 3,705,721.
- American Molded Products, Ltd.: *See—*
  - Duckett, John W.; Brooks, Edward A.; and Reynolds, Clarke, 3,705,566.
- American Potato Company: *See—*
  - Shields, John Bickford, 3,705,812.
- American Safety Equipment Corporation: *See—*
  - Fujisawa, Masakatsu, 3,705,761.
- AMP Domestic Inc.: *See—*
  - Keller, Joseph Richard; and Pritulsky, James. 3,705,756.
- AMP Incorporated, mesne: *See—*
  - Ahmed, Kamal, 3,705,996.
- Andreas, Henry L., to Sci-Tek Computer Center, Inc. Profile determining method and system. 3,705,772, Cl. 356-5.000.
- Andriussi, Francois Georges, to Societe de Wendel et Compagnie. Safety rail for roads and motorways. 3,705,709, Cl. 256-13.100.
- Anonima Castelli S.A.S.: *See—*
  - Piretti, Giancarlo; and Castelli, Leonida, 3,705,744.
- Arc-Crose International, Inc.: *See—*
  - Clavin, Edward A.; McCullough, Donald H.; and McCullough, David R., 3,705,506.
- Argabright, Perry A.; Hummel, Jack L.; and Presley, C. T., to Marathon Oil Company. Inhibition of saline water intrusion into fresh water aquifers. 3,705,627, Cl. 166-295.000.
- Arisland, Kjell Oystein. Valve arrangement for suction tubes. 3,705,601, Cl. 137-493.000.
- Arnemann, Gerhard. Method of stacking and destacking barrels. 3,705,657, Cl. 214-152.000.
- Arneth, Reinhold: *See—*
  - Moraw, Roland; and Arneth, Reinhold, 3,705,768.
- Arnosky, Joseph E.: *See—*
  - Balzer, Norbert R.; and Arnosky, Joseph E., 3,705,973.
- Arnsteiner, Anton. Ski. 3,705,729, Cl. 280-11.131.
- Arvanitakis, Kostas Savas. Filtration system. 3,705,648, Cl. 210-66.000.
- Arvanitakis, Kostas Savas. Desludger apparatus and process. 3,705,649, Cl. 210-66.000.
- Asahi Chemical Industry Co., Ltd.: *See—*
  - Kato, Masaaki; and Sato, Sigeta, 3,705,846.
- Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
  - Ishikawa, Tatsuo; Hiruta, Shiro; Wakabayashi, Teruomi; Inamoto, Yoshihiko; Kusunose, Tethiro; Tsumaki, Tatsuichi; and Ota, Masami, 3,705,877.
- Ashworth, James E., to United States Steel Corporation. Cantilever slide gate. 3,705,468, Cl. 49-409.000.
- Associated Electrical Industries, Limited: *See—*
  - Davidson, David Fulton; and Irving, Brian Arthur, 3,705,735.
- Assouline, George; Conjeaud, Pierre; Girault, Pierre; and Leiba, Eugene, to Thomson-CSF. Blind landing aid systems. 3,705,955, Cl. 178-6.800.
- Atkinson, Louis D.: *See—*
  - Laakaniemi, Richard N.; Kuczkowki, Frank A.; Atkinson, Louis D.; Kuhar, Paul W.; Lechner, Thomas J., Jr.; and Weber, Urban A., 3,705,595.
- Atlantic Merchandising Company: *See—*
  - Fisher, William M., 3,705,674.
- Atlantic Richfield Company: *See—*
  - Smith, Robert A.; and Wang, Ting-I, 3,705,924.
- Audi NSV Auto-Union Aktiengesellschaft: *See—*
  - Ruf, Max, 3,705,570.
- Austin, Frederick H.; Rogers, Jimmy D.; and Wormser, Joseph J., to LTV Electrosystems, Inc. Pulse transmittor including means for controlling the amplitude and phase of output pulses. 3,706,038, Cl. 325-164.000.
- Automated Feed Mills Limited: *See—*
  - Sandor, Bela Thomas, 3,705,695.
- Autoquip Corporation: *See—*
  - Clarke, Dudley S.; and Camera, Jack, 3,705,987.
- Avco Corporation: *See—*
  - Brandel, Wynand W.; and Klass, Lawrence S., 3,705,511.
- Aya, Masahiro: *See—*
  - Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,705,929.
- Azato, Robert N., to General Binding Corporation. Hanger hardware for a director. 3,705,706, Cl. 248-447.000.
- Bader, Erich: *See—*
  - Amann, Herbert; and Bader, Erich. 3,705,876.
- Badger Company, Inc., The: *See—*
  - Miller, George M.; and Underwood, Max E., 3,705,617.
- Badrian, Willy H. J., to Shell Oil Company. Coated fabrics of thermoplastic materials. 3,705,835, Cl. 161-90.000.
- Baer, Stephen Charles. Microscopy apparatus. 3,705,755, Cl. 350-6.000.

Bailey, Joseph, to Eastman Kodak Company. Pyrazolo [3,2-c]-s-triazoles and process for the manufacture thereof. 3,705,896, Cl. 260-240.00e.
Bailey Meter Company: *See—*
  Cohen, Kenneth W.; and Martin, Thomas E., 3,705,535.
Baisupov, Izmail Abdulovich: *See—*
  Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.
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Ballantyne, Jack R.: *See—*
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Balzer, Norbert R.; and Arnosky, Joseph E., to Park-Ohio Industries, Inc. Resistance heating apparatus for elongated workpieces. 3,705,973, Cl. 219-156.000.
Banister, Lionel W. Electrical cord retracting mechanism. 3,705,962, Cl. 191-12.400.
Banker, Bernard R.: *See—*
  Voigt, H. William, Jr.; and Banker, Bernard R., 3,705,828.
Bannister, Brian; and Magerlein, Barney J., to Upjohn Company, The. Lincomycin analogs and process. 3,705,889, Cl. 260-210.00r.
Banse, Karlheinz Victor Hermann; Seelig, Wolfgang Hagen; Steinger, Jurg Hugo; and Herziger, Gerd Bernd, to Institut fur Angewandte Physik der Universitat Bern. Gas discharge tube for a laser. 3,705,999, Cl. 313-197.000.
Bansen, Kurt. Broach assembly. 3,705,448, Cl. 29-95.100.
Baptista, John L., to Eastman Kodak Company. Novel photographic processing compositions and improved processing using such compositions for preparing silver auxiliary and sound records. 3,705,802, Cl. 96-4.000.
Barbato, Alexander L.; deceased (by Barbato, Patricia J.; executrix), to Diamond Shamrock Corporation. Float measuring device for mercury cells. 3,705,842, Cl. 204-99.000.
Barbato, Patricia J.: *See—*
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Barker, Sidney Alan; Kennedy, John Frederick; and Cray, Charles John, to Ranks Hovis McDougall Limited. Cellulose carbonates and method for their preparation. 3,705,890, Cl. 260-228.000.
Barnowski, Guilford Henry G., Jr.: *See—*
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Barrineau, Wade H., III, to Southern Cross Industries, Inc. Adjustable shelves and support therefor. 3,705,654, Cl. 211-176.000.
Bartl, Herbert: *See—*
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Barton, Derek Harold Richard, to Research Institute for Medicine and Chemistry Inc. Process for the 9(11)-enolisatin of a steriod 1,4-diene-3,11-dione. 3,705,893, Cl. 260-239.55d.
BASF Wyandotte Corporation: *See—*
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  Duvall, Jacque L., 3,705,860.
  Sedliar, Ronald M.; Aepli, Otto T.; and Burkard, Perle N., 3,705,856.
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Baudras, Andre, to Societe Technique et Commercial d'Installations Industrielles "Luceat". Tank car loading unit. 3,705,610, Cl. 141-387.000.
Bauer, Alfons. Apparatus for indicating and recording the speed of motor vehicles and the distance travelled therewith. 3,706,097, Cl. 346-18.000.
Bauerle, Oskar; Kubel, Wilfried; Munster, Ernst; Schweikert, Karl; and Strobl, Georg. Commutator. 3,705,997, Cl. 310-237.000.
Baughman, Davis L., to Carborundum Company, The. Shot peening method. 3,705,510, Cl. 72-53.000.
Bayer Aktiengesellschaft. *See—*
  Wingler, Frank, Brudermanns, Karola; and Bartl, Herbert, 3,705,883.
Bayne, Peter D.: *See—*
  Krause, Ronald O.; and Bayne, Peter D., 3,705,597.
Beinsch, Herbert, to Bosch, Robert, Photokino GmbH. Motion picture camera for the making of exposures with fixed and variable exposure times. 3,705,764, Cl. 352-121.000.
Bell, Oliver A., Jr., to Colt Industries Operating Corporation. Cut-off protection system for electrical discharge machining power supply. 3,705,969, Cl. 219-69.00s.
Bell, Samuel; and Bullen, Leslie Gerald, to Electric & Musical Industries Limited. Mooring devices. 3,705,431, Cl. 9-8.00r
Bell Telephone Laboratories, Inc.: *See—*
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Bell Telephone Laboratories, Incorporated: *See—*
  Bobeck, Andrew Henry; Kowalchuk, Roman; and Reekstin, John Peter, Jr., 3,706,081.
  Bobeck, Andrew Henry; and Danylchuk, Irynej, 3,706,082.
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  Schuster, Paul Alfred, 3,706,076.
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Bello, Hobson J.: *See—*
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Bergmann, Karl Heinz, to Deutsche Fernsprecher Gesellschaft mbH. Adjustable relay contact. 3,705,966, Cl. 200-166.00m.
Bergqvist, Ake Torgny, to Aktiebolaget Svenska Metallverken. Apparatus for checking the circumverential edge surface and the diameter of disc-shaped objects. 3,705,647, Cl. 209-88.000.
Bergsland, Joh. Coasting device. 3,705,730, Cl. 280-24.000.
Bergwerksverband GmbH: *See—*
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Berlin, Aaron S.; and Little, Vincent C., to United States of America, Army. Push button munition. 3,705,551, Cl. 102-64.000.
Berney, Bernard C.: *See—*
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Berns, Charles, to Edwards Company, Inc. Alarm latching circuit. 3,706,087, Cl. 340-213.00r.
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Berry, Gordon J., Jr., to Portec, Inc. Electrical machine frame. 3,705,994, Cl. 310-91.000.
Bethlehem Steel Corporation: *See—*
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Bevis, Michael J.; Bello, Hobson J.; and Holtz, Carl F., to Eastman Kodak Company. Process for preparing color film with auxiliary or silver sound record using bleach inhibitor. 3,705,803, Cl. 96-4.000.
Beyleveld, Wilhelmus M.: *See—*
  Woolf, Cyril; Oxenrider, Bryce C.; and Beyleveld, Wilhelmus M., 3,705,917.
Biddison, John M., to Globe Tool and Engineering Company, The. Wave winding of armatures. 3,705,459, Cl. 29-597.000.
Biensan, Michel; and Bruant, Philippe, to Societe Nationale des Petroles d'Aquitaine. Process for obtaining polylactam powders. 3,705,871, Cl. 260-33.60r.
Bierlein, John C.; De Hart, Arnold D.; and Handwerker, Louis W., Jr., to General Motors Corporation. Method and means for reducing fretting of contacting surfaces. 3,705,753, Cl. 308-240.000.
Bio/Physics Systems, Inc.: *See—*
  Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,705,771.
Biotest-Serum-Institut, GmbH: *See—*
  Russmann, Horst; and Determann, Helmut, 3,705,652.
Bishop, Nigel Douglas: *See—*
  Pickles, Cynthia Joan; and Bishop, Nigel Douglas, 3,705,914.
Bishop, Thomas Desmond, to Deritend Engineering Company, The. Rotary die cutting blanks. 3,705,526, Cl. 83-698.000.
Blackburn, Leonard J. Structure demolition apparatus. 3,705,747, Cl. 299-70.000.
Blanie, Marie Jean Michel Paul; Ramis, Jean; and Robert, Henri R., to Societe Civile d'Inventions Idees. Proportioning valve for a pressurized dispenser. 3,705,667, Cl. 222-136.000.
Blockils, Inc.: *See—*
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Bloomfield, George Vincent, to Brico Engineering Limited. Fuel injection systems for internal combustion engines. 3,705,572, Cl. 123-139.0aw.
Blouri, Byouk: *See—*
  Rumpf, Paul; and Blouri, Byouk, 3,705,926.
Bobart, George F.; and Emerson, William A., to United States Steel Corporation. Induction heating method. 3,705,967, Cl. 219-10.410.
Bobeck, Andrew Henry; Kowalchuk, Roman; and Reekstin, John Peter, Jr., to Bell Telephone Laboratories, Incorporated. Fail-safe domain generator for single wall domain arrangements. 3,706,081, Cl. 340-174.0tf.
Bobeck, Andrew Henry; and Danylchuk, Irynej, to Bell Telephone Laboratories, Incorporated. Single wall domain generator. 3,706,082, Cl. 340-174.0tf.
Boehringer Ingelheim G.m.b.H.: *See—*
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Bolger, John G., Jr.; and Walker, Carl A., to Digilux Corporation, mesne. Method and apparatus for automatic scorekeeper. 3,705,722, Cl. 273-54.00c.
Boots Pure Drug Company Limited: *See—*
  Lumb, Melvyn; Macey, Peter Edward; Wright, Richard Donald; and Petchell, Roy Kenneth, 3,705,841.
Bosch, Robert, Photokino GmbH: *See—*
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Botley, Geoffrey Sword: *See—*
  Sanders, Kenneth Douglas; Botley, Geoffrey Sword; and Taylor, Jack William, 3,705,507.
Bott, A. Hans, to Harris Intertype Corporation. Frequency control circuit. 3,706,039, Cl. 325-184.000.
Bourgault, Pierre Louis; and Fraser, George Herbert, to Johnson Matthey & Mallory Limited. Ion exchange membrane electrochemical integrator. 3,706,013, Cl. 317-231.000.
Boutwell, Ernest D.; and Longfellow, Jack M., to United States of America, Army, mesne. Test circuits for exploding bridgewire power supply. 3,706,031, Cl. 324-122.000.
Bow, William J.; and Pollard, Richard J., to Foster Wheeler Corporation. Holding system for steam power cycle. 3,705,494, Cl. 60-105.000.
Bower, Barton K., to Hercules Incorporated. Tetra (bicycloheptyl) transition metal compounds. 3,705,916, Cl. 260-429.300.
Bowles Fluidics Corporation: *See—*
  Turek, Robert F., 3,705,534.
Boylan, Francis J., to Hercules Incorporated. Method of abating foam formation in aqueous systems. 3,705,859, Cl. 252-321.000.
Bradshaw, Thurman O.; and Rogers, William W. Fish locator with audio monitor. 3,706,068, Cl. 340-3.00r.
Brand, Abraham: *See—*
  Mowrey, Albert C.; Huiskes, John H.; and Brand, Abraham, 3,706,085.
Brandel, Wynand W.; and Klass, Lawrence S., to Avco Corporation. Low penetration ball forming process. 3,705,511, Cl. 72-53.000.
Braswell, James W. Flushing apparatus. 3,705,428, Cl. 4-58.000.
Brauer, Robert C. Waste disposal system. 3,705,851, Cl. 210-1.000.
Bredzs, Nikolajs, to Wall Colmonoy Corporation. Cermet alloy composition. 3,705,791, Cl. 29-195.000.
Breer, Karl Wilhelm; and Weinbrenner, Erwin, to Farbenfabriken Bayer Aktiengesellschaft. Process and apparatus for applying polyurethane foam-forming composition. 3,705,821, Cl. 117-105.300.
Bremshey & Co.: *See—*
  Ambrosius, Manfred, 3,705,745.
Brenneman, Roderick L.; and McLeon, Daniel M., to Georgia-Pacific Corporation. Method for fastening wood veneer sheets together edge to edge. 3,705,829, Cl. 156-65.000.
Breslauer, Charles S., to Grace, W. R., & Co. Woodflake composition for panels and method of making same. 3,705,837, Cl. 161-168.000.
Breslow, Jeffrey D., to Glass, Marvin, & Associates. Board game apparatus. 3,705,727, Cl. 273-135.00b.
Brewer, Lee M.; and Rohde, Robert P., to General Motors Corporation. Engine idle speed governor and throttle control. 3,705,685, Cl. 236-93.000.
Brickner, David R.; and Schell, Sidney T., to Sperry Rand Corporation. Controlled magnitude repeater for synchro and resolver signals. 3,705,980, Cl. 235-186.000.
Brico Engineering Limited: *See—*
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Bridgestone Tire Company Limited: *See—*
  Honda, Toshio; Kubota, Eishi; Fukuura, Yukio; and Kobayashi, Yoneji, 3,705,868.
Bridgewater, Thomas Austin, to RCA Corporation. Motor control circuit. 3,706,016, Cl. 318-16.000.
Brigg, Alan Henry: *See—*
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Bright, Elvin M. Molded drinking receptacle. 3,705,660, Cl. 215-1.00c.
Brizgys, Bernardas, to BASF Wyandotte Corporation. Urethane coating compositions. 3,705,879, Cl. 260-77.5ac.
Brooks, Edward A.: *See—*
  Duckett, John W.; Brooks, Edward A.; and Reynolds, Clarke, 3,705,566.
Brooks, Frank W.; and Gebhart, Norman L., to General Motors Corporation. Disc brake. 3,705,641, Cl. 188-73.300.
Brother Kogyo Kabushiki Kaisha: *See—*
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Brower, Robert L.: *See—*
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Brown, Clifford: *See—*
  Kolko, Gary A.; and Brown, Clifford, 3,705,788.
Brown, Joseph W. Combustion heads. 3,705,690, Cl. 239-424.500.
Browning, Charles E., to United States of America, Air Force. Thermally stable polyimides. 3,705,875, Cl. 260-63.00n.
Bruant, Philippe: *See—*
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Bruckner, Klaus: *See—*
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Budd Company, The: *See—*
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  Gilmour, Richard C.; Kaitz, Vincent A.; and Lemberger, Adolph W., 3,705,525.
Budington, Richard V., to Longview Fibre Company. Knock-down table of paperboard sheet material. 3,705,557, Cl. 108-150.000.
Bullen, Leslie Gerald: *See—*
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Burke, Leo J. Portable electric ice auger. 3,705,632, Cl. 173-27.000.
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Burnham, Stephen G. Multitone wooden drum. 3,705,527, Cl. 84-403.000.
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Busatto, Vinicio, to Minnesota Mining & Manufacturing Company. Photosensitive mateal for radiography. 3,705,807, Cl. 96-84.00r.
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Cable Electric Products, Inc.: *See—*
  Schwartz, Frederic W., 3,706,004.
Callaghan, James I. Burglar alarm triggered by breaking of a magnetic circuit. 3,706,090, Cl. 340-274.000.
Callighan, Robert H.; and Masciantonio, Philip X., to United States Steel Corporation. Process for the preparation of glyoxylic acid methyl hemiacetal. 3,705,922, Cl. 260-535.00r.
Camera, Jack: *See—*
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Campbell, Lewis B.. *See—*
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Camporese, Marsilio, and Levi, Alberto. Automatic button fastening device. 3,705,443, Cl. 24-90.0pr.
Camras, Marvin, to IIT Research Institute. Video transducing apparatus. 3,705,954, Cl. 178-6.60a.
Canadian General Electric Company, Limited: *See—*
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Canevari, Roger: *See—*
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Canup, Robert F. Saturable core square wave oscillator with switching transient reducing means. 3,706,052, Cl. 331-113.00a.
Carborundum Company, The: *See—*
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Carli, Roberto; and Gordini, Silvano, to Snam Progetti S.p.A. Method for regulating the temperature and the conversion in a polymerization reactor and apparatus suitable to realize the same. 3,705,787, Cl. 23-230.00a.
Carlson, Richard A., to General Motors Corporation. Vehicle daytime running lights. 3,706,005, Cl. 315-82.000
Carlton, Lawrence W.: *See—*
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Carpenter, Keith H., to General Motors Corporation. Depressed park windshield wiper system. 3,705,520, Cl. 74-600.000.
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Carreira, Leonard M.: *See—*
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Carruthers, George A., to Turbo Machine Company. False-twisting apparatus. 3,705,487, Cl. 57-77.400.
Casagrande, Antonio. Universal machine for foundations. 3,705,634, Cl. 175-122.000.
Case, J. I., Company: *See—*
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Cason, Charles M., III, to United States of America, Army. Magnetohydrodynamic gas dynamic laser. 3,706,050, Cl. 331-94.500
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Chabot, Ferdinand E., to Square D Company. Parallel-pole circuit breaker. 3,706,056, Cl. 335-10.000.
Chabrerie, Jean-Pierre; and Mailfert, Alain Jacques. Homopolar machine with multiple discs and a short inductor. 3,705,995, Cl. 310-178.000.
Chagnon, Verdun P. Scuba diving reel. 3,705,697, Cl. 242-55.000.
Charney, Andrew. Fish lure. 3,705,465, Cl. 43-42.006.
Cheman Corporation of America: *See*—
Lee, Aaron, 3,705,689.
Chemische Werke Huels, Aktiengesellschaft: *See*—
Frese, Albert, 3,705,884.
Chen, Pictiaw; and Mehlschau, James J., to University of California, The Regents of the. Bush berry harvester. 3,705,486, Cl. 56-330.000.
Chervenak, Michael C.: *See*—
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Cherwek, Roland A., to Raytheon Company. Signal processor. 3,706,095, Cl. 343-7.700.
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Christian, Robert L.: *See*—
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Ciba-Geigy AG: *See*—
Hennart, Claude; Martin, George; Mandon, Jean-Pierre; and Rabussier, Bernard Aranton, 3,705,941.
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C.I.T.-Compagnie Industrielle des Telecommunications: *See*—
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Clark Equipment Company: *See*—
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Clarke, Dudley S.; and Camera, Jack, to Autoquip Corporation. Operating differential extender for photoelectric eye or equivalent sensing device. 3,705,987, Cl. 250-201.000.
Clarke, Gail H., Jr.; and Barnowski, Guilford Henry G., Jr., to Olin Corporation. Composition and method for stripping polyvinyl butyral primed coatings. 3,705,857, Cl. 252-170.000.
Claudius, Peters Aktiengesellschaft: *See*—
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Clavin, Edward A.; McCullough, Donald H.; and McCullough, David R., to Arc-Crose International, Inc. Automatic positioning device. 3,705,506, Cl. 72-21.000.
Cleaning Systems Industries, Inc.: *See*—
Rukavina, Louis, Jr.; Brower, Robert L.; and Lane, Daniel J., 3,705,437.
Coffin, David W., Sr.: *See*—
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Cole, Peter Harold; and Vaughan, Richard. Electronic surveillance system. 3,706,094, Cl. 343-6.5ss.
Cole, Raymond Alfred: *See*—
Laurie, James Harold; and Cole, Raymond Alfred, 3,705,547.
Colgate-Palmolive Company: *See*—
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Collier, Franck; Dauchy, Jean-Daniel; Le Sergent, Christian; and Michon, Maurice, to Compagnie Generale d'Electricite. Liquid laser. 3,706,051, Cl. 331-94.500.
Collin, Heinrich, to Kanas Maffei Aktiengesellschaft. Plastifying apparatus. 3,705,778, Cl. 425-224.000.
Colling, Ronald L.; and Trenne, Myron U., to General Motors Corporation. Automatic re-engage circuit for an electronic speed control system. 3,705,639, Cl. 180-105.000.
Collins Radio Company: *See*—
White, Kenneth H., 3,705,530.
Color Systems, Inc.: *See*—
Ladd, Fred; and Song, Jung Hoon, 3,705,762.
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Comley, Erasmus Smit. Locking of car radios and the like. 3,705,612, Cl. 151-39.000.
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Confer, Raymond C.; and Talmon, Floyd H., to Air-Lock Plastic, Inc. Method for blow molding and compression molding thermoplastic material. 3,705,931, Cl. 264-89.000.
Conjeaud, Pierre: *See*—
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Conley, Larry R.: *See*—
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Conn, William M., to Dresser Industries, Inc. Large diameter earth boring bit. 3,705,635, Cl. 175-364.000.
Console, Giulio: *See*—
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Continental Can Company, Inc.: *See*—
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Continental Oil Company: *See*—
Starks, Charles M.; and Mc Claflin, Gifford G., 3,705,925.
Cook, Gordon Henry; and Lajrent, Francois, to Rank Organisation Limited, The. Optical objective of variable focal length. 3,705,759, Cl. 350-184.000.
Cooksey, Frank; Dix, Terence A.; and Hobson, David J. Curtain suspension rails. 3,705,439, Cl. 16-94.000.
Cooper, Robin D. G., to Lilly, Eli, and Company. Rearrangement of penicillin. 3,705,892, Cl. 260-239.100.
Cooperman, Morton: *See*—
Mansfield, Matthewand; and Cooperman, Morton, 3,705,462.
Cordes, Charles P. Cymbal retainer. 3,705,528, Cl. 84-421.000.
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Schimmer, Rigobert; Gesing, Horst; and Cordes, Karl-Heinz, 3,706,015.
Corey, Earl E.; Tuft, Richard A.; and Woodward, Jason H., to United States of America, Army. High efficiency capacitor charging circuit. 3,706,022, Cl. 320-1.000.
Costachescu, Carol: *See*—
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Cox, Duncan B., Jr.; and Fertig, Kenneth, to Massachusetts Institute of Technology. Electronic instrument servo. 3,706,092, Cl. 340-347.0ad.
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Kent, Cecil, 3,705,470.
Credit Keys Limited: *See*—
Sanders, Kenneth Douglas; Botley, Geoffrey Sword; and Taylor, Jack William, 3,705,507.
Crow, Morgan L., to Dresser Industries, Inc. Retaining pin and bearing assembly. 3,705,750, Cl. 308-8.200.
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De Haan, James R., 3,705,498.
Culvenor, Claude Charles Joseph; Edgar, John Alexander; Smith, Leslie Walter; Tweeddale, Helen Joan; Jago, Marjorie; and French, Eric Ancelot, to Commonwealth Scientific and Industrial Research Organisation. 6,7-Dihydro-5h-pyrrolizines and method of prepartion. 3,705,905, Cl. 260-326.50c.
Cunningham, Gerald A., to Blockils, Inc. Pulley block. 3,705,708, Cl. 254-195.000.
Curtis Instruments, Inc.: *See*—
Marwell, Edward M.; and Finger, Eugene P., 3,706,036.
Custer, Willard R. Air flow control means for channel winged aircraft. 3,705,700, Cl. 244-13.000.

Cutler, Lester M.; and Friedman, Paul, to Vibra-Baths Home Products, Inc. Waterproof battery operated vibrator. 3,705,578, Cl. 128-36.000.
Cutler-Hammer, Inc.: *See*—
Halbeck, Werner B.; Quaal, John A.; and Robbins, Clyde F., 3,706,100.
Czurak, Richard H.; and Thompson, Robert M., to Scott, O. M., and Sons Company, The. Roamed fertilizers and combination products. 3,705,794, Cl. 71-29.000.
Dahl, Ernest A., Jr. Microfilm holder. 3,705,464, Cl. 40-105.500.
Dahlgren, Harold P. Method of preparing dampening transfer and material conditioning roller. 3,705,451, Cl. 29-148.40d.
Daida Metal Company Ltd.: *See*—
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Daiichi Seiyaku Company Limited: *See*—
Oshima, Yasuo; Nakazawa, Nobuhiko; Nagasaki, Senkichi; Naito, Takeo; Osada, Yasuaki; Okusa, Naoya; Inuaki, Akira; and Tanaka, Kazuyuki, 3,705,989.
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Jorgensen, Aage Hojgaard, 3,706,088.
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Danylchuk, Irynej: *See*—
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Darmory, Franklin P.; and Di Benedetto, Marianne, to Ciba-Geigy Corporation. Soluble polyimides. 3,705,869, Cl. 260-302.00r.
Darmory, Franklin P.; and Di Benedetto, Marianne, to Ciba-Geigy Corporation. Soluble polyimides from aromatic dianhydrides and 2,4-diaminodiphenylamines and 2,4-diaminodiphenyl sulfides. 3,705,870, Cl. 260-30.20r.
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Davidson, David Fulton; and Irving, Brian Arthur, to Associated Electrical Industries, Limited. Electrically insulating joints for high-pressure pipelines. 3,705,735, Cl. 285-53.000.
Davis, Peter J. Multiple compartment thermally insulated container. 3,705,661, Cl. 215-6.000.
Dawson, Gordon Bertran, to Dowty Meco Limited. Joints for flexible ducting. 3,705,736, Cl. 285-260.000.
De Haan, James R., to Cryogenic Engeneering Company. Method and apparatus for cooling a cryogenic storage container. 3,705,498, Cl. 62-54.000.
De Hart, Arnold D.: *See*—
Bierlein, John C.; De Hart, Arnold D.; and Handwerker, Louis W., Jr., 3,705,753.
De Schamphelaere, Lucien Amede, to Agfa-Gevaert, Mortsel-Belgium. Time shared digital and analog process control. 3,705,978, Cl. 235-151.100.
Dean, Raymond Harkless, to RCA Corporation. Semiconductor device. 3,706,014, Cl. 317-234.00r.
Decision Data Corporation: *See*—
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Dee, Colin W., to Horstmann Gear Co., Ltd., The. Spherical bearing. 3,705,751, Cl. 308-9.000.
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Diehl, Max H., to General Electric Company. Vertical aperture correction circuit. 3,705,952, Cl. 178-7.200.
Dieulesaint, Eugene Jean; and Hartman, Pierre, to Thomson-CSF. Electromechanical delay with continuously adjustable delay. 3,706,055, Cl. 333-30.00r.
Digi-Log Systems, Inc.: *See*—
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Dimo, Paul G.; and Dimo, Dimitrie P. Graphic display apparatus for direct analysis of electric power systems. 3,706,073, Cl. 340-172.500.
Dix, Terence A.: *See*—
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Dolfini, Joseph Edward: *See*—
Narayanan, Venkatachala Lakshmi; and Dolfini, Joseph Edward, 3,705,906.
Douty, Donald L., to United States Steel Corporation. Can end with bonded seal slide. 3,705,670, Cl. 222-541.000.
Douty, Donald L., to United States Steel Corporation. Can end with bonded seal slides. 3,705,671, Cl. 222-484.000.
Dover Corporation (Canada) Limited: *See*—
Gingrich, John A., 3,706,017.
Dow Chemical Company, The: *See*—
Pitts, Charles A., 3,705,624.
Dowty Meco Limited: *See*—
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Drabek, Josef: *See*—
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Drake, Leon A. Cast spreading device. 3,705,581, Cl. 128-83.000.
Dresser Industries, Inc.: *See*—
Conn, William M., 3,705,635.
Crow, Morgan L., 3,705,750.
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Du Pont de Nemours, E. I., and Company: *See*—
Holmes, David Alan, 3,705,867.
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Duckett, John W.; Brooks, Edward A.; and Reynolds, Clarke, to American Molded Products, Ltd. Self-righting road delineator. 3,705,566, Cl. 116-63.00p.
Duff, Joseph H.: *See*—
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Duncan, Angelo N., to Smith, A. O., Corporation. Water heating and storage system with mixing valve. 3,705,574, Cl. 126-362.000.
Dundon, John Peter, to American Cyanamid Company. Process for crease resistant textiles. 3,705,822, Cl. 117-139.400.
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Dunham-Bush, Inc.: *See*—
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Dunn, Robert T.: *See*—
Evans, Robert P.; Hussar, Joseph P.; Evans, Gerald R.; and Dunn, Robert T., 3,705,960.
Dunphy, Kenneth Robert; and Helseth, Richard Lee. Product weighting system. 3,705,636, Cl. 177-114.000.
Durr, Heinz, to Durr, Otto. Method for treating the surfaces of vehicle bodies. 3,705,817, Cl. 117-49.000.
Durr, Otto: *See*—
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Duvall, Jacque L., to BASF Wyandotte Corporation. Antifoam agent. 3,705,860, Cl. 252-358.000.
Dyke, Richard W.; and Sweeney, Martin J., to Lilly, Eli, and Company. Method of treating hyperuricemia. 3,705,946, Cl. 424-279.000.
Dynes, Robert Carr; and Fulton, Theodore Alan, to Bell Telephone Laboratories, Inc. Magnetically controlled supercurrent switch 3,706,064, Cl. 338-32.00s.
Dzevitsky, Boris Eduardovich; Spitsyn, Boris Vladimirovich; Kochkin, Dmitry Alexandrovich; and Deryagin, Boris Vladimirovich. Producing diamonds synthetically. 3,705,937, Cl. 423-446.000.
Eastcott, Peter de Hertel, to Canadian General Electric Company, Limited. Signalling system for mine hoists. 3,705,640, Cl. 187-29.00r.
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Eastman Kodak Company: *See*—
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Fox, Charles J.; and Johnson, Arthur L., 3,705,913.
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  - Lane, William S., 3,705,800.
  - Luckey, George William; and Sherwood, Charles Frederick, 3,705,858.
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- ECP Manufacturing Co.: *See—*
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- Edgar, John Alexander: *See—*
  - Culvenor, Claude Charles Joseph; Edgar, John Alexander; Smith, Leslie Walter; Tweeddale, Helen Joan; Jago, Marjorie; and French, Eric Ancelot, 3,705,905.
- Edwards Company, Inc.: *See—*
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- Edwards, Dan M.: *See—*
  - Grice, Karl R., Jr.; and Edwards, Dan M., 3,706,027.
- Edwards, Evan A.; and Van Duzer, Richard H., to Eastman Kodak Company. Filmstrip and film strip retention device. 3,705,696, Cl. 242-71.200.
- Edwards, Lynn Euryl. Incontinence device for female use. 3,705,575, Cl. 128-1.00r.
- Eggert, Walter S., Jr., to Budd Company, The. Seat deceleration attenuation apparatus. 3,705,705, Cl. 248-430.000.
- Egnaczak, Raymond K., to Xerox Corporation. Photoelectrophoretic apparatus. 3,705,766, Cl. 355-3.000.
- Eikenberry, Willis M., to Gulf and Western Industries, Inc. Vehicular traffic control signal and gasket. 3,706,070, Cl. 340-119.00r.
- Einstein, Alfred C., to Affiliated Hospital Products, Inc. Tiddly winks target board. 3,705,724, Cl. 273-95.000.
- Eissler, Charles J. Baseball game. 3,705,723, Cl. 273-89.000.
- Electric & Musical Industries Limited: *See—*
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  - Taylor, Richard John, 3,705,839.
- Electrogenics, Inc.: *See—*
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- Ellenberger, Jakob, to Ellenberger & Poensgen, GmbH. Single or multi pole pushbutton actuated excess current switch having thermal and/or electromagnetic trip. 3,706,057, Cl. 335-23.000.
- Elox Inc.: *See—*
  - Verner, Dalton R., 3,705,968.
- Elser, William F., to Owens Illinois, Inc. Method of forming convenience closure for container body. 3,705,563, Cl. 113-121.00c.
- Emels, Reimer, to Siemens Aktiengesellschaft. Device for indiffusing dopants into semiconductor wafers. 3,705,567, Cl. 118-49.000.
- Emerson Electric Co.: *See—*
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- Engels, Siegfried: *See—*
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- Engemann, Gotthard: *See—*
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- English Steel Corporation, Limited: *See—*
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- Eremenko, Vladimir Grigorievich, to Moskovsky Ordena Lenina Energetichesky Institut Krasnokazarmennaya Ulitso. Device for measuring angular position of the rotor of a synchronous electric motor and a thyratron electric motor. 3,706,019, Cl. 318-138.000.
- Erickson, Hugo S. Protective sealing washer for storage battery. 3,705,824, Cl. 136-181.000.
- Erico Products, Inc.: *See—*
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- Eriez Manufacturing Company: *See—*
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- Eriksson, George J., to Superior Concrete Accessories, Inc. Anchor insert and setting cone for a precast concrete body. 3,705,469, Cl. 52-125.000.
- Ernst, Alfons; and Jung, Werner, to Heidenhain, Johannes, Dr., Firma. Drive for rotatable parts. 3,705,518, Cl. 74-410.000.
- Ernst, Max. Turntable for electric toy and model railroad installations. 3,705,553, Cl. 104-35.000.
- Esso Research and Engineering Company: *See—*
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- Etablissements Bertrand Faure: *See—*
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- Evans, Robert P.; Hussar, Joseph P.; Evans, Gerald R.; and Dunn, Robert T. Automatic repertory telephone dialer with perforated strip number storage. 3,705,960, Cl. 179-90.00r.
- Evel, Eddie A.: *See—*
  - Hintze, Melvin M.; Mari, John P.; McDaniel, Roy F.; and Evel, Eddie A., 3,706,044.
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- Fahrenholz, Heinz, to Demag A.G. Device for the controlled rotation and feeding of a workpiece particularly for a cold pilger machine. 3,705,655, Cl. 214-338.000.
- Famai, Yasuo; and Fukushima, Osamu, to Fuji Photo Film Co., Ltd. Electrophotographic device. 3,705,767, Cl. 355-4.000.
- Farbenfabriken Bayer Aktiengesellschaft: *See—*
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  - Merten, Rudolf; and Zecher, Wilfried, 3,705,874.
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  - Stolzer, Claus; Hammann, Igeborg; and Unterstengofer, Gunther, 3,705,927.
  - Stolzer, Claus; Hammann, Ingeborg; and Unterstenhofer, Gunter, 3,705,928.
- Farney, Leonard C.; and Haberlin, Richard J., to Polaroid Corporation. Diffusion transfer production of reflection positive with macroscopic pigment in receptive stratum. 3,705,804, Cl. 96-29.00r.
- Farnsworth, Richard G., to General Electric Company. Solid state scanner for a remote meter reading system. 3,706,086, Cl. 340-180.000.
- Fau, Paul; and Petrucco, Richard J., to Mobil Oil Corporation. Grease compositions. 3,705,853, Cl. 252-36.000.
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  - Haller, John, 3,705,509.
- Fenner, David Fentom, to National Research Development Corporation. Apparatus for use in focussing images. 3,705,765, Cl. 353-101.000.
- Ferris, James E., to Eastman Kodak Compan. Dispensing device for pocketed envelopes. 3,705,664, Cl. 221-47.000.
- Fertig, Kenneth: *See—*
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- Fey, Maurice G.: *See—*
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- Filper Corporation: *See—*
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- Finch, Theron R.: *See—*
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- Fish, Leonard A.: *See—*
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- Fisher, Richard M.: *See—*
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- Fisons Pharmaceuticals Limited: *See—*
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- Fitzmaurice, Colin; and Lee, Thomas Brian, to Fisons Pharmaceuticals Limited. Pharmaceutically active compounds. 3,705,945, Cl. 424-283.000.
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- Florea, Valer: *See—*
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- Flotti Puppenkleiderspiele Gesellschaft mit beschrankter Haftung: *See—*
  - Schroner, Wera, 3,705,427.
- Folgate, Kent R., to General Electric Company. Attitude control system. 3,705,977, Cl. 235-150.250.
- Follows, Alan G.: *See—*
  - Garofano, Norman R.; and Follows, Alan G., 3,705,790.
- Fomina, Alexandr Sergeevna: *See—*
  - Mikhelis, Konstantin Alexandrovich; Fomina, Alexandr Sergeevna; Murumets, Kirill Vladimirovich; Ulanen, Yalmar Semenovich; Kotov, Anatoly Mikhailovich; Volkov, Timofei Mikhailovich; Itsikson, Boris Semenovich; Suurmaa, Raivo Alexandrovich; Viks, Paavo Yaanvich; and Berestovsky, Georgy Grigorievich, 3,705,793.
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  - Bow, William J.; and Pollard, Richard J., 3,705,494.
- Foster-Pegg, Richard W. Jet engine air compressor. 3,705,491, Cl. 60-39.550.
- Fox, Charles J.; and Johnson, Arthur L., to Eastman Kodak Company. Electrophotographic sensitizers. 3,705,913, Cl. 260-391.000.
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- Franz, Norman C. Means for sealing fittings and nozzle assembles at extremely high fluid pressures. 3,705,693, Cl. 239-600.000.
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  - Bourgault, Pierre Louis; and Fraser, George Herbert, 3,706,013.
- Fredrickson, Walter G.; Heitmann, Albert W.; and Jones, George M., to Harris-Intertype Corporation. Apparatus for editing and correcting displayed text. 3,706,075, Cl. 340-172.500.
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  - Culvenor, Claude Charles Joseph; Edgar, John Alexander; Smith, Leslie Walter; Tweeddale, Helen Joan; Jago, Marjorie; and French, Eric Ancelot, 3,705,905.
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- Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, to Bio/Physics Systems, Inc. Photoanalysis apparatus. 3,705,771, Cl. 356-39.000.
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  - Cutler, Lester M.; and Friedman, Paul, 3,705,578.
- Fript, Leonard T., to Medline Industries, Inc. Stabilized syringe assembly. 3,705,584, Cl. 128-232.000.
- Fritsch, Walter; Hetzinger, Erich; and Worner, Karl, to Pebra GmbH, Braun, Paul. Locks. 3,705,508, Cl. 70-373.000.
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  - Kasugai, Tsuneo; Minagawa, Nobuhiko; and Kurabayashi, Hiroyuki, 3,705,808.
  - Nakazawa, Giyoshiyuki; Nakamura, Yashuharo; Takei, Haruo; Sato, Akira; and Ikeda, Tadashi, 3,705,809.
- Fujimoto, Yasuo; Teranishi, Masayuki; and Tezuka, Toshihiko, to Kyowa Hakko Kogyo Co., Ltd. Poly-gamma-substituted glutamate solutions containing alcohols. 3,705,873, Cl. 260-33.40r.
- Fujisawa, Masakatsu, to American Safety Equipment Corporation. Adjustable temple for eyeglasses. 3,705,761, Cl. 351-118.000.
- Fujitsu Limited: *See—*
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- Gach, Peter P., to Sunbeam Plastics Corporation. Safety closure for medicine bottles and the like. 3,705,662, Cl. 215-9.000.
- Gainesville Machine Company, Inc.: *See—*
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- Gargini, Eric J., to Communications Patents Limited. Wired broadcasting systems with phantom circuit supplying control current on program signal wires. 3,706,040, Cl. 325-308.000.
- Garmaise, David Lyon; Paris, Gerard Yvon; and Plotnikoff, Nicholas Peter, to Abbott Laboratories. Certain 2-aralkyl-8-fluoro-1,2,3,4-tetrahydro-5 propionyl-pyrido [3,4-e] indoles. 3,705,902, Cl. 260-295.00c.
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- Garzon, Ruben D., to I-T-E Imperial Corporation. Instrument for measurement of energy of an interrupting device. 3,706,033, Cl. 324-140.00r.
- Gauthier, Oscar. Device for medical use. 3,705,580, Cl. 128-79.000.
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- Gilmour, Richard C.; Kaitz, Vincent A.; and Lemberger, Adolph W., to Budd Company, The. Die unloader. 3,705,525, Cl. 83-112.000.
- Gingrich, John A., to Dover Corporation (Canada) Limited. Motor speed control. 3,706,017, Cl. 318-146.000.
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- Glass, Marvin, & Associates: *See—*
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- Goldsmith, David S. Translational rotational and vertical movement controlled sound source pick-up system. 3,705,957, Cl. 179-1 0gp
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- Gotte, August. Vacuum flotation device. 3,705,650, Cl. 210-221.000.
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- Greenley, Henry R.; and Craig, William E., said Greenley assor. to Porter, C. O., Machinery Company and said Craig assor. to Computer Specialties Corporation. Digital command control sequencer and machine controlled thereby. 3,706,072, Cl. 340-147.00p.
- Greenwood, Eugene C. Lock nut assembly and bolt and wrench for use therewith. 3,705,524, Cl. 81-121.00r.
- Greiner, Leonard; and Courtney, Welby G., to Texaco Inc. Fuel systems and oxidizers. 3,705,495, Cl. 60-214.000.
- Grice, Karl R., Jr.; and Edwards, Dan M. Materials counting system utilizing permanent magnets and their associated fields. 3,706,027, Cl. 324-34.00r.
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- Grigorovici, Radu G.; Devenyi, Andrei Gavrila; Florea, Valer; Korony, Gheorghe; Belu, Aretia; and Costachescu, Carol, to Institutul de Fizica. Piezoresistive transducers and devices with semiconducting films and their manufacturing process. 3,705,993, Cl. 10-8.100.
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- Gunzel, Gerhard, to Licentia Patent-Verwaltungs, G.m.b.H. Amplifier circuit. 3,706,047, Cl. 330-24.000.
- Gunzler, Thomas. Single-copy vending machines for newspapers. 3,705,665, Cl. 221-188.000.
- Gurgui, Constantin; Luca, Vasile; Eckardt, Andrei; and Ciulacu, Paraschiv, to Intreprinderea "Bucuresti" Pentru Extrazerea Prelucrarea Si Montarea Marmurei Si Pietrei de Constructir. Process for finishing the surface of a building. 3,705,830, Cl. 156-71.00.
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- Hadberg, Edward J., to United States Steel Corporation. Rotary furnace door design. 3,705,717, Cl. 266-24.000.
- Halbeck, Werner B.; Quaal, John A.; and Robbins, Clyde F., to Cutler-Hammer, Inc. Remote control circuit breaker system. 3,706,100, Cl. 317-58.000.
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- Hall, Luther A. R.; Gurney, John A.; and Renfroe, Harris B., to Geigy Chemical Corporation. Polysubstituted dihydropyrenes. 3,705,918, Cl. 260-464.000.
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- Hammack, Calvin Miles. Polystation doppler system tracking of vehicles, measuring displacement and rate thereof and similar applications. 3,706,096, Cl. 343-9.000.
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- Harada, Michisuke: *See—*
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- Harris-Intertype Corporation: *See—*
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- Harvey, Charles V. Snowmobile suspension system. 3,705,637, Cl. 180-5.00r.
- Harvey, Charles V. Suspension system for snowmobiles. 3,705,749, Cl. 305-27.000.
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- Hawley Manufacturing Corporation: *See—*
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- Hayashibara Company: *See—*
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- Heggen, John Peter, to Clark Equipment Company Combination relief and check valve. 3,705,600, Cl. 137-493.200.
- Heidenhain, Johannes, Dr., Firma: *See—*
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- Heller, William C., Jr.: *See—*
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- Helseth, Richard Lee: *See—*
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- Hendrickson, Thomas N., to Eastman Kodak Company. Monitoring silver recovery. 3,705,716, Cl. 266-22.000.
- Hennart, Claude; Martin, George; Mandon, Jean-Pierre; and Rabussier, Bernard Aranton, to Ciba-Geigy AG. Vaporizable insecticide composition. 3,705,941, Cl. 424-219.000.
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  - Boylan, Francis J., 3,705,859.
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- Herziger, Gerd Bernd: *See—*
  - Banse, Karlheinz Victor Hermann; Seelig, Wolfgang Hagen; Steinger, Jurg Hugo; and Herziger, Gerd Bernd, 3,705,999.
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- Hicks, Thomas D. Molding core grit. 3,705,863, Cl. 260-22.0tn.
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- Hintze, Melvin M.; Mari, John P.; McDaniel, Roy F.; and Evel, Eddie A., to Martin-Marietta Corporation. Analog majority voting circuit. 3,706,044, Cl. 328-137.000.
- Hirane, Seiichi: *See—*
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- Hirst, Robert G.; and Desnoyers, George J., to General Electric Company. Insulating coating and method of making the same. 3,705,826, Cl. 148-6.160.
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- Hjelmquist, Stig Gunnar. Lawn-mowers with horizontally rotating knives. 3,705,484, Cl. 56-320.200.
- Hobo, Nobuhito, to Nippondenso Kabushiki Kaisha. Dividing circuit using monostable multivibrator. 3,705,991, Cl. 307-273.000.
- Hobson, David J.: *See—*
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- Hoehn, Wulfgang, to ITT Industries, Inc. Integrable revolution measuring circuit with supply voltage transient suppression. 3,706,035, Cl. 324-169.000.
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- Holtz, Carl F.: *See—*
  - Bello, Hobson J.; and Holtz, Carl F., 3,705,799.
  - Bevis, Michael J.; Bello, Hobson J.; and Holtz, Carl F., 3,705,803.
- Holtz, Carl F., to Eastman Kodak Company. Film containing bleach-inhibitor-releasing compounds and process for preparing silver auxiliary and sound records. 3,705,801, Cl. 96-4.000.
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  - Drum, James R.; and Temple, Philip A., 3,705,754.
- Honda Giken Kogyo Kabushiki Kaisha: *See—*
  - Koyama, Mikihiro; and Inagaki, Takashi, 3,705,733.
- Honda, Toshio; Kubota, Eishi; Fukuura, Yukio; and Kobayashi, Yoneji, to Bridgestone Tire Company Limited. Adhesive for adhering a polyester fibrous material or an inorganic material with a rubber and method thereof. 3,705,868, Cl. 260-29.70r.
- Honeywell Inc.: *See—*
  - Lee, Tzuo-Chang, 3,706,080.
  - Maskal, Haim, 3,705,758.
  - Pileckis, John, 3,705,990.
  - Regitz, William M.; and Dundon, Thomas M., 3,706,084.
  - Warren, James S., 3,705,783.
- Honma, Shiro: *See—*
  - Kashiwa, Norio; Tohoru, Tomoshige; Kobayashi, Toshio; and Honma, Shiro, 3,705,886.
- Hopkinson, Philip J., to General Electric Company. Magnetic tripping mechanism for thermal circuit breaker. 3,706,058, Cl. 335-174.000.
- Horn, John W.; and Rachel, Todd L., to Bendix Corporation, The. Hot start auxiliary circuit for electronic fuel control system. 3,705,571, Cl. 123-32.0ea.
- Horstmann Gear Co., Ltd., The: *See—*
  - Dee, Colin W., 3,705,751.
- Hosokawa, Kenjiro; and Ichikawa, Michio, to Kanegafuchi Boseki Kabushiki Kaisha. Method of coating fibrous structure with a mixture of polyurethane prepolymer and polorganosiloxane. 3,705,823, Cl. 117-161.0kp.
- Howe, Donald R.: *See—*
  - Schubert, Dudley J.; and Howe, Donald R., 3,705,663.
- Hruby, John O., Jr., to Ram Jet Corporation. Flow controlling support base for ornamental fountains. 3,705,686, Cl. 239-22.000.
- Hubby, Laurence M., to Texaco Inc. Methods for controlling pumping wells. 3,705,532, Cl. 73-155.000.
- Huber, Douglas B., to Polacoat, Inc. Rear projection screen. 3,705,757, Cl. 350-126.000.
- Hughes Aircraft Company: *See—*
  - Wilmot, Richard D.; and Ballantyne, Jack R., 3,705,936.
- Huiskes, John H.: *See—*
  - Mowrey, Albert C.; Huiskes, John H.; and Brand, Abraham, 3,706,085.
- Hummel, Jack L.: *See—*
  - Argabright, Perry A.; Hummel, Jack L.; and Presley, C. T., 3,705,627.
- Hunger, Richard H.; and Gilbert, LeLand Glen, to Deere & Company Quick-attach loader bucket. 3,705,656, Cl. 214-145.000.
- Hunt, Theodore C. Safety motor mount. 3,705,701, Cl. 248-9.000.
- Huntzinger, Gerald O.; and Bassett, Norris J., to General Motors Corporation. Lamp failure indicator. 3,706,089, Cl. 340-253.00n.
- Hurst, Norman Ashcroft; Gray, Thomas Edward Horace; and Jones-Hinton, James. Method for the manufacture of hollow plastic articles. 3,705,932, Cl. 264-89.000.
- Hussar, Joseph P.: *See—*
  - Evans, Robert P.; Hussar, Joseph P.; Evans, Gerald R.; and Dunn, Robert T., 3,705,960.
- Hydrocarbon Research, Inc.: *See—*
  - Alpert, Seymour B.; and Chervenak, Michael C., 3,705,849.
  - Wolk, Ronald H., 3,705,850.
- Hyman, Seymour; Bernstein, Bruce S.; and Kapoor, Ramesh, said Bernstein and said Kapoor assors. to Hercules Protective Fabric Corporation. Activated polymer materials and process for making same. 3,705,938, Cl. 424-19.000.
- I-T-E Imperial Corporation: *See—*
  - Garzon, Ruben D., 3,706,033.
- Ichikawa, Michio: *See—*
  - Hosokawa, Kenjiro; and Ichikawa, Michio, 3,705,823
- IIT Research Institute: *See—*
  - Camras, Marvin, 3,705,954.
- Ikeda, Tadashi: *See—*
  - Nakazawa, Giyoshiyuki; Nakamura, Yashuharo, Takei, Haruo, Sato, Akira; and Ikeda, Tadashi, 3,705,809.
- Ilco Corporation: *See—*
  - Adler, Norman R., 3,705,739.
- Illinois Tool Works Inc.: *See—*
  - Sygnator, Henry A., 3,705,442.
- Imperial Chemical Industries Limited: *See—*
  - Morman, James Forrester, 3,705,589.
  - Pickles, Cynthia Joan; and Bishop, Nigel Douglas, 3,705,914.
- Inagaki, Takashi: *See—*
  - Koyama, Mikihiro; and Inagaki, Takashi, 3,705,733.
- Inamoto, Yoshihiko: *See—*
  - Ishikawa, Tatsuo; Hiruta, Shiro, Wakabayashi, Teruomi, Inamoto, Yoshihiko; Kusunose, Tethiro; Tsumaki, Tatsuichi; and Ota, Masami, 3,705,877.
- Industriele Onderneming Wavin N.V.: *See—*
  - Van Zon, Cornelis, 3,705,779.
- Information International, Inc.: *See—*
  - Gray, Stephen B., 3,706,071.
- Institut fur Angewandte Physik der Universitat Bern: *See—*
  - Banse, Karlheinz Victor Hermann; Seelig, Wolfgang Hagen; Steinger, Jurg Hugo; and Herziger, Gerd Bernd, 3,705,999.
- Institut Gornogo Dela Sibirskogo otdelenia Akademii: *See—*
  - Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich, Gurkov, Konstantin Stepanovich; Tupitsyn, Konstantin Konstantinovich; and Plavskikh, Vladimir Dmitrievich, 3,705,633
- Institutul de Fizica. *See—*

Grigorovici, Radu G.; Devenyi, Andrei Gavrila; Florea, Valer; Korony, Gheorghe; Belu, Aretia; and Costachescu, Carol, 3,705,993.

Intel Corporation: *See—*
Vadasz, Leslie L.; and Karp, Joel A., 3,706,079.

International Telephone and Telegraph Corporation: *See—*
Harmuth, Henning Friedolf, 3,705,981.

Intreprinderea "Bucuresti" Pentru Extrazerea Prelucrarea Si Montarea Marmurei Si Pietrei de Constructir: *See—*
Gurgui, Constantin; Luca, Vasile; Eckardt, Andrei; and Ciulacu, Paraschiv, 3,705,830.

Inuaki, Akira: *See—*
Oshima, Yasuo; Nakazawa, Nobuhiko; Nagasaki, Senkichi; Naito, Takeo; Osada, Yasuaki; Okusa, Naoya; Inuaki, Akira; and Tanaka, Kazuyuki, 3,705,989.

Inventa AG: *See—*
Schultze, Hans-Joachim, 3,705,682.

Ippen, Erich Peter; Patel, Chandra Kumar Naranbhai; and Stolen, Rogers Hall, to Bell Telephone Laboratories, Incorporated. Broadband tunable Raman-effect devices in optical fibers 3,705,992, Cl. 307-88.300.

Irmscher, Klaus; and Bruckner, Klaus, to Merck, E., A.G. 3-Methyl-17a-ethynyl-19-nor-3, 5-androstadiene-17β-ol. 3,705,915, Cl. 260-397.500.

Irving, Brian Arthur: *See—*
Davidson, David Fulton; and Irving, Brian Arthur, 3,705,735.

Ishikawa, Tatsuo; Hiruta, Shiro; Wakabayashi, .Teruomi; Inamoto, Yoshihiko, Kusunose, Tethiro; Tsumaki, Tatsuichi; and Ota, Masami, to Asahi Kasei Kogyo Kabushiki Kaisha. Antistatic synthetic resin compositions containing trazine derivatives. 3,705,877, Cl.260-75.00m.

Itsikson, Boris Semenovich: *See—*
Mikhelis, Konstantin Alexandrovich; Fomina, Alexandr Sergeevna; Murumets, Kirill Vladimirovich; Ulanen, Yalmar Semenovich; Kotov, Anatoly Mikhailovich; Volkov, Timofei Mikhailovich; Itsikson, Boris Semenovich; Suurmaa, Raivo Alexandrovich; Viks, Paavo Yaanvich; and Berestovsky, Georgy Grigorievich, 3,705,793.

ITT Industries, Inc.: *See—*
Hoehn, Wolfgang, 3,706,035.

Iwakami, Takuya, to Nippon Electric Company, Limited. Synthesized network for signal transmission. 3,706,053, Cl. 333-23.000.

Iwaoka, Seijiro; and Mori, Hiroo, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Brake and clutch control for industrial track. 3,705,643, Cl. 192-13.00a.

Iwasaki, Tadahiko: *See—*
Akatsu, Mitsuharu; Kinoshita, Tomoo; and Iwasaki, Tadahiko, 3,706,003.

Iwatsu, Gakuji: *See—*
Fukui, Hiroshi; Iwatsu, Gakuji; and Kato, Junichi, 3,705,718.

Jacob, Jean-Baptiste, to C.I.T.-Compagnie Industrielle des Telecommunications and Societe Lannionaise d'Electroniqise. Path testing device for time channel connection network. 3,705,958, Cl. 179-18.00j.

Jacovides, Linos J.; Lyon, David M.; and Fisher, Richard M., to General Motors Corporation. Induction motor fabrication method. 3,705,971, Cl. 219-121.0eb.

Jago, Marjorie: *See—*
Culvenor, Claude Charles Joseph; Edgar, John Alexander; Smith, Leslie Walter; Tweeddale, Helen Joan; Jago, Marjorie; and French, Eric Ancelot, 3,705,905.

Jankowski, Alfons; and Schuermann, Fritz, to Bergwerksverband GmbH. Cartridge for fixing anchor elements in holes of a support structure. 3,705,646, Cl. 206-47.00a.

Janome Sewing Machine Co. Ltd.: *See—*
Hanyu, Susumu, and Amano, Takashi, 3,705,562.

Japanese Geon Company Ltd., The: *See—*
Matsuo, Toshiaki; Chono, Koji; Go, Tadahiro; and Komai, Hirotaka, 3,705,880.

Jarrell, Virgil N.; and Towson, Arthur L., to Chisholm-Ryder Company, Inc. Multi-row, multi-crop harvester. 3,705,483, Cl. 56-13.500.

Jehle, William Robert, to Union Carbide Corporation. Nitrogen spray refrigeration system for perishables. 3,705,500, Cl. 62-223.000.

Jennings, Thomas A.; and McNeill, William, to United States of America, Army Negative ion generator. 3,705,998, Cl. 313-161.000.

Jennis, Murray, to Goodman, H., & Sons, Inc. Hinged barrettes. 3,705,591, Cl. 132-48.00r.

Jirka, Karl; Gutlhuber, Johann; and Straubing, Irlbach B., to Kunststoffwerk Gebruder Anger G.m.b.H & Co. Sealed connector box for electrical cables. 3,705,950, Cl. 174-138.00f.

Johannsmeier, Karl-Heinz. Optical alignment and contact printing system with improved chuck assembly. 3,705,769, Cl. 355-91.000.

Johansson, Rolf Anders. Apparatus for slip-forming. 3,705,776, Cl. 425-65.000.

Johmann, Frank T. Pointer spinning mechanical dolls. 3,705,726, Cl. 273-151.00a.

Johnson, Arthur L.: *See—*
Fox, Charles J.; and Johnson, Arthur L., 3,705,913.

Johnson, Dewey F. Chain door latch device. 3,705,504, Cl. 70-93.000.

Johnson Matthey & Mallory Limited *See—*
Bourgault, Pierre Louis; and Fraser, George Herbert, 3,706,013.

Johnson Service Company. *See—*
Laakaniemi, Richard N.; Kuczkowki, Frank A.; Atkinson, Louis D.; Kuhar, Paul W.; Lechner, Thomas J., Jr.; and Weber, Urban A., 3,705,595.

Johnson, Thomas E., Jr.; and Mould, Peter R., to United States Steel Corporation. Apparatus for determining resonant frequencies of a specimen of magnetostrictive material. 3,706,026, Cl. 324-34.0ma.

Johnston, Stephen L., to United States of America, Army. Indirect frequency multiplication system. 3,706,048, Cl. 331-53.000.

Jones, George M.: *See—*
Fredrickson, Walter G.; Heitmann, Albert W.; and Jones, George M., 3,706,075.

Jones, John Leslie, Jr.: *See—*
Jones, John Leslie, Sr.; and Jones, John Leslie, Jr., 3,705,677.

Jones, John Leslie, Sr.; and Jones, John Leslie, Jr. Receipt binders. 3,705,677, Cl. 226-196.000.

Jones, Robert C.; and Siebert, William, Jr., to Varian Associates. Graphic recorder employing a reservoir lettering pen type stylus. 3,706,099, Cl. 346-140.000.

Jones, Stanley W.: *See—*
Nye, William M.; and Jones, Stanley W., 3,705,961.

Jones-Hinton, James: *See—*
Hurst, Norman Ashcroft; Gray, Thomas Edward Horace; and Jones-Hinton, James, 3,705,932.

Jorgensen, Aage Hojgaard, to Danfoss A/S. Switching means for an alarm system. 3,706,088, Cl. 340-248.00r.

Jouet, Etienne; and Rebuffe, Pascal. Heat exchanger. 3,705,618, Cl. 165-166.000.

Judd, Edwin B., to General Electric Company. Remake proof time delay fuse. 3,706,062, Cl. 337-159.000.

Jung, Werner: *See—*
Ernst, Alfons; and Jung, Werner, 3,705,518.

Juttner, Alwin; and Gruner, Hans, to Graubremse GmbH. Tire equipped vehicle wheel to be connected with a tire air filling device carried by the vehicle. 3,705,614, Cl. 152-417.000.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
Iwaoka, Seijiro; and Mori, Hiroo, 3,705,643.

Kahl, Gerald J.; and Guidi, Guido N., 1/2 to Kahl Scientific Instrument Corporation and 1/2 to Societa Italiana Apparecchi de Precisione S.p.A. Precipitation sensor. 3,705,533, Cl. 73-171.000.

Kahl Scientific Instrument Corporation: *See—*
Kahl, Gerald J.; and Guidi, Guido N., 3,705,533.

Kaitz, Vincent A.: *See—*
Gilmour, Richard C.; Kaitz, Vincent A.; and Lemberger, Adolph W., 3,705,525.

Kalle Aktiengesellschaft: *See—*
Haas, Gunter, 3,705,844.
Moraw, Roland; and Arneth, Reinhold, 3,705,768.

Kamentsky, Louis A.: *See—*
Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,705,771.

Kampjes, Gerrie Richard: *See—*
Vaneldik, Jan Frederik; Wilson, Ronald Ian; Kampjes, Gerrie Richard; and Lavender, William James, 3,705,478.

Kanas Maffei Aktiengesellschaft. *See—*
Collin, Heinrich, 3,705,778.

Kandler, Joachim; Dany, Franz-Josef; Komorniczyk, Klaus; and Munch, Peter, to Knapsack Aktiengesellschaft. Thermostable moulding material based on vinyl chloride or vinylidene chloride polymers. 3,705,865, Cl. 260-23.0xa.

Kanegafuchi Boseki Kabushiki Kaisha: *See—*
Hosokawa, Kenjiro; and Ichikawa, Michio, 3,705,823.

Kansai Paint Company, Limited: *See—*
Kasano, Kimiaki; and Kaya, Ichiro, 3,705,569.
Shibata, Minoru; Yusa, Makoto; Nakata, Hisao; and Harada, Michisuke, 3,705,866.

Kapoor, Ramesh: *See—*
Hyman, Seymour; Bernstein, Bruce S.; and Kapoor, Ramesh, 3,705,938.

Karl-Heinz, Eggert: *See—*
Heinz, Freiwald; and Karl-Heinz, Eggert, 3,705,568.

Karp, Joel A.: *See—*
Vadasz, Leslie L.; and Karp, Joel A., 3,706,079.

Kasano, Kimiaki; and Kaya, Ichiro, to Kansai Paint Company, Limited. Apparatus for painting the inner surface of pipes. 3,705,569, Cl. 118-105.000.

Kashiki, Asayuki, to Maruzon Oil Company Limited. Atomic absorption spectroscopic analytical method and apparatus. 3,705,770, Cl. 356-36.000.

Kashiwa, Norio; Tohoru, Tomoshige; Kobayashi, Toshio; and Honma, Shiro, to Mitsui Petrochemical Industries, Ltd. Process for polymerization or copolymerization of ethylene. 3,705,886, Cl. 260-85.300.

Kasugai, Tsuneo; Minagawa, Nobuhiko; and Kurabayashi, Hiroyuki, to Fuji Photo Film Co., Ltd. Photo-sensitive material having UV irradiated polystyrene support. 3,705,808, Cl. 96-87.00r.

Kato, Junichi: *See—*
Fukui, Hiroshi; Iwatsu, Gakuji; and Kato, Junichi, 3,705,718.

Kato, Masaaki; and Sato, Sigeta, to Asahi Chemical Industry Co., Ltd. Production of hydrogen ions and hydroxyl ions by decomposition of water. 3,705,846, Cl. 204-180.00p.

Kaufman, Charles W., to Olin Corporation. Dialkyltin salts of substituted pyridine-1-oxides as fungicides and bactericides. 3,705,943, Cl. 424-245.000.

Kawchitch, Claude Edward. Conveyor screw element. 3,705,644, Cl. 198-213.000.

Kaya, Ichiro: *See—*
Kasano, Kimiaki; and Kaya, Ichiro, 3,705,569.

Kayatz, Karl-Heinz, to Claudius, Peters Aktiengesellschaft. Material cooling apparatus. 3,705,460, Cl. 34-60.000.

Kaye, Saul, to Ventron Corporation. Corrosion inhibition with methylene bis-benzoic acid. 3,705,786, Cl. 21-2.700.

Kazantsev, Evgeny Andreevich: *See—*
Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.

Kearney, Joseph P.: *See—*
Retzer, Theodore C.; and Kearney, Joseph P., 3,706,000.

Kelem, Lester S.; and Reade, Stephen E., to United States of America, Army. Time oscillator calibrator circuit. 3,706,049, Cl. 331-44.000.

Keller, Joseph Richard; and Pritulsky, James, to AMP Domestic Inc. Terminal member for light transmitting means. 3,705,756, Cl. 350-96.00b.

Keller, Wolfgang, to Siemens Aktiengesellschaft. Method for floating zone melting. 3,705,789, Cl. 23-301.0sp.

Kelley, Joe: *See—*
Tollison, James W.; and Kelley, Joe, 3,705,607.

Kelly, Brian. Table construction. 3,705,556, Cl. 108-144.000.

Kennedy, John Frederick: *See—*
Barker, Sidney Alan; Kennedy, John Frederick; and Cray, Charles John, 3,705,890.

Kent, Cecil, to Creators Limited. Glazing windows or windscreen openings, particularly in vehicle bodies. 3,705,470, Cl. 52-208.000.

Kimberly-Clark Corporation: *See—*
Wolf, Ernest Robert, 3,705,476.

Kindig, Edwin Guilford, to Eastman Kodak Company. Film unit and apparatus for use therewith. 3,705,541, Cl. 95-13.000.

King, William L.; and Stein, Edward S. Matrix switch with slide type actuator and conductive spring common to ground contact and movable contact. 3,705,963, Cl. 200-16.00c.

King, William M. Sod cultivator. 3,705,628, Cl. 172-68.000.

Kinoshita, Tomoo: *See—*
Akatsu, Mitsuharu; Kinoshita, Tomoo; and Iwasaki, Tadahiko, 3,706,003.

Kirchgassner, Hedwig, to Deutsche Gold- und Silber-Scheideanstalt vormal Roessler. Silicic acid-containing dentifrice. 3,705,940, Cl. 424-49.000.

Kishino, Shigeo: *See—*
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,705,929.

Klang, Daniel M., to Bucode Inc. Capstan motor control system. 3,706,020, Cl. 318-270.000.

Klass, Lawrence S.: *See—*
Brandel, Wynand W.; and Klass, Lawrence S., 3,705,511.

Klein, Peter O.; and Reid, Jerome L., to Polaroid Corporation. Photographic color diffusion-transfer unitary elements comprising an emulsion layer containing polyvinyl-hydrogen-phthalate therein. 3,705,798, Cl. 96-3.000.

Klein, Robert I.; and Hogg, Walter R., to Coulter Electronics, Inc. Electronic particle detector of the coulter type having conductivity change independence circuitry. 3,706,030, Cl. 324-71.0cp.

Klein, Samuel H. Filter system employing activated carbon porous material and diatomaceous earth. 3,705,651, Cl. 210-266.000.

Klinger, Isaac: *See—*
Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,705,771.

Klopping, Hein L., to Du Pont de Nemours, E. I., and Company. Fungicidal compositions and methods utilizing metal complexes. 3,705,939, Cl. 424-245.

Knapsack Aktiengesellschaft: *See—*
Kandler, Joachim; Dany, Franz-Josef; Komorniczyk, Klaus; and Munch, Peter, 3,705,865.

Knight, Chesterton S.; and Baker, Randolph H., to Knight, Geo., & Co., Inc. Stitchdown counter molding, flanging and wrapping machine. 3,705,434, Cl. 112-142.00d.

Knight, Geo., & Co., Inc.: *See—*
Knight, Chesterton S.; and Baker, Randolph H., 3,705,434.

Knitter, Heinz; and Sorg, Paul, to Bunker-Ramo Corporation, The. Electric contact arrangement. 3,706,065, Cl. 339-17.0lc.

Knotik, Karl; and Gutlbauer, Franz, to Osterreichische Studiengesellschaft fur Atomenergie Ges. m.b.H. Tongue for wind instruments and a method for producing same. 3,705,820, Cl. 117-93.310.

Kobayashi, Toshio: *See—*
Kashiwa, Norio; Tohoru, Tomoshige; Kobayashi, Toshio; and Honma, Shiro, 3,705,886.

Kobayashi, Yoneji: *See—*
Honda, Toshio; Kubota, Eishi; Fukuura, Yukio; and Kobayashi, Yoneji, 3,705,868.

Kochkin, Dmitry Alexandruvich: *See—*
Dzevitsky, Boris Eduardovich; Spitsyn, Boris Vladimirovich; Kochkin, Dmitry Alexandrovich; and Deryagin, Boris Vladimirovich, 3,705,937.

Koenig, Elmer A.: *See—*
Stumpf, Marvin D.; and Koenig, Elmer A., 3,705,582.

Kolko, Gary A.; and Brown, Clifford, to Menorah Medical Center. Urinalysis work rack. 3,705,788, Cl. 23-259.000.

Kollar, John P., to Kollar, Thomas J. Machine tool bit. 3,705,447, Cl. 29-95.000.

Kollar, Thomas J.: *See—*
Kollar, John P., 3,705,447.

Komai, Hirotaka: *See—*
Matsuo, Toshiaki; Chono, Koji; Go, Tadahiro; and Komai, Hirotaka, 3,705,880.

Komorniczyk, Klaus: *See—*
Kandler, Joachim; Dany, Franz-Josef; Komorniczyk, Klaus; and Munch, Peter, 3,705,865.

Konen, Patricia F., to Rohm and Haas Company. Inflatable flexible container and fabric for making it. 3,705,645, Cl. 206-46.00r.

Konz, Wilhelm: *See—*
Wieland, Theodor; Konz, Wilhelm; Faesel, Jurgen; and Lewalter, Jurgen, 3,705,887.

Korony, Gheorghe: *See—*
Grigorovici, Radu G.; Devenyi, Andrei Gavrila; Florea, Valer; Korony, Gheorghe; Belu, Aretia; and Costachescu, Carol, 3,705,993.

Koschatzky, Karl, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Bending tool for bending deformable workpieces, such as metal sheets and the like. 3,705,512, Cl. 72-57.000.

Kostylev, Alexandr Dmitrievich: *See—*
Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; Tupitsyn, Konstantin Konstantinovich; and Plavskikh, Vladimir Dmitrievich, 3,705,633.

Kosugi, Tsuneo, to Victor Company of Japan, Ltd. Rotation servo system with frequency and phase error correction. 3,705,840, Cl. 178-6.60p.

Kotov, Anatoly Mikhailovich: *See—*
Mikhelis, Konstantin Alexandrovich; Fomina, Alexandr Sergeevna; Murumets, Kirill Vladimirovich; Ulanen, Yalmar Semenovich; Kotov, Anatoly Mikhailovich; Volkov, Timofei Mikhailovich; Itsikson, Boris Semenovich; Suurmaa, Raivo Alexandrovich; Viks, Paavo Yaanvich; and Berestovsky, Georgy Grigorievich, 3,705,793.

Kowalchuk, Roman: *See—*
Bobeck, Andrew Henry; Kowalchuk, Roman; and Reekstin, John Peter, Jr., 3,706,081.

Koyama, Mikihiro; and Inagaki, Takashi, to Honda Giken Kogyo Kabushiki Kaisha. Steering handle attaching apparatus in a two-wheeled vehicle. 3,705,733, Cl. 280-278.000.

Kozawa, Tetuo: *See—*
Sakawa, Katuaki; and Kozawa, Tetuo, 3,705,561.

Krammer, Vance M.; and Carlton, Lawrence W. Apparatus for making flexible tubing with annular corrugations. 3,705,780, Cl. 18-14.0tc.

Kranich, Werner. Writing instrument. 3,705,774, Cl. 401-33.000.

Krause, Ronald O.; and Bayne, Peter D., to Nutrico, Inc Continuous control for introducing material into a flowing liquid. 3,705,597, Cl. 137-101.210.

Krausser, Friedrich Johann, to Emerson Electric Co. Automatic tuning circuit. 3,706,041, Cl. 325-422.000.

Kremer, Frederic B. Body current activated circuit breaker. 3,706,008, Cl. 317-18.00a.

Kroll, Harry: *See—*
Sykes, Donald J., Kroll, Harry; and Finch, Theron R., 3,705,806.

Kubel, Wilfried: *See—*
Bauerle, Oskar; Kubel, Wilfried; Munster, Ernst, Schweikert, Karl, and Strobl, Georg, 3,705,997.

Kubota, Eishi. *See—*
Honda, Toshio; Kubota, Eishi; Fukuura, Yukio; and Kobayashi, Yoneji, 3,705,868.

Kuczkowki, Frank A.: *See—*
Laakaniemi, Richard N.; Kuczkowki, Frank A., Atkinson, Louis D.; Kuhar, Paul W.; Lechner, Thomas J., Jr.; and Weber, Urban A., 3,705,595.

Kuehne, Gerhard B.: *See—*
Miran, George V.; and Kuehne, Gerhard B., 3,706,002.

Kuesters, Eduard. Rolling and squeezing apparatus. 3,705,449, Cl. 29-113.0ad.

Kuhar, Paul W.: *See—*
Laakaniemi, Richard N.; Kuczkowki, Frank A., Atkinson, Louis D.; Kuhar, Paul W.; Lechner, Thomas J., Jr., and Weber, Urban A., 3,705,595.

Kunststoffwerk Gebruder Anger G.m.b.H. & Co.: *See—*
Jirka, Karl; Gutlhuber, Johann; and Straubing, Irlbach B., 3,705,950.

Kunze, Bernhard, to Wilhelm Gesenscheidt Kommanditgesellschaft Pressure roller device. 3,705,514, Cl. 72-120.000

Kurabayashi, Hiroyuki. *See—*
Kasugai, Tsuneo; Minagawa, Nobuhiko; and Kurabayashi, Hiroyuki, 3,705,808.

Kusunose, Tethiro: *See—*
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- Johnson Service Company. Fluidic amplifier or modulator with high impedance signal source means. 3,705,595, Cl. 137-81.500.
- Ladd, Fred; and Song, Jung Hoon, to Color Systems, Inc. Method for converting black-and-white films to color films. 3,705,762, Cl. 352-38.000.
- Laerman, Lothar; and Schenk, Robert J., to Singer Company, The. Packaging structure having cooling means for a multiplicity of hermetic modules for integrated circuit chips. 3,706,010, Cl. 317-100.000.
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- Landbouerktuigen-en Machinefabriek H. Vissers N.V.: *See—*
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- Landow, Charles D.; and Mutalipassi, Ettor, to United Overbead Door Corporation. Lock latch assembly for counterbalanced cargo carrying vehicle doors. 3,705,505, Cl. 70-99.000.
- Lane, Daniel J.: *See—*
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- Lane, William S., to Eastman Kodak Company. Novel photographic processing compositions and improved processing using such compositions for preparing silver sound tracks. 3,705,800, Cl. 96-4.000.
- Langendorfer Plastics Corporation: *See—*
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- Langendorfer, Walter J.; and Coffin, David W., Sr., to Langendorfer Plastics Corporation. Face goggles. 3,705,760, Cl. 351-44.000.
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- Lappin, Douglas E. Sectional articulated agricultural apparatus. 3,705,560, Cl. 111-85.000.
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- Laurie, James Harold; and Cole, Raymond Alfred. Filtration apparatus. 3,705,547, Cl. 100-121.000.
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- Lazarus, Stanley David, to Allied Chemical Corporation. Dyeable polyesters containing branched alkyl benzene sulfonate. 3,705,878, Cl. 260-75.00s.
- Le Sergent, Christian: *See—*
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- Lee, Richard J. Full length cartridge case re-sizing. 3,705,515, Cl. 72-367.000.
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- Lee, Tzuo-Chang, to Honeywell Inc. Holographic optical memory having pivot lens apparatus. 3,706,080, Cl. 340-174.0yc.
- Leiba, Eugene: *See—*
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- Leir, Charles M., to Minnesota Mining and Manufacturing Company. Process for preparing 2-formyl-2-lower alkyl 1,3-dithiolanes and 1,3-dithianes. 3,705,908, Cl. 260-327.00m.
- Lemberger, Adolph W.: *See—*
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- Lemelson, Jerome H. Automatic communication system. 3,705,953, Cl. 178-6.60a.
- Lendvay, Andrew T. Coffee extraction. 3,705,810, Cl. 99-71.000.
- Lerman, Russell E., to United States of America, Army. Pyrotechnic coiled delay cord assembly for a hand grenade fuze. 3,705,552, Cl. 102-64.000.
- Lermann, Peter, to Agfa-Gevaert Aktiengesellschaft. Camera with exposure control using a single magnet. 3,705,536, Cl. 95-10.0ct.
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- Levy, Stephen David; and Wayne, Richard Steven, to American Cyanamid Company. Process for the direct synthesis of styrylpyridinium chlorides. 3,705,895, Cl. 260-240.00d.
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- Lewis, Charles Edward. Non-ionic, nickel N-alkylamine arylazoaryl compounds. 3,705,888, Cl. 260-151.000.
- Lewis, Ernest E., to Gainesville Machine Company, Inc. Fowl vent removal apparatus and method. 3,705,440, Cl. 17-11.000.
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- Loika, Alexander, Jr., to General Electric Company. Induction watthour meter potential coil mounting. 3,706,061, Cl. 336-197.000.
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- Lovett, John R. Replaceable roller surface for conveyor and application techniques therefor. 3,705,455, Cl. 29-234.000.
- Lown, Milton, to Northeast Shoe Company. Construction for shoe, slipper or the like. 3,705,463, Cl. 36-25.000.
- Lownes, Irvin S., Jr.: *See—*
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- Luckey, George William; and Sherwood, Charles Frederick, to Eastman Kodak Company. Preparation of rare-earth-activated oxysulfide phosphors. 3,705,858, Cl. 252-301.40s.
- Lulay, John R.; Marusarz, Bruno J.; and Mateja, Edward J., to American Gage & Machine Company. Constant input energy absorbing apparatus. 3,705,721, Cl. 272-73.000.
- Lumb, Melvyn; Macey, Peter Edward; Wright, Richard Donald; and Petchell, Roy Kenneth, to Boots Pure Drug Company Limited. Fermentation processes and apparatus. 3,705,841, Cl. 195-80.00r.
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- Marcum, Alfred L., Jr.; Burns, Marvin; and Rodzen, Richard A., to United States of America, Air Force. Pressure suit joint system. 3,705,426, Cl. 2-2.10a.
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- Marschner, Frank William, to Colgate-Palmolive Company. Reversible-emulsion aerosol system. 3,705,855, Cl. 252-90.000.
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- McLeod, Starr R. Ice resurfacer. 3,705,746, Cl. 299-25.000.
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- Mikhelis, Konstantin Alexandrovich; Fomina, Alexandr Sergeevna; Murumets, Kirill Vladimirovich; Ulanen, Yalmar Semenovich; Kotov, Anatoly Mikhailovich; Volkov, Timofei Mikhailovich; Itsikson, Boris Semenovich; Suurmaa, Raivo Alexandrovich; Viks, Paavo Yaanvich; and Berestovsky, Georgy Grigorievich, to Slantsekhimichesky Kombinat "Kiviyli" U.S.S.R. Chemical soil improver. 3,705,793, Cl. 71-24.000.
- Millar, Thomas Ritchie, to Trist Mouldings & Seals Limited. Rotary shaft seals. 3,705,728, Cl. 277-81.000.
- Miller, George M.; and Underwood, Max E., to Badger Company, Inc., The. Sublimation apparatus and method. 3,705,617, Cl. 165-1.000.
- Miller, Richard C., Sr. Head light control system for vehicles. 3,706,006, Cl. 315-83.000.
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- Morini, Jean-Louis; Rigal, Pierre; and Leduc, Jean. Massage device 3,705,579, Cl. 128-57.000.
- Morisaki, Nobukazu, to Daida Metal Company Ltd. Bearing material. 3,705,450, Cl. 29-182.300.
- Morman, James Forrester, to Imperial Chemical Industries Limited. Tobacco substitute smoking mixture. 3,705,589, Cl. 131-17.000.
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Nelson, Charles J.: *See*—
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Nelson Company, The: *See*—
Nelson, Evan S.; and Nelson, Charles J., 3,705,666.

Nelson, Evan S., and Nelson, Charles J., to Nelson Company, The. Apparatus for perforating and opening a can of liquid and for sealing the opened can against leakage while coupling a dispenser to the opened can. 3,705,666, Cl. 222-82.000.

Nelson, Roger John, to Deere & Company. Pump assembly for power steering system. 3,705,493, Cl. 60-52.00s.

Nelson, Sigurd E.: *See*—
Manning, Bernard; and Nelson, Sigurd E., 3,705,985.

Nemilov, Evgeny Fedorovich: *See*—
Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.

Newman, James W.; and Zajac, Ronald E., to Windings, Inc. Payout stand for universal type winds with radial opening for feedout. 3,705,698, Cl. 242-129.510.

Nicholls, Reginald W., to Mattel Inc. Toy aircraft raundabout with flexible control tether. 3,705,720, Cl. 272-31.00a.

Nicolas, Yves, to Schlumberger Technology Corporation. Method of processing production well logging data. 3,705,979, Cl. 235-151.340.

Nicolay, Klaus: *See*—
Wagner, Karl; Nicolay, Klaus; Schuchardt, Gerhard; and Putscher, Johann, 3,705,539.

Niggelom, Curt. Stand with carrying device. 3,705,703, Cl. 248-168.000.

Nihon Spindle Seizo Kabushiki Kaisha: *See*—
Yamanaka, Ichiro; and Okumura, Akihide, 3,705,517.

Nilsson, Gosta, to Springfield Wire Inc. Hair setting apparatus. 3,705,974, Cl. 219-222.000.

Nippon Electric Company, Limited: *See*—
Iwakami, Takuya, 3,706,053.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Tomisawa, Norio, 3,705,948.

Nippon Oil Company, Ltd.: *See*—
Oguchi, Yutaka; and Nomura, Hirotsugu, 3,705,861.

Nippon Soda Company Limited: *See*—
Shibata, Minoru; Yusa, Makoto; Nakata, Hisao; and Harada, Michisuke, 3,705,866.

Nippondenso Kabushiki Kaisha: *See*—
Hobo, Nobuhito, 3,705,991.

Nishizawa, Mitsugu: *See*—
Yamada, Hisashi; Tajiri, Hisao; and Nishizawa, Mitsugu, 3,706,023.

Nittel, Fritz; Sobel, Johannes; and Himmelmann, Wolfgang, to Agfa-Gevaert Aktiengesellschaft. Photographic layers containing compounds which absorb ultraviolet light. 3,705,805, Cl. 96-84.00r.

Nomura, Hirotsugu: *See*—
Oguchi, Yutaka; and Nomura, Hirotsugu, 3,705,861.

Nordin, Lars-Erik Reinhold; and Mollerfors, Lars William Anshelm, to Stenberg-Flygt AB. Spring biased check valve for pipe branches. 3,705,602, Cl. 137-512.000.

Nordman, Adolph J.: *See*—
Overmyer, Robert C.; and Nordman, Adolph J., 3,705,545.

North American Manufacturing Company, The: *See*—
Placek, Donald D., 3,705,594.

Northeast Shoe Company: *See*—
Lown, Milton, 3,705,463.

Northrop Corporation: *See*—
Reis, James John, 3,705,516.

Norton Company: *See*—
Alliegro, Richard A., 3,705,714

Nuclear Associates, Inc.: *See*—
Manning, Bernard; and Nelson, Sigurd E., 3,705,985.

Nutrico, Inc.: *See*—
Krause, Ronald O.; and Bayne, Peter D., 3,705,597.

Nye, William M.; and Jones, Stanley W., to Lanier Electronic Laboratory, Inc. Recorder-transcriber switching apparatus. 3,705,961, Cl. 179-102.1dr.

Ochiai, Takeshi, to Toyota Jidosha Kabushiki Kaisha. Control system for preventing the skidding of vehicles. 3,705,748, Cl. 303-21.0be.

Ogawa, Fremont T., to General Motors Corporation. Speed change mechanism. 3,705,522, Cl. 74-803.000.

Oguchi, Yutaka; and Nomura, Hirotsugu, to Nippon Oil Company, Ltd. Catalyst for the hydrogenation of distillation residuum-containing petroleum hydrocarbons. 3,705,861, Cl. 252-448.000.

Okorokov, Ivan Fedorovich; Bogdanov, Gorgy Porfirievich; Sorokin, Konstantin Alexandrovich; Onischenko, Anatoly Fedorovich; Ziborov, Pavel Efimovich; and Perstnev, Samuil Nisonovich, to Vkrainsky Nauchno Issledovatelsky Institut Selskoklrozyaistvennojo Masvnostroerik Rospekt Gagarina. Root crop planter. 3,705,559, Cl. 111-3.000.

Okumura, Akihide: *See*—
Yamanaka, Ichiro; and Okumura, Akihide, 3,705,517.

Okusa, Naoya: *See*—
Oshima, Yasuo; Nakazawa, Nobuhiko; Nagasaki, Senkichi; Naito, Takeo; Osada, Yasuaki; Okusa, Naoya; Inuaki, Akira; and Tanaka, Kazuyuki, 3,705,989.

Olin Corporation: *See*—
Clarke, Gail H., Jr.; and Barnowski, Guilford Henry G., Jr., 3,705,857.
Kaufman, Charles W., 3,705,943.

Olson, Neil W. Pipe centering jig. 3,705,453, Cl. 29-200.00p.

Olton, Robert N.; and Berney, Bernard C., to Mineral Products Corporation. Water-proofing barrier. 3,705,838, Cl. 161-206.000.

Onischenko, Anatoly Fedorovich: *See*—
Okorokov, Ivan Fedorovich; Bogdanov, Gorgy Porfirievich; Sorokin, Konstantin Alexandrovich; Onischenko, Anatoly Fedorovich; Ziborov, Pavel Efimovich; and Perstnev, Samuil Nisonovich, 3,705,559.

Ontario Development Corporation: *See*—
Ratowsky, Simon, 3,705,544.

Opatril, Vaclav: *See*—
Skopalik, Josef; Svoboda, Vladimir; and Opatril, Vaclav, 3,705,503.

Osada, Yasuaki: *See*—
Oshima, Yasuo; Nakazawa, Nobuhiko; Nagasaki, Senkichi; Naito, Takeo; Osada, Yasuaki; Okusa, Naoya; Inuaki, Akira; and Tanaka, Kazuyoki, 3,705,989.

Oshima, Yasuo; Nakazawa, Nobuhiko; Nagasaki, Senkichi; Naito, Takeo; Osada, Yasuaki; Okusa, Naoya; Inuaki, Akira; and Tanaka, Kazuyuki, to Daiichi Seiyaku Company Limited. Fish disease treatment with naphthyridine derivatives. 3,705,989, Cl. 424-256.000.

Osmose Wood Preserving Co. of America, Inc.: *See*—
Gunning, Paul E., 3,705,854.

Osterreichische Studiengesellschaft fur Atomenergie Ges. m.b.H.: *See*—
Knotik, Karl; and Gutlhauer, Franz, 3,705,820.

Ota, Masami: *See*—
Ishikawa, Tatsuo; Hiruta, Shiro; Wakabayashi, Teruomi; Inamoto, Yoshihiko; Kusunose, Tethiro; Tsumaki, Tatsuichi; and Ota, Masami, 3,705,877.

Otala, Matti N. T. Method for determining tbe gram size distribution of ferromagnetic material. 3,706,028, Cl. 324-34.00r.

Ott, Hanns; and Latussek, Hanns Peter, to Siemens Aktiengesellschaft. Thrust bearing for midget motors. 3,705,752, Cl. 308-159.000.

Overly, Inc.: *See*—
Overly, William F.; and Pagel, Kenneth J., 3,705,676.

Overly, William F.; and Pagel, Kenneth J., to Overly, Inc. Air foil conveyor. 3,705,676, Cl. 226-97.000.

Overmyer, Robert C.; and Nordman, Adolph J., to Hawley Manufacturing Corporation. Releasable securement means for sealing web. 3,705,545, Cl. 98-115.0vm.

Owens Illinois, Inc.: *See*—
Elser, William F., 3,705,563.

Owens-Illinois, Inc.: *See*—
Peters, Homer D. F., 3,705,792.

Oxenrider, Bryce C.: *See*—
Woolf, Cyril; Oxenrider, Bryce C.; and Beyleveld, Wilhelmus M., 3,705,917.

Padgett, George L., to General Electric Company. Liquid cooled seal lube coupling. 3,705,502, Cl. 64-32.00r.

Page, Billy A. Crymotherapy apparatus for limbs. 3,705,587, Cl. 128-402.000.

Pagel, Kenneth J.: *See*—
Overly, William F.; and Pagel, Kenneth J., 3,705,676.

Paglia, Richard, to Polaroid Corporation. Apparatus for interfacing photographic camera and film cartridge. 3,705,537, Cl. 95-11.00r.

Palazzetti, Mario; and Cavaliarin, Bruno, to Fiat Societa per Azioni. Electronic timing system for internal combustion engine. 3,705,573, Cl. 123-146.50a.

Paris, Gerard Yvon: *See*—
Garmaise, David Lyon; Paris, Gerard Yvon; and Plotnikoff, Nicholas Peter, 3,705,902.

Park-Ohio Industries, Inc.: *See*—
Balzer, Norbert R.; and Arnosky, Joseph E., 3,705,973.
Sheetz, Richard S., 3,705,715.

Parkes, Ralph C. Dryer damper and control mechanism. 3,705,461, Cl. 34-191.000.

Pasley, Robert H., Sr.: *See*—
Francis, James G.; and Pasley, Robert H., Sr., 3,705,836.
Francis, James G.; and Pasley, Robert H., Sr., 3,705,935.

Patchett, Arthur A., to Merck & Co., Inc. Sulfonylphenylphosphonic acids. 3,705,920, Cl. 260-502.500.

Patel, Chandra Kumar Naranbhai: *See*—
Ippen, Erich Peter; Patel, Chandra Kumar Naranbhai; and Stolen, Rogers Hall, 3,705,992.

Pebra GmbH, Braun, Paul: *See*—
Fritsch, Walter; Hetzinger, Erich; and Worner, Karl, 3,705,508.

Pellet, William, to United States of America, Army. Spin switch. 3,705,965, Cl. 200-61.530.

Pereyra, Armand J. Necktie rack. 3,705,653, Cl. 211-13.000.

Perry, William C.; Puttock, Eugene F.; and Schreiber, Ronald S., to Mallinckrodt Chemical Works. Agglomeration of phosphor materials prior to calcination to eliminate calcining in receptacles. 3,705,933, Cl. 264-117.000.

Persson, John A. Joining of prebaked electrodes. 3,705,947, Cl. 13-18.000.

Perstnev, Samuil Nisonovich: *See*—
Okorokov, Ivan Fedorovich; Bogdanov, Gorgy Porfirievich; Sorokin, Konstantin Alexandrovich; Onischenko, Anatoly Fedorovich; Ziborov, Pavel Efimovich; and Perstnev, Samuil Nisonovich, 3,705,559.

Petchell, Roy Kenneth: *See*—
Lumb, Melvyn; Macey, Peter Edward; Wright, Richard Donald; and Petchell, Roy Kenneth, 3,705,841.

Peters, Claudius, Aktiengesellschaft: *See*—
Hamburg, Karl-Heinz, 3,705,620.

Peters, Homer D. F., to Owens-Illinois, Inc. Liquid flow proportioning system for metering into a glass batch. 3,705,792, Cl. 65-134.000.

Petrucco, Richard J.: *See*—
Fau, Paul; and Petrucco, Richard J., 3,705,853.

Pflanz, Herbert M., to Allis-Chalmers Manufacturing Company. Series-parallel electrical circuit. 3,706,012, Cl. 317-157.000.

Pickles, Cynthia Joan; and Bishop, Nigel Douglas, to Imperial Chemical Industries Limited. Pesticidal carbamate derivatives of naphthaquinones. 3,705,914, Cl. 260-396.00r.

Pietrzak, Joe P.: *See*—
Sayre, Robert E.; Campbell, Lewis B.; and Pietrzak, Joe P., 3,705,831.

Pileckis, John, to Honeywell Inc. Thyristor firing control circuit. 3,705,990, Cl. 307-252.00b.

Pioneer Electronic Corporation: *See*—
Yanagida, Kiyoshi, 3,706,021.

Piretti, Giancarlo; and Castelli, Leonida, to Anonima Castelli S.A.S. Three position folding seat. 3,705,744, Cl. 297-55.000.

Pitts, Charles A., to Dow Chemical Company, The. Slip and drag block assembly. 3,705,624, Cl. 166-216.000.

Placek, Donald D., to North American Manufacturing Company, The. Safety shutoff valve structure and method. 3,705,594, Cl. 137-1.000.

Platzman, Michael M. Revenue control system for toll roads. 3,705,976, Cl. 235-61.80a.

Plavskikh, Vladimir Dmitrievich: *See*—
Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; Tupitsyn, Konstantin Konstantinovich; and Plavskikh, Vladimir Dmitrievich, 3,705,633.

Plotnikoff, Nicholas Peter: *See*—
Garmaise, David Lyon; Paris, Gerard Yvon; and Plotnikoff, Nicholas Peter, 3,705,902.

Podolsky, Viktor Grigorievich; Balkarei, Iosif Mikhailovich; and Grigoriyants, Sergei Mikhailovich, to Proektny I Nanchno-Issledovatelsky Institut. Vibration-absorbing support. 3,705,702, Cl. 248-20.000.

Polacoat, Inc.: *See*—
Huber, Douglas B., 3,705,757.

Polaroid Corporation: *See*—
Farney, Leonard C.; and Haberlin, Richard J., 3,705,804.
Gold, Nicholas, 3,705,542.
Klein, Peter O.; and Reid, Jerome L., 3,705,798.
Paglia, Richard, 3,705,537.
Reed, John M.; Reynard, John M.; and Scibilia, Peter A., 3,705,540.

Polit, Neil A.; and Enskat, Albert G., to Xerox Corporation. Article handling apparatus. 3,705,719, Cl. 271-3.000.

Pollard, Richard J.: *See*—
Bow, William J.; and Pollard, Richard J., 3,705,494.

Polytronic Ltd.: *See*—
Thalmann, Claude, 3,705,725.

Portec, Inc.: *See*—
Berry, Gordon J., Jr., 3,705,994.

Porter, C. O., Machinery Company: *See*—
Greenley, Henry R.; and Craig, William E. (said Greenley assor to), 3,706,072.

Precision Metalsmiths, Inc.: *See*—
Watts, Claude H., 3,705,615.

Presley, C. T.: *See*—
Argabright, Perry A.; Hummel, Jack L.; and Presley, C. T., 3,705,627.

Pritulsky, James: *See*—
Keller, Joseph Richard; and Pritulsky, James, 3,705,756.

Proektny I Nanchno-Issledovatelsky Institut: *See*—
Podolsky, Viktor Grigorievich; Balkarei, Iosif Mikhailovich; and Grigoriyants, Sergei Mikhailovich, 3,705,702.

Prym-Werke, William, KG: *See*—
Gustavsson, Pertti O., 3,705,446.

Purrer, Josef, to Maschinenfabrik Fahr AG. Field harvester for row crops. 3,705,482, Cl. 56-13.900.

Putscher, Johann: *See*—
Wagner, Karl; Nicolay, Klaus; Schuchardt, Gerhard, and Putscher, Johann, 3,705,539.

Putscher, Johann, to Agfa-Gevaert Aktiengesellschaft. Photographic apparatus for use with impeller-actuated sources of artificial light. 3,705,538, Cl. 95-11.50r.

Puttock, Eugene F.: *See*—
Perry, William C.; Puttock, Eugene F.; and Schreiber, Ronald S., 3,705,933.

Quaal, John A.: *See*—
Halbeck, Werner B.; Quaal, John A.; and Robbins, Clyde F., 3,706,100.

Qualitrol Corporation: *See*—
Romanowski, Robert F.; and Cellini, Michael, 3,705,964.

Quan, William: *See*—
Sanders, Ray W.; Luce, David W.; and Quan, William, 3,705,986

Quarmby, Robert C.: *See*—
Matts, George A.; and Quarmby, Robert C., 3,705,609.

Quinlan, Joseph B.; and Scanlon, John J., Jr., to United States of America, Army. Ammunition. 3,705,549, Cl. 102-40.000.

Rabussier, Bernard Aranton: *See*—
Hennart, Claude; Martin, George Mandon, Jean-Pierre, and Rabussier, Bernard Aranton, 3,705,941.

Rachel, Todd L.: *See*—
Horn, John W.; and Rachel, Todd L., 3,705,571.

Rahman, Abdul R.; and Schafer, Glenn R., to United States of America, Army. Directly edible, compacted and dehydrated fruit bar. 3,705,814, Cl. 99-204.000.

Rains, John W. Compressed cigarette smoke. 3,705,590, Cl. 131-170.00a.

Rajakovics, Gundolf E., to Gebr Roehler & Co., AG. Arrangement for compensating for changes in the length of pipes and the like 3,705,734, Cl. 285-41.000.

Ram Jet Corporation: *See*—
Hruby, John O., Jr., 3,705,686.

Ram, Michael J., to Celanese Corporation. Lateral positioning of moving fibrous materials. 3,705,675, Cl. 226-3.000.

Ramis, Jean: *See*—
Blanie, Marie Jean Michel Paul; Ramis, Jean; and Robert, Henri R., 3,705,667.

Rank Organisation Limited, The. *See*—
Cook, Gordon Henry; and Lajrent, Francois, 3,705,759.

Ranks Hovis McDougall Limited. *See*—
Barker, Sidney Alan; Kennedy, John Frederick; and Cray, Charles John, 3,705,890.

- Ratowsky, Simon, to Ontario Development Corporation. Method of processing photographic material. 3,705,544, Cl. 95-93.000.
- Rausch, John T.; and Skunda, Michael, to General Motors Corporation. Spark plug sealing gasket. 3,705,951, Cl. 174-152.500.
- Ray, Manuel C., to National Research and Chemical Company. Automatic chemical mixer. 3,705,598, Cl. 137-101.250.
- Raytheon Company: *See—*
  - Cherwek, Roland A., 3,706,095.
- RCA Corporation: *See—*
  - Bridgewater, Thomas Austin, 3,706,016.
  - Dean, Raymond Harkless, 3,706,014.
- Reactor Centrum Nederland: *See—*
  - Theyse, Frederik Herman, 3,706,059.
- Reade, Stephen E.: *See—*
  - Kelem, Lester S.; and Reade, Stephen E., 3,706,049.
- Rebuffe, Pascal: *See—*
  - Jouet, Etienne; and Rebuffe, Pascal, 3,705,618.
- Reed, John M.; Reynard, John M.; and Scibilia, Peter A., to Polaroid Corporation. Electronic flash unit. 3,705,540, Cl. 95-11.50r.
- Reekstin, John Peter, Jr.: *See—*
  - Bobeck, Andrew Henry; Kowalchuk, Roman; and Reekstin, John Peter, Jr., 3,706,081.
- Rees, James D., to Xerox Corporation. Optical recorder. 3,705,543, Cl. 95-4.50r.
- Regat, Charles Y., to Schlumberger Technology Corporation. Induction logging methods and apparatus using more than one phase component of the received signal. 3,706,025, Cl. 324-6.000.
- Regel, Erik: *See—*
  - Schlor, Hanshelmut; Hoffmann, Hellmut; Regel, Erik; and Scheinpflug, Hans, 3,705,930.
- Regitz, William M.; and Dundon, Thomas M., to Honeywell, Inc. Mass memory system. 3,706,084, Cl. 340-174.100.
- Regnier, Gilbert; Canevari, Roger; and Duhault, Jacques, to Societe en nom Collectif "Science Union et Cie". Benzamidoethyl piperazines. 3,705,899, Cl. 260-256.40n.
- Reichhelm, Robert; and Morrison, Albert, Jr., to Burnham Corporation. Liquid fuel burner having reduced thermal stress and rapid start-up time. 3,705,784, Cl. 431-116.00a.
- Reichhold-Albert-Chemie AG: *See—*
  - Stieger, Gerhard; and Flasch, Josef, 3,705,862.
  - Stieger, Gerhard; and Flasch, Josef, 3,705,864.
- Reid, Jerome L.: *See—*
  - Klein, Peter O.; and Reid, Jerome L., 3,705,798.
- Reinert, John R., to Motorola, Inc. Synchronous parallel counter with common steering of clock pulses to binary stages. 3,706,043, Cl. 328-42.000.
- Reinhards, Gunter: *See—*
  - Stosberg, Herbert; Fleischmann, Horst; Reinhards, Gunter; and Engels, Siegfried, 3,705,438.
- Reis, James John, to Northrop Corporation. Method and apparatus for testing the condition of a machine. 3,705,516, Cl. 73-71.400.
- Reitz, Roderick, to General Electric Company. Lightning arrester capacitive grading circuit mounting means. 3,706,009, Cl. 317-68.000.
- Renfroe, Harris B.: *See—*
  - Hall, Luther A. R.; Gurney, John A.; and Renfroe, Harris B., 3,705,918.
- Rensvold, Roger F., to Halliburton Company. Destruction of oil slicks. 3,705,782, Cl. 431-7.000.
- Rentsch, Hans J., to Medline Industries, Inc. Syringe assembly. 3,705,583, Cl. 128-232.000.
- Research Corporation: *See—*
  - Roth, Wilfred, 3,705,576.
- Research Institute for Medicine and Chemistry Inc.: *See—*
  - Barton, Derek Harold Richard, 3,705,893.
- Retch, Ernst: *See—*
  - Zwahlen, Guenther; Retch, Ernst; and Schoohf, Karl Ewald, 3,705,816.
- Retzer, Theodore C.; and Kearney, Joseph P., to Westinghouse Electric Corporation. Current-rated short-arc lamp for light projection apparatus. 3,706,000, Cl. 313-214.000.
- Rex Chainbelt Inc.: *See—*
  - Morris, John M.; and Schrader, Preston H., 3,706,018.
- Reynard, John M.: *See—*
  - Reed, John M.; Reynard, John M.; and Scibilia, Peter A., 3,705,540.
- Reynolds, Clarke: *See—*
  - Duckett, John W.; Brooks, Edward A.; and Reynolds, Clarke, 3,705,566.
- Richardson, Thomas L.: *See—*
  - McPherson, Frank H.; Lownes, Irvin S., Jr.; and Richardson, Thomas L., 3,706,074.
- Riegel Textile Corporation: *See—*
  - Tollison, James W.; and Kelley, Joe, 3,705,607.
- Rigal, Pierre: *See—*
  - Morini, Jean-Louis; Rigal, Pierre; and Leduc, Jean, 3,705,579.
- Riley, Lloyd D., to Filper Corporation. Packaging machine and method. 3,705,475, Cl. 53-35.000.
- Rioux, Christian Paul Gilbert, to Societe Nationale d'Etudes et Construction de Moteurs d'Aviation. Gas turbine power plants. 3,705,775, Cl. 417-411.000.
- Ripley, Richard E., to Textron, Inc. Expansible bracelet. 3,705,490, Cl. 59-79.00r
- Robbins, Clyde F.. *See—*
  - Halbeck, Werner B.; Quaal, John A.; and Robbins, Clyde F., 3,706,100.
- Robert, Henri R.: *See—*
  - Blanie, Marie Jean Michel Paul; Ramis, Jean; and Robert, Henri R., 3,705,667.
- Roder, Georg Adam, to Messer Griesheim GmbH. Process and device for igniting oxyacetylene cutting torches. 3,705,781, Cl. 431-6.000.
- Rodzen, Richard A.: *See—*
  - Marcum, Alfred L., Jr.; Burns, Marvin; and Rodzen, Richard A., 3,705,426.
- Rogers, Jimmy D.: *See—*
  - Austin, Frederick H.; Rogers, Jimmy D.; and Wormser, Joseph J., 3,706,038.
- Rogers, William W.: *See—*
  - Bradshaw, Thurman O.; and Rogers, William W., 3,706,068
- Rohde, Robert P.: *See—*
  - Brewer, Lee M.; and Rohde, Robert P., 3,705,685.
- Rohm and Haas Company: *See—*
  - Konen, Patricia F., 3,705,645.
- Romanowski, Robert F.; and Cellini, Michael, to Qualitrol Corporation. Position indicating instrument with circuit control switches. 3,705,964, Cl. 200-56.00r.
- Rossi, Harry; and Myers, John H., to Continental Can Company, Inc. Carton with article-centering means. 3,705,681, Cl. 229-40.000.
- Roth, Wilfred, to Research Corporation. Incubators for infants. 3,705,576, Cl. 128-1.00b.
- Roto Diesel: *See—*
  - Garnier, Georges, 3,705,692.
- Royalty Designs of Florida: *See—*
  - Francis, James G.; and Pasley, Robert H., Sr., 3,705,836.
  - Francis, James G.; and Pasley, Robert H., Sr., 3,705,935.
- Ruf, Max, to Audi NSV Auto-Union Aktiengesellschaft and Wankel G.m.b.H. Rotary combustion engine with liquid-cooled rotor. 3,705,570, Cl. 123-8.450.
- Rukavina, Louis, Jr.; Brower, Robert L.; and Lane, Daniel J., to Cleaning Systems Industries, Inc. Combination high pressure washer and vacuum. 3,705,437, Cl. 15-302.000.
- Rumpf, Paul; and Blouri, Byouk. Manufacture of long chain alpha-olefines from mixtures of heavy paraffins. 3,705,926, Cl. 260-683.00r.
- Rumyantsev, Alexandr Stepanovich: *See—*
  - Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.
- Russmann, Horst; and Determann, Helmut, to Biotest-Serum-Institut, GmbH. Apparatus for sterile material exchange. 3,705,652, Cl. 210-321.000.
- Ruti Machinery Works Ltd.: *See—*
  - Stucki, Peter, 3,705,606.
- Ryan, Charles W., to Lilly, Eli, and Company. Isomer resolution. 3,705,900, Cl. 260-284.000.
- Saffro, Dennis W. Preformed surgical sponge. 3,705,585, Cl. 128-303.100.
- Sage Laboratories, Inc.: *See—*
  - Tenenholtz, Robert, 3,706,042.
- Sakamoto, Minoru. Circular saw and attachment therefor. 3,705,611, Cl. 83-478.000.
- Sakawa, Katuaki; and Kozawa, Tetuo, to Brother Kogyo Kabushiki Kaisha. Cyclic sewing machine. 3,705,561, Cl. 112-67.000.
- Salvert, Bernard, to Electronique Marcel Dassault. Method and a device for eliminating the noise in a transmission chain of radio-electric signals. 3,706,045, Cl. 328-165.000.
- Sander, Hans-Georg, to VDO Tachometer Werke Adolf Schindling, GmbH. Moving coil measuring instrument. 3,706,034, Cl. 324-154.00r.
- Sanders, Kenneth Douglas; Botley, Geoffrey Sword; and Taylor, Jack William, to Credit Keys Limited. Lock controlled electric switch mechanisms. 3,705,507, Cl. 70-364.00r.
- Sanders, Ray W.; Luce, David W.; and Quan, William, to Computer Transmission Corporation. Optical data transmission system. 3,705,986, Cl. 250-199.000.
- Sandor, Bela Thomas, to Automated Feed Mills Limited. Disintegrating and mixing apparatus especially for animal foods. 3,705,695, Cl. 241-34.000.
- Sandoz Ltd.: *See—*
  - Troxler, Franz, 3,705,907.
- Sarracino, John B. Umbilical cord clamp. 3,705,586, Cl. 128-346.000.
- Sato, Akira: *See—*
  - Nakazawa, Giyoshiyuki; Nakamura, Yashuharo; Takei, Haruo; Sato, Akira; and Ikeda, Tadashi, 3,705,809.
- Sato, Sigeta: *See—*
  - Kato, Masaaki; and Sato, Sigeta, 3,705,846.
- Savit, Carl H. Method of geophysical prospecting by measuring the attenuation of seismic waves in the earth. 3,706,069, Cl. 340-15.5cp.
- Saxer, Robert A. Splash arrester having impact member supported in housing. 3,705,672, Cl. 222-567.000.
- Sayre, Robert E.; Campbell, Lewis B.; and Pietrzak, Joe P., to General Motors Corporation. Method of fabricating an insulated storage bin. 3,705,831, Cl. 156-227.000.
- Scanlon, John J., Jr.: *See—*
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- Scaramucci, Domer. Self-aligning trunnion ball valve. 3,705,707, Cl. 251-84.000.
- Schafer, Glenn R.: *See—*
  - Rahman, Abdul R.; and Schafer, Glenn R., 3,705,814.
- Scheinpflug, Hans: *See—*
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- Schell, Sidney T.: *See—*
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- Schenk, Robert J.: *See—*
  - Laerman, Lothar; and Schenk, Robert J., 3,706,010.
- Schetinin, Anatoly Alexandrovich. Steam pressure and temperature reducing installation. 3,705,684, Cl. 236-12.000.
- Schimmer, Rigobert; Gesing, Horst; and Cordes, Karl-Heinz, to Licentia Patent-Verwaltungs, G.m.b.H. Semiconductor with multilayer contact. 3,706,015, Cl. 317-234.00r.
- Schlor, Hanshelmut; Hoffmann, Hellmut; Regel, Erik; and Scheinpflug, Hans, to Farbenfabriken Bayer Aktiengesellschaft. Trithiolphosphoric acid esters. 3,705,930, Cl. 260-964.000.
- Schlosser, Donald K.: *See—*
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- Schlumberger Technology Corporation: *See—*
  - Nicolas, Yves, 3,705,979.
  - Regat, Charles Y., 3,706,025.
- Schonfeld, Steven Edward, to Firestone Tire & Rubber Company, The. Catalysis of polyamide formation. 3,705,881, Cl. 260-78.00l.
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  - Zwahlen, Guenther; Retch, Ernst; and Schoohf, Karl Ewald, 3,705,816.
- Schoonman, Willem, to Lummus Company, The. Air-cooled heat exchanger. 3,705,621, Cl. 165-112.000.
- Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, to Farbenfabriken Bayer Aktiengesellschaft. N-isopropyl-phosphoroamidu-thioates. 3,705,929, Cl. 260-951.000.
- Schrader, Preston H.: *See—*
  - Morris, John M.; and Schrader, Preston H., 3,706,018.
- Schreiber, Ronald S.: *See—*
  - Perry, William C.; Puttock, Eugene F.; and Schreiber, Ronald S., 3,705,933.
- Schroner, Wera, to Flotti Puppenkleiderspiele Gesellschaft mit beschrankter Haftung. Blank and dress made therefrom. 3,705,427, Cl. 2-74.000.
- Schubert, Dudley J.; and Howe, Donald R. Collapsible bulk handling bin. 3,705,663, Cl. 217-12.00r.
- Schuchardt, Gerhard: *See—*
  - Wagner, Karl; Nicolay, Klaus; Schuchardt, Gerhard; and Putscher, Johann, 3,705,539.
- Schuermann, Fritz: *See—*
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- Schultze, Hans-Joachim, to Inventa AG. Apparatus for separating crystals from a melt. 3,705,682, Cl. 233-11.000.
- Schuster, Paul Alfred, to Bell Telephone Laboratories, Incorporated. Programmable digital filter apparatus. 3,706,076, Cl. 340-172.500.
- Schwartz, Frederic W., to Cable Electric Products, Inc. Combination light and switch. 3,706,004, Cl. 315-71.000.
- Schwartzman, Gilbert. Dispenser with dip tube. 3,705,668, Cl. 222-207.000.
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- Schwarz, Leonard H., to Dunham-Bush, Inc. Cleanable tube within a tube heat exchanger and method of forming modular readers therefor. 3,705,622, Cl. 165-143.000.
- Schweiger & Schweizer AG: *See—*
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- Schweikert, Karl: *See—*
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- Scibilia, Peter A.: *See—*
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- Scott, O. M., and Sons Company, The: *See—*
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- Scott, William Bruce; and Simpson, Peter Laurence, to Gulf Oil Canada Limited. Dibenzothiophene sulfonyl halides. 3,705,909, Cl. 260-329.300.
- Seaberg, David H., to Case, J. I., Company. Hydraulic tilt and pitch control for dozer blade. 3,705,631, Cl. 172-804.000.
- Searle, John Gilbert, to Allwood Searle & Timney Limited. Friction welding apparatus. 3,705,678, Cl. 228-2.000.
- Sedliar, Ronald M.; Aepli, Otto T.; and Burkard, Perle N., to BASF Wyandotte Corporation. Additives for alkali cleaning systems. 3,705,856, Cl. 252-156.000.
- Seelandt, Karl H.; and Wentworth, Hobart L., to Sola Basic Industries, Inc. Internally heated rotary drum furnace with smoke abater. 3,705,711, Cl. 263-32.00r.
- Seelig, Wolfgang Hagen: *See—*
  - Banse, Karlheinz Victor Hermann; Seelig, Wolfgang Hagen; Steinger, Jurg Hugo; and Herziger, Gerd Bernd, 3,705,999.
- Seidel, Harold, to Bell Telephone Laboratories, Incorporated. Phase-locked signal source. 3,706,046, Cl. 330-4.500.
- Sela, Ramy M. Musical head gears. 3,705,466, Cl. 46-1.00f
- Shapiro, Lev Mironovich: *See—*
  - Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.
- Sheetz, Richard S., to Park-Ohio Industries, Inc. Method and apparatus for quench hardening elongated workpieces. 3,705,715, Cl. 266-4.00a.
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- Shibata, Minoru; Yusa, Makoto; Nakata, Hisao; and Harada, Michisuke, to Kansai Paint Company Limited and Nippon Soda Company Limited. Aqueous coating compositions. 3,705,866, Cl. 260-23.70a.
- Shields, John Bickford, to American Potato Company. Process for making a fried onion product. 3,705,812, Cl. 99-100.00p.
- Shilov, Georgy Petrovich: *See—*
  - Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich, Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.
- Shiomi, Masanao; and Narumi, Tadataka, to Toyota Jidosha Kogyo Kabushiki Kaisha. Collision force absorption device. 3,705,740, Cl. 293-89.000.
- Shock, John P. Auxiliary drive and support mechanism for mobile vehicles. 3,705,638, Cl. 180-14.00a.
- Sholly, William C., Jr.; and Carruthers, George A., to Turbo Machine Company. Apparatus and method for producing a high degree of twist in yarn. 3,705,488, Cl. 57-77.400.
- Shroyer, Larry L., to Lyall Electric, Inc. Electrical connector 3,706,066, Cl. 339-59.00r.
- Shvartsman, Benyamin Markovich: *See—*
  - Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich, Kazantsev, Evgeny Andreevich; Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich, 3,705,848.
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- Siegel, William Jordan. Tool holder. 3,705,680, Cl. 228-57.000.
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  - Keller, Wolfgang, 3,705,789.
  - Ott, Hanns; and Latussek, Hanns Peter, 3,705,752.
  - Touchy, Wolfgang; and Bungenstab, Eckart, 3,705,825.
- Sierra, Rafael B. Biopsy needle with eccentrically-mounted cutting tip. 3,705,577, Cl. 128-2.00b.
- Siller, Imre, to Grundig E. V. Elektro Mechanische Versuchsunstaft Tape recorder and cassette for magnetic tape. 3,705,699, Cl. 242-199.000.
- Silliker, John H.: *See—*
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  - Scott, William Bruce; and Simpson, Peter Laurence, 3,705,909.
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- Sjoo, Bertil Roland, to Hesselman Bil-Aeru AB. Single-lever mechanism. 3,705,519, Cl. 74-471.0xy.
- Skillicorn, Douglas E., to Goodrich, B. F., Company, The. Liquid thioester-terminated polymers. 3,705,882, Cl. 260-79.000.
- Skopalik, Josef; Svoboda, Vladimir; and Opatril, Vaclav, to Elitex. Apparatus for forming a system of weft threads for further processing in textile machines. 3,705,503, Cl. 66-84.000.
- Skunda, Michael: *See—*
  - Rausch, John T.; and Skunda, Michael, 3,705,951.
- Slantsekhimichesky Kombinat "Kiviyli" U.S.S.R.: *See—*
  - Mikhelis, Konstantin Alexandrovich; Fomina, Alexandr Sergeevna; Murumets, Kirill Vladimirovich; Ulanen, Yalmar Semenovich; Kotov, Anatoly Mikhailovich; Volkov, Timofei Mikhailovich; Itsikson, Boris Semenovich; Suurmaa, Raivo Alexandrovich; Viks, Paavo Yaanvich; and Berestovsky, Georgy Grigorievich, 3,705,793.
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- Slover, Vasel R.: *See—*
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- Smale, Charles H., to General Motors Corporation. Oval jet nozzle 3,705,688, Cl. 23-265.390.

Smillinger, Carl W., to Bethlehem Steel Corporation. Wire rope with permanently lubricated core. 3,705,489, Cl. 57-149.000.
Smith, A. O., Corporation: *See—*
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Smith, Robert A.; and Wang, Ting-I, to Atlantic Richfield Company. Vapor phase process for producing vinyl allyl ether. 3,705,924, Cl. 260-614.00r.
Smolinski, Richard C. Illuminated serving tray. 3,705,982, Cl. 240-6.40r.
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Starr, Arthur T.; and David, Edwards G., to Xerox Corporation. Channel shaping filter. 3,706,054, Cl. 333-28.00r.
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Stephan, John T.; and Golick, A. J., to Commercial Solvents Corporation. Process for joining cellulosic articles utilizing a two part adhesive, wherein the first part is a partially reacted condensate of resorcinol and formaldehyde, and the second part is n oxazoladine. 3,705,832, Cl. 156-310.000.
Stieger, Gerhard; and Flasch, Josef, to Reichhold-Albert-Chemie AG. Water-soluble binders prepared from phenolic resin and monoolefinically unsaturated acid. 3,705,862, Cl. 260-19.0ua.
Stieger, Gerhard; and Flasch, Josef, to Reichhold-Albert-Chemie AG. Electrophoretic deposition. 3,705,864, Cl. 260-22.00r.
Stiles, Lester W., to Weyerhaeuser Company. Method for forming a uniform continuous web of paper. 3,705,847, Cl. 204-181.000.
Stoddard, Ivan; and Broughton, Terence D., to USM Corporation. Foot form and shoemaking method. 3,705,433, Cl. 12-133.00r.
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Stolzer, Claus; Hammann, Igeborg; and Unterstengofer, Gunther, to Farbenfabriken Bayer Aktiengesellschaft. Alkyl-or arylthiolphosphonic acid o-alkyl-S-(N,N-Di-substituted amino carbamyl)-methyl esters. 3,705,927, Cl. 260-923.000.
Stolzer, Claus; Hammann, Ingeborg; and Unterstenhofer, Gunter, to Farbenfabriken Bayer Aktiengesellschaft. O-alkyl-N-monoalkylamido-(thiono) thiolphosphoric acid S-(N',N'-dialkylamino-carbamyl)-methyl esters. 3,705,928, Cl. 260-923.000.
Stosberg, Herbert; Fleischmann, Horst; Reinhards, Gunter; and Engels, Siegfried, to Tente-Rollen Gesellschaft mit beschrankter Haftung Companie, Firma. Locable runners. 3,705,438, Cl. 16-35.000.
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Stucki, Peter, to Ruti Machinery Works Ltd. Rotating disk arrangement on a wave-type loom. 3,705,606, Cl. 139-12.000.
Stumpf, Marvin D.; and Koenig, Elmer A. Breech loaded syringe and method of breech loading same. 3,705,582, Cl. 128-218.00p.
Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; Tupitsyn, Konstantin Konstantinovich; and Plavskikh, Vladimir Dmitrievich, to Institut Gornogo Dela Sibirskogo otdelenia Akademii. Reversible percussion devicefor making holes in ground by compacting the latter. 3,705,633, Cl. 173-91.000.
Sullivan, Alfred Bay, to Monsanto Company. Method for preparation of organic polysulfides. 3,705,923, Cl. 260-608.000.
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Sykes, Donald J.; Kroll, Harry; and Finch, Theron R. Polyquaternary ammonium bisulfites, sulfites an pyrosulfites as developer perservatives. 3,705,806, Cl. 96-664.000.
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Tardoskegyi, Louis V., to Electrovert Manufacturing Co., Ltd. Wave soldering using inert gas to protect pretinned and soldered surfaces of relatively flat workpieces. 3,705,457, Cl. 29-494.000.
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Tenner, Oskar, to Fa. Gebauer & Lehmer. Apparatus for casting molten metal in bottom- pouring molds. 3,705,616, Cl. 164-155.000.
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Thompson, Charles H., to General Motors Corporation. Transmission control system. 3,705,642, Cl. 192-4.000.
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Titov, Dmitry Vladimirovich, to Vsesojuzny Nauchno Issledrvatelsky Institut Textilnogo Legkogo Mashinostroenia. Fabric forming device for weaving looms. 3,705,605, Cl. 139-12.000.
Tohoru, Tomoshige: *See—*
  Kashiwa, Norio; Tohoru, Tomoshige; Kobayashi, Toshio; and Honma, Shiro, 3,705,886.
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  Yamada, Hisashi; Tajiri, Hisao; and Nishizawa, Mitsugu, 3,706,023.
Tollison, James W.; and Kelley, Joe, to Riegel Textile Corporation. Loom attachments for making fringes. 3,705,607, Cl. 139-116.000.
Tomisawa, Norio, to Nippon Gakki Seizo Kabushiki Kaisha. System for controlling tone modifying circuits by muscular voltage in electronic musical instrument. 3,705,948, Cl. 84-1.240.
Toomer, Charles H. Device for use in picking berries, and the like. 3,705,485, Cl. 56-330.000.
Toomey, Thomas J. Combination kitchen and clothes trailer. 3,705,743, Cl. 296-23.00r.
Touchy, Wolfgang; and Bungenstab, Eckart, to Siemens Aktiengesellschaft. Growth layer of semiconductor compounds produced by melt epitaxy. 3,705,825, Cl. 148-1.500.
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Troxler, Franz, to Sandoz Ltd. 4-(2-hydroxy)-3-aminopropoxy)-indole derivatives. 3,705,907, Cl. 260-326.14r.
Tsukihashi, Kazunobu. Puncher for marking devices. 3,705,683, Cl. 234-87.000.
Tsumaki, Tatsuichi: *See—*
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Turek, Robert F., to Bowles Fluidics Corporation. Fluidic flow sensing method and apparatus. 3,705,534, Cl. 73-189.000.
Tuschhoff, John V.; and Hanson, Cleo E., to Staley, A. E., Manufacturing Company. Method for producing ungelatinized starch derivatives. 3,705,891, Cl. 260-233.30r.
Tweeddale, Helen Joan: *See—*
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Van Zon, Cornelis, to Industriele Onderneming Wavin N.V. Device for manufacturing a plastic tube with transverse grooves. 3,705,779, Cl. 425-326.000.
Vaneldik, Jan Frederik; Wilson, Ronald Ian; Kampjes, Gerrie Richard; and Lavender, William James, to Gordon, Sherritt Mines, Limited. Electrostatic precipitator and gas sampling system. 3,705,478, Cl. 55-120.000.
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Vicentini, Giorgio; and Console, Giulio, to Boeri di A.G. Boer & C. Spraying device, more particularly for abrasive liquid compositions. 3,705,687, Cl. 239-92.000.
Vickers, Paul T., to General Motors Corporation. Regenerative gas turbine system. 3,705,492, Cl. 60-39.510.
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Vikstrom, Dennis G., to General Motors Corporation. Clamp on current detector. 3,706,032, Cl. 324-127.000.
Vincent, Andrew W. Timer circuit for magnetic actuators. 3,706,011, Cl. 317-151.000.
Vishnitsky, Alexandr Lazarevich; Shapiro, Lev Mironovich; Kazantsev, Evgeny Andreevich, Shvartsman, Benyamin Markovich; Shilov, Georgy Petrovich; Nemilov, Evgeny Fedorovich; Baisupov, Izmail Abdulovich; Masterov, Vasily Fomich; and Rumyantsev, Alexandr Steanovich. Apparatus for electrochemical burring and blunting sharp edges of current-conducting articles. 3,705,848, Cl. 204-213.000.
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Vissers, Herbert, to Landbouerktuigen-en Machinefabriek H. Vissers N.V. Agricultural implement for clod breaking. 3,705,630, Cl. 172-763.000.
Vkrainsky Nauchno Issledovatelsky Institut Selskoklrozyaistvennojo Mashvnostroenik Rospekt Gagarina: *See—*
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Weber, Heinz, to Telesco Brophey Limited. Umbrella. 3,705,593, Cl. 135-20.000.
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White, Robert L., to General Motors Corporation. Energy absorbing bumper mount and restoration tool therefor. 3,705,741, Cl. 293-89.000.
Whitten, Derrill Gene; and Vanmeurs, Peter, to Shell Oil Company. Steam drive oil recovery process. 3,705,625, Cl. 166-252.000.

Wieland, Theodor; Konz, Wilhelm; Faesel, Jurgen; and Lewalter, Jurgen, to Boehringer Ingelheim G.m.b.H. Cyclic decapeptides and methods of synthesizing the same. 3,705,887, Cl. 260-112.500.
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Willett, Harold A., to Cane Machinery & Engineering Company, Inc. Sugar cane topper for V-cutter harvester. 3,705,481, Cl. 56-13.900.
Williams, Keith S., to United States of America, Army. Flash suppressor assembly for Gatling-type machine guns. 3,705,529, Cl. 89-14.00b.
Wilmot, Richard D.; and Ballantyne, Jack R., to Hughes Aircraft Company. Moving target platform digital video mapper. 3,705,936, Cl. 343-7.700.
Wilson, Eric John; Brigg, Alan Henry; and Timmons, Eric, to English Steel Corporation, Limited. Articulatable railway bogies. 3,705,555, Cl. 105-196.000.
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Wirtz, Walter; and Genge, Ulrich, to Demag Aktiengesellschaft. Bottom cooling device for shaft furnaces. 3,705,713, Cl. 263-44.000.
Witkowski, Henry J. Apparatus for coating building wall with foam. 3,705,777, Cl. 425-110.000.
Wittenwyler, Clifford V., to Shell Oil Company. Process for the production of bonded particles as a material of construction. 3,705,872, Cl. 260-37.0ep.
Wolf, Charles B.; and Fey, Maurice G., to Westinghouse Electric Corporation. Self-stabilizing arc heater apparatus. 3,705,975, Cl. 219-383.000.
Wolf, Ernest Robert, to Kimberly-Clark Corporation. Wrapping apparatus. 3,705,476, Cl. 53-210.000.
Wolf, Robert L.; and Mc Gann, Rodney, to Texaco Inc. Reaction propulsion engine and method of operation. 3,705,496, Cl. 60-267.000.
Wolk, Ronald H., to Hydrocarbon Research, Inc. Multi-function contacting process. 3,705,850, Cl. 208-127.000.
Wood, Peter, to Westinghouse Electric Corporation. Tap changing apparatus having a gate control tripper. 3,706,024, Cl. 323-43.50s.
Woodward, Jason H.: *See—*
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Woolf, Cyril; Oxenrider, Bryce C.; and Beyleveld, Wilhelmus M., to Allied Chemical Corporation. Process for preparing fluoroperhaloalkyl isocyanates. 3,705,917, Cl. 260-453.00p.
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Yamada, Hisashi; Tajiri, Hisao; and Nishizawa, Mitsugu, to Tokyo Shibaura Electric Co., Ltd. High voltage regulation circuit for television receiver. 3,706,023, Cl. 321-2.000.
Yamada, Naojiro. Flash light. 3,705,983, Cl. 240-10.600.
Yamanaka, Ichiro; and Okumura, Akihide, to Nihon Spindle Seizo Kabushiki Kaisha. Adjustable belt and pulley transmission. 3,705,517, Cl. 74-230.17a.
Yanagida, Kiyoshi, to Pioneer Electronic Corporation. Direct current motor with electrical braking device. 3,706,021, Cl. 318-302.000.
Yeffal-Rueda, Manuel, to Tridilosa International, Inc. Structural slab members. 3,705,473, Cl. 52-650.000.
Yerouchalmi, David. Axial pouring-nozzle structure for rotary melting furnace. 3,705,712, Cl. 263-33.00r.
Yoshida, Mikihiko; Mitsuhashi, Masakazu; and Hidao, Mamoru, to Hayashibara Company. Process for avoiding staling and improving the quality of bread. 3,705,811, Cl. 99-91.000.
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Yoshimura, Noboru, to Aisin Seiki Kabushiki Kaisha. Door latch mechanisms. 3,705,738, Cl. 292-216.000.
Young, Einar T., to Sun Oil Company. Motor fuel dispensing apparatus. 3,705,596, Cl. 137-100.000.
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Zenker, Karol R., to Factory Mutual Research Corporation. Discharge head utilizing a pressure-responsive detent mechanism. 3,705,691, Cl. 239-452.000.
Ziaylek, Theodore, Jr. Miniaturized forcible entry tool. 3,705,430, Cl. 7-9.000.
Ziborov, Pavel Efimovich: *See—*
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Zuhlke, Gerhard, to Schweiger & Schweizer AG. Apparatus for framing a foil portion. 3,705,454, Cl. 29-208.00d.
Zwahlen, Guenther; Retch, Ernst; and Schoohf, Karl Ewald, to Ciba-Geigy AG. Pigment preparation. 3,705,816, Cl. 106-308.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF DECEMBER, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Davis, Jack G. : *See*—
    Doremus, Gordon L., and Davis. Re. 27,529.
Doremus, Gordon L., and Jack G. Davis. Galvanic anode. Re. 27,529, 12-12-72, Cl. 204—197.
Marotta, Nicholas G. : *See*—
    Murray, Daniel G., Marotta, and Boettger. Re. 27,531.
Midland Manufacturing Co., Inc. : *See*—
    Mitchell, James L. Re. 27,530.
Mitchell, James L., to Midland Manufacturing Co., Inc. Land levelling implement. Re. 27,530, 12-12-72, Cl. 172—780.
Morris, Harold D., to Systron-Donner Corp. Position detecting transducer. Re. 27,532, 12-12-72. Cl. 73—517.
Murray, Daniel G., N. G. Marotta, and R. M. Boettger, to National Starch and Chemical Corp. Amylose coated, fried potato product and process for preparing the same. Re. 27,531, 12-12-72. Cl. 99—100.
National Starch and Chemical Corp. : *See*—
    Murray, Daniel G., Marotta, and Boettger. Re. 27,531.
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    Morris, Harold D. Re. 27,532.

LIST OF PLANT PATENTEES

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384	3,705,833
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166M	3,705,966
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193	3,705,981
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219	3,705,941
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PATENT OFFICE NOTICES

STATUS OF RULE 69 PROPOSAL

This notice is in response to numerous inquiries received by the Patent Office relative to the status of the proposal, published at 37 F.R. 9225 on May 6, 1972 and at 899 O.G. 2 on June 6, 1972, to add a new section 1.69 to Title 37, Code of Federal Regulations.

All of the many written and oral comments received have been analyzed and are currently being studied. The analysis indicates that comments in favor of and against the principle of the rule were about evenly divided. Many comments expressed reservations concerning the language used. The "inconsistency" and "tend to give an impression" clauses drew the most criticism. The first clause was viewed as being too absolute, forcing the affiant or declarant to abdicate reasonable judgment concerning validity of seemingly inconsistent or maverick test results. The second clause was viewed as being too subjective or vague which would result in second guessing later. The additional burden on both applicants and examiners was also advanced *as* reason to change the proposed language.

In summary, the proposal is still under study with the view of developing a satisfactory way to accomplish the intent of the proposed rule.

S. WM. COCHRAN,
Solicitor.

Nov. 22, 1972.

ICIREPAT Numbers for Identification of Bibliographic Data on the First Page of Patent and Like Documents

The Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices (ICIREPAT) has recently approved revisions in INID Codes (ICIREPAT Numbers for Identification of Data) which become effective for use by the countries which apply such codes to their documents on January 1, 1973. A complete list of the Codes, as revised, appears below.

Changes in INID Codes which particularly affect their application to U.S. patents consist of the provision of the new codes [75] and [76] that are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. Use of the code [72] which was heretofore applied to U.S. patents will be discontinued and, in lieu thereof, codes [75] and [76], as appropriate, will be used effective with the patent issue of January 2, 1973.

The purpose of INID Codes is to provide a means whereby the various data appearing on the first page of patent and like documents can be identified without knowledge of the language used and the laws applied. They are now used by a number of Patent Offices and have been applied to U.S. patents since Aug. 4, 1970. Some of the codes are not pertinent to the documents of a particular country and some which are may, in fact, not be used. Those codes which are not applicable to U.S. patents or not used are identified in the list below.

[10] *Document identification*
  [11] Number of the document
  [19] ICIREPAT country code, or other identification, of the country publishing the document

[20] *Domestic filing data*
  [21] Number(s) assigned to the application(s), e.g. "Numero d'enregistrement national," "Aktenzeichen"
  [22] Date(s) of filing application(s)
  [23] Other date(s) of filing, including exhibition filing date and date of filing complete specification following provisional specification [1]

[30] *Convention priority data* [2]
  [31] Number(s) assigned to priority application(s)[1]
  [32] Date(s) of filing of priority application(s)[1]
  [33] Country (countries) in which priority application(s) was (were) filed [1]

[40] *Date(s) of making available to the public*
  [41] Date of making available to the public by viewing, or copying on request, an unexamined document, on which no grant has taken place on or before the said date [1]
  [42] Date of making available to the public by viewing, or copying on request, an examined document, on which no grant has taken place on or before the said date [1]
  [43] Date of publication by printing or similar process of an unexamined document, on which no grant has taken place on or before the said date [1]
  [44] Date of publication by printing or similar process of an examined document, on which no grant has taken place on or before the said date [1]
  [45] Date of publication by printing or similar process of a document, on which grant has taken place on or before the said date
  [46] Date of publication by printing or similar process of the claim(s) only of a document [1]
  [47] Date of making available to the public by viewing, or copying on request, a document on which grant has taken place on or before the said date [1]

[50] *Technical information*
  [51] International Patent Classification
  [52] Domestic or national classification
  [53] Universal Decimal Classification [1]
  [54] Title of the invention
  [55] Keywords [1]
  [56] List of prior art documents, if separate from descriptive text
  [57] Abstract or claim
  [58] Field of search

[60] *Reference(s) to other legally related domestic document(s)*[3]
  [61] Related by addition(s)[1]
  [62] Related by division(s)
  [63] Related by continuation(s)
  [64] Related by reissue(s)

[70] *Identification of parties concerned with the document*
  [71] Name(s) of applicant(s)[1]
  [72] Name(s) of inventor(s) if known to be such [1]
  [73] Name(s) of grantee(s)
  [74] Name(s) of attorney(s) or agent(s)[1]
  [75] Name(s) of inventor(s) who is(are) also applicant(s)
  [76] Name(s) of inventor(s) who is(are) also applicant(s) and grantee(s)

Codes [75] and [76] are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. In other cases [71] and [72] or [71], [72] and [73] should generally be used.

Notes concerning the application of INID Codes to U.S. patents:

[1] This item is either not applicable to U.S. patents or, if applicable, is either not coded or not assigned this code.

[2] The respective specific data elements within this category are not individually coded. They are printed in a particular format under the caption "Foreign Application Priority Data" which is identified by the INID Code [30].

[3] The specific data applicable to a particular patent is printed under the caption "Related U.S. Application Data." Where the relationship is due solely to division or to continuation and/or continuation-in-part, the data is identified by the appropriate specific INID Code, i.e., [62] or [63], respectively. Where the relationship is due to any combination of these two specific sub-categories, the data is identified by use of the generic INID Code [60].

Approved:

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Nov. 21, 1972.

Patent Suits

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2,870,548, C. Chedister, DRIVER TRAINING AND TESTING EQUIPMENT; **2,935,794**, H. N. Durham, AUTOMOBILE DRIVER TRAINING AND TESTING APPARATUS; **3,015,169**, Chesiter and Chesiter, DRIVER TRAINING AND TESTING EQUIPMENT; **3,071,874**, C. Chedister, DRIVER TRAINING AND APPARATUS; **3,108,381**, Jazbutis and Crommelin, TRAINING AND TESTING DEVICE; **3,154,864**, A. Jazbutis, VEHICLE SIMULATOR, filed Mar. 9, 1970, D.C. Del. (Wilmington), Doc. 3855, *The Aetna Casualty and Surety Company v. Singer-General Precision, Inc. and Allstate Insurance Co.* Stipulation of settlement and order, June 21, 1972.

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2,935,794. (See 2,870,548.)

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3,623,345. (See 3,621,689.)

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PATENT EXAMINING CORPS

R. A. WAHL, **Assistant Commissioner**
WILLIAM FELDMAN, **Deputy Assistant Commissioner**

CONDITION OF PATENT APPLICATIONS AS OF NOVEMBER 28, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries, Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-19-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-16-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-09-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-30-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-09-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	4-05-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	12-13-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	7-21-71
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-21-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-29-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts: Household, Personal and Fine Arts.	4-15-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	11-30-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-01-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-27-71
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	12-22-71
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures: Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	9-15-71

Expiration of patents: The patents within the range of numbers indicated below expire during December 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,725,558 to 2,728,912, inclusive
Plant Patents	Numbers 1,436 to 1,441, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED DECEMBER 19, 1972

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T905,001
HEAT-SHRINKABLE PLASTIC FILMS

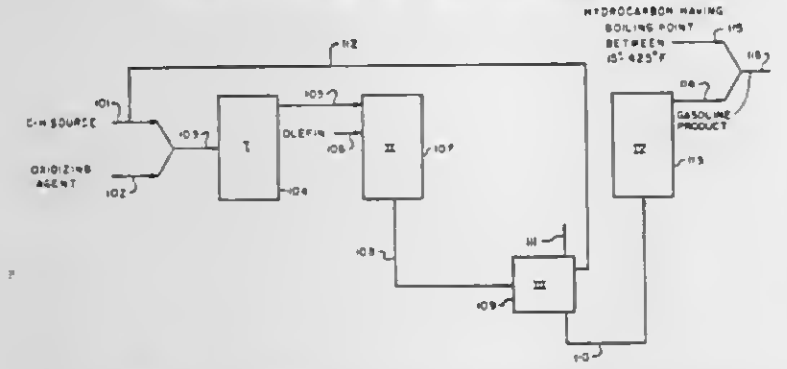
Bruce Frederick Day, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Continuation of abandoned application Ser. No. 8,066, Feb. 2, 1970. This application Aug. 13, 1971, Ser. No. 171,777
Int. Cl. B65b *53/02*
U.S. Cl. 264—25
No Drawing. 5 Pages Specification

An improvement in heat shrinking plastic films for use on packages, e.g., stacks of articles on large pallets, wherein the film is made completely or partially conductive and is heated by causing current to flow therein. The film can be coated or filled with conductors or semi-conductors. The current can be caused to flow in the film between electrodes or induced to flow in eddy currents by induction.

Films disclosed are PVC and heat shrinkable polyethylene. The films can be rendered conductive by metallizing the surface or by adding fillers such as carbon, powdered metals such as iron, aluminum, zinc, magnesium, and chromium, semi-conductive fillers such as zinc oxide, tin oxide or chromium oxide or metal carbides and nitrides.

T905,002
ALCOHOL CONTAINING GASOLINES

William M. Bunting, 1311 N. Foster Drive 70806, and Clyde L. Aldridge, 6022 S. Pollard Parkway 70808, both of Baton Rouge, La.
Filed Sept. 30, 1971, Ser. No. 185,173
Int. Cl. C10l *1/02*
U.S. Cl. 44—56
1 Sheet Drawing. 26 Pages Specification



A gasoline having a high warm-up index blending value, as well as low vapor lock and RVP blending values can be produced by blending a hydrocarbon stream, a major portion of whose constituents have a boiling point between 15° and 425° F., with an alcohol mixture which is produced by contacting an oxygen-containing gas stream with a hydrocarbon stream comprising C_4 through C_8 hydrocarbons at temperatures and pressures sufficient to maintain a liquid phase and produce a hydroperoxide-rich stream, reacting in the presence of an epoxidation catalyst said hydroperoxide-rich stream with an olefin-containing stream comprising C_3 to C_6 olefins at temperatures between 75° and 400° F. to produce a mixture comprising alcohols and epoxides, and hydrogenating said mixture at temperatures up to 600° F. and pressures up to 3000 p.s.i.g. to produce the desired alcohol stream used in the blending.

T905,003
HYDROPEROXIDE CONVERSION AND EPOXIDATION CATALYST

William M. Bunting, 1311 N. Foster Drive 70806, and Clyde L. Aldridge, 6022 S. Pollard Parkway 70808, both of Baton Rouge, La.
Filed Sept. 30, 1971, Ser. No. 185,411
Int. Cl. C07d *1/08*
U.S. Cl. 260—348.5 L
No Drawing. 16 Pages Specification

Olefin-containing streams are reacted with hydroperoxide-containing streams in a reaction zone operating at temperatures between minus 20° and 200° C. and at pressures sufficient to maintain a liquid phase, and additionally in the presence of a supported, Group VB–VIIB metal catalyst, such as chromium oxide supported on silica to produce an epoxide-containing stream, which epoxides may be utilized in various chemical reactions or subsequently converted into alcohols for gasoline blending and hydroperoxide derivatives which have value such as in gasoline blending or which may be reconverted to hydroperoxides. Hydrogenation using the same catalyst may follow the epoxidation reaction.

T905,004
PHOTOGRAPHIC ELEMENT AND PROCESS

James R. King, 224 Birch Lane, Webster, N.Y. 14580, and Grant M. Haist, 166 Valley Crest Road, Rochester, N.Y. 14616
Filed Oct. 1, 1971, Ser. No. 185,798
Int. Cl. G03c *1/58, 5/34*
U.S. Cl. 96—49
No Drawing. 12 Pages Specification

Light sensitive diazotype compositions employing as the azo-dye forming coupler a monohaloacetyl or alkylcarbamoyl ester of 2,3-dihydroxynaphthalene, e.g., 2,3-bis(chloroacetoxy)naphthalene or 2,3-bis(ethylcarbamoyloxy)naphthalene, exhibit desirable stability and shelf life without acidic stabilizers (precoupling inhibitors) and, after exposure, can be heat developed to yield an azo dye image. Development can be accomplished in the substantial absence of alkali.

T905,005
ALUMINUM COATING WITH IMPROVED CORROSION RESISTANCE AND METHOD OF MAKING SAME

Lawrence E. Helwig, Hampton Township, Allegheny County, and Michael V. Murray, Monroeville, Pa., and Leland B. Ticknor, Williamsburg, Va., assignors to United States Steel Corporation
Filed Oct. 18, 1971, Ser. No. 190,162
Int. Cl. B23b *15/18;* **C23b** *5/52*
U.S. Cl. 29—195
1 Sheet Drawing. 14 Pages Specification

A vacuum deposited aluminum coating with improved adherence and corrosion resistance is achieved by employing the following method. The ferrous substrate is

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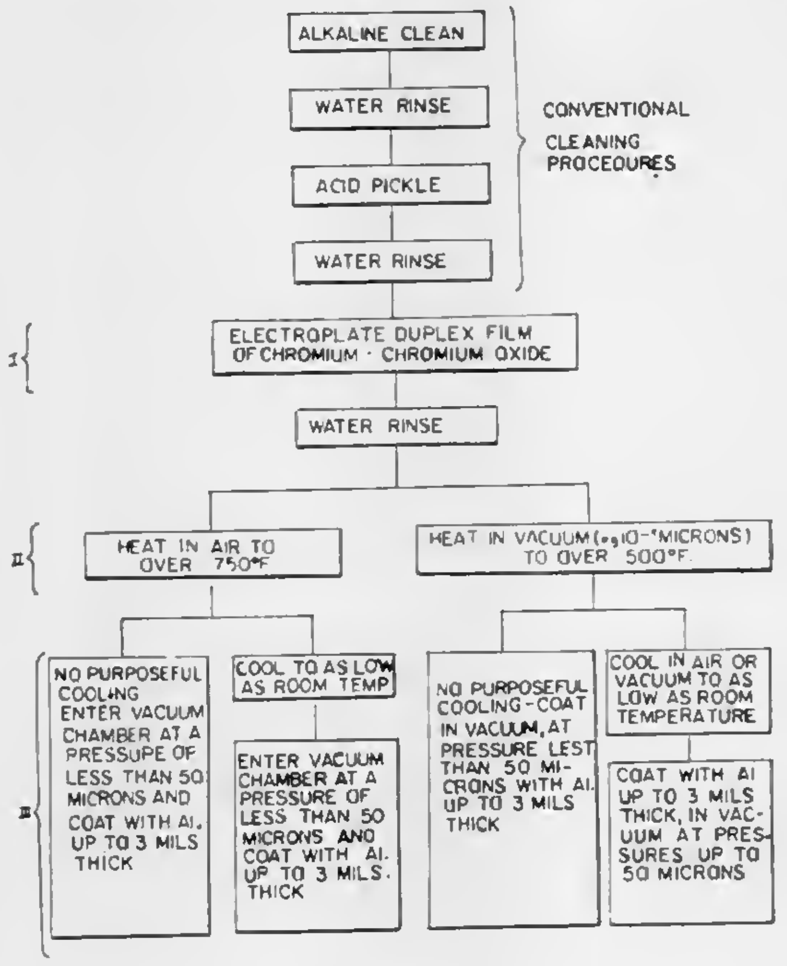
first coated by the electrodeposition of a duplex layer consisting of an underlying layer of chromium metal and an overlying hydrated chromium oxide layer with a thickness of from 0.1 to 1.5 milligrams of chromium per square foot of metal surface. Subsequently the substrate is heated at an elevated temperature for a time sufficient to dehydrate the overlying chromium oxide layer. Thereafter, aluminum is deposited to a thickness of between 0.3 to 3.0 mils in a vacuum chamber maintained at a pressure of less than 50 microns. This method permits the deposition of aluminum over a much wider range of pressures and temperatures than was heretofore possible.


ALKALINE CLEAN
WATER RINSE
ACID PICKLE
WATER RINSE
CONVENTIONAL CLEANING PROCEDURES
I
ELECTROPLATE DUPLEX FILM OF CHROMIUM · CHROMIUM OXIDE
WATER RINSE
II
HEAT IN AIR TO OVER 750°F
HEAT IN VACUUM (e.g. 10⁻⁴ MICRONS) TO OVER 500°F
III
NO PURPOSEFUL COOLING ENTER VACUUM CHAMBER AT A PRESSUPE OF LESS THAN 50 MICRONS AND COAT WITH Al. UP TO 3 MILS THICK
COOL TO AS LOW AS ROOM TEMP
ENTER VACUUM CHAMBER AT A PRESSURE OF LESS THAN 50 MICRONS AND COAT WITH Al. UP TO 3 MILS. THICK
NO PURPOSEFUL COOLING - COAT IN VACUUM, AT PRESSURE LEST THAN 50 MICRONS WITH Al. UP TO 3 MILS THICK
COOL IN AIR OR VACUUM TO AS LOW AS ROOM TEMPERATURE
COAT WITH Al UP TO 3 MILS THICK, IN VACUUM AT PRESSURES UP TO 50 MICRONS

T905,006
COMPOSITION FOR STRIPPING COATINGS FROM SUBSTRATES

Lou P. Johnson, 407 Whispering Way, and Parker J. Trent, Rte. 5, both of Kingsport, Tenn. 37660 Continuation of abandoned application Ser. No. 20,857, Mar. 18, 1970. This application Oct. 26, 1971, Ser. No. 192,311
Int. Cl. C09d *9/00;* **C11d** *7/06, 7/32*
U.S. Cl. 252—153
No Drawing. 19 Pages Specification

A stripping composition for removing water-emulsion or metal-complex coatings from substrates such as floors is disclosed. Such coatings are commonly used as floor polish. The composition comprises a solution of phenyldiethanolamine, an alkali sufficient to raise the pH of the composition to above about 10.0, and the concentration of the phenyldiethanolamine between about 0.1 and about 5.0% by weight. Alkalies such as sodium carbonate, trisodium phosphate, sodium metasilicate, sodium orthosilicate, potassium hydroxide, ammonium hydroxide, diethanolamine, morpholine and 2-diethylaminoethanol are suitable. Small amounts of detergents and an alcohol such as isopropanol may be included in the formulation. The compositions are especially effective in removing aged floor polish film. They do not damage floor coverings and are free from the irritating odors of conventional ammonia-based strippers.

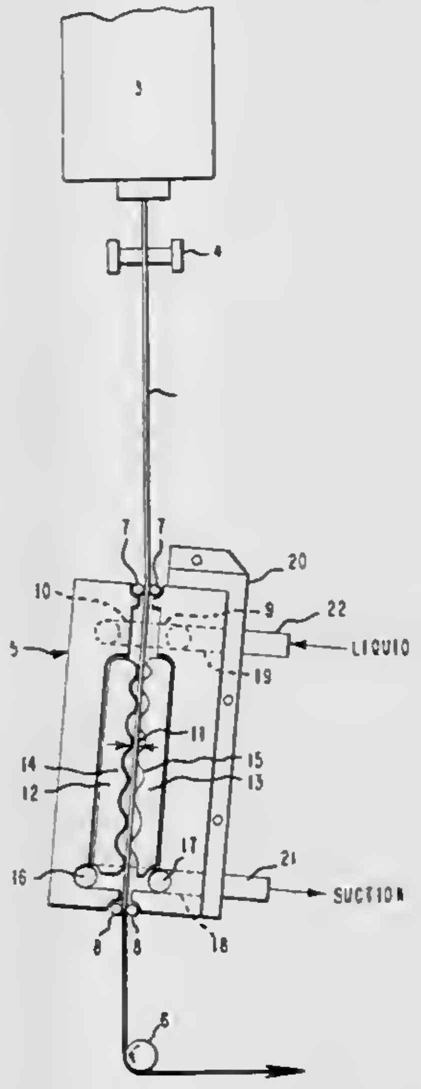
T905,007
PROCESS FOR CLEANING GOLD ALLOYS

Rajnikant Babubhai Amin, Wilmington, and Rudolph John Bacher, New Castle, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 16, 1971, Ser. No. 208,979
Int. Cl. C23f *3/04*
U.S. Cl. 134—41
No Drawing. 9 Pages Specification

A process for the cleaning of alloys of gold with minor amounts of tin, silicon, indium, germanium or antimony by treatment with decomposable halogen compounds at elevated temperatures below the melting temperatures of the alloys. Ammonium chloride and glutamic acid hydrochloride are particularly desirable.

T905,008
APPARATUS FOR LIQUID TREATMENT OF FILAMENTS

Donald Charles Kiscaden, 303 Valley View Drive, Baldwin Acres, Staunton, Va. 24401
Filed Jan. 5, 1972, Ser. No. 215,614
Int. Cl. D06c *1/00*
U.S. Cl. 28—59
1 Sheet Drawing. 6 Pages Specification

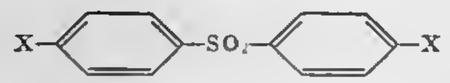


An apparatus for contacting freshly spun filaments with a liquid that includes a pair of undulating surfaces which together define two opposing walls of a serpentine channel through which the filaments pass downwardly in a substantially straight path from an inlet at the top to an exit at the bottom of the apparatus. Means are provided near the top of the channel for contacting the filaments with liquid and in operation the structure of the serpentine channel forces at least a portion of the liquid to make a plurality of passes through the filaments. A vacuum take-off for the liquid is provided which comprises a recess in each of the undulating surfaces near the exit of the channel, each recess being connected to a source of suction to remove liquid entering the recess. The liquid may be water or an aqueous solution of spinning solvent used to cool the filaments after spinning.

T905,009
AROMATIC POLYMERS

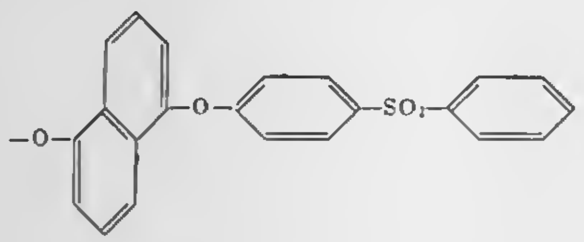
Terence Edwin Attwood, Kimpton, John Brewster Rose, Letchworth, and Alan Francis Lennox, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England
Filed Feb. 1, 1972, Ser. No. 222,697
Claims priority, application Great Britain, Feb. 4, 1971, 3,938/71
Int. Cl. C08g *23/00, 23/16*
U.S. Cl. 260—49
No Drawing. 6 Pages Specification

Aromatic polymers of repeating units of —O—E— and —O—E′— are disclosed, each —O—E— unit flanked by —O—E′— units, the —O—E— units derived from naphthalene-1,5-diol and E′ derived from a benzenoid compound of the formula:

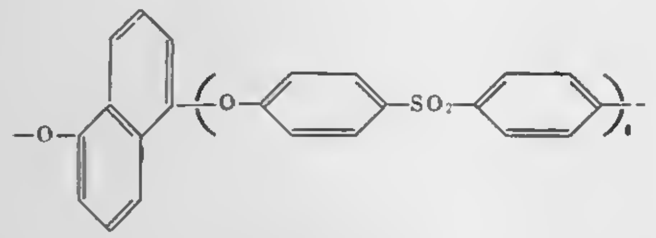


X being a halogen atom.

The polymers disclosed are useful as thermoplastic materials for mouldings, fibres, films, surface coatings and adhesives. Particular aromatic polymers disclosed are composed of repeating units having the



and



T905,010
COMPOSITE OF POLYETHYLENE OR POLYPROPYLENE, AN AMORPHOUS ETHYLENE-PROPYLENE COPOLYMER, AND A FIBROUS ALKALI METAL TITANATE

Richard Frederick Regester, Havertown, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 22, 1972, Ser. No. 228,245
Int. Cl. C08f *45/10*
U.S. Cl. 260—41 B
No Drawing. 9 Pages Specification

A composite is provided of a blend of an ethylene or propylene polymer, a substantially amorphous ethylene/propylene copolymer, and a fibrous alkali metal titanate. The combination of copolymer and titanate additives serves to improve the impact strength of the base polyethylene or polypropylene while also improving modulus and heat distortion properties. The composites may be injection molded. They are particularly advantageous when used for metal plating purposes.

T905,011
METALLIZING COMPOSITIONS CONTAINING THERMOFLUID VEHICLES

Oliver A. Short, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of abandoned application Ser. No. 137,082, Apr. 23, 1971. This application Mar. 13, 1972, Ser. No. 234,402
Int. Cl. C09d *5/24*
U.S. Cl. 106—1
No Drawing. 7 Pages Specification

Metallizing compositions containing finely divided noble metals and thermofluid vehicles are printed and fired onto organic bonded ceramic dielectrics or matured dielectric substrates to form electrodes and/or microcircuitry. The thermofluid vehicles comprise (a) 40–80% paraffin wax, (b) 5–50% stearic acid, (c) 1–20% of a member from the group consisting of rosin, a rosin derivative and a mixture thereof and (d) 1–10% of a viscosifier selected from the group consisting of ethyl cellulose, ethyl hydroxy ethyl cellulose and a mixture thereof.

T905,012
METHOD FOR DEVELOPING DIAZOTYPE ELEMENTS

Rex J. Hsu and Delbert D. Reynolds, both of Kodak Park Works, Rochester, N.Y. 14650
Filed Apr. 13, 1972, Ser. No. 243,817
Int. Cl. G03c *1/58*
U.S. Cl. 96—49
No Drawing. 15 Pages Specification

Nearly instantaneous processing of two-component diazotype elements is achieved by contacting the sensitized surface of the diazotype element, after imagewise exposure to radiation, with an amine liberated from an amine carbamate salt by heating. Image development can be carried out by bringing the diazotype element into contact with vapors formed from the amine carbamate salt by heating or by bringing the diazotype element into contact with the salt in solid form or in the form of a solution and heating to liberate the amine. The amine carbamate salts which are useful include those derived from alkyl amines, cycloalkyl amines, aralkyl amines and heterocyclic amines. An example of a salt providing particularly good results is α-methylbenzylamine carbamate α-methylbenzylamine salt. When employed in solution form, the amine carbamate salts are preferably dissolved in an alcohol and can be applied to the diazotype element by techniques such as brushing, swabbing, dipping, spraying, wick application and roller application. Solid amine carbamate salts can be utilized in powder form or in the form of a shaped object such as a block or roller. Heating at temperatures of from about 40° C. to about 150° C. and more preferably about 80° C. to about 120° C. provides a dense dye image of good quality.

T905,013
FIBER-PROCESSING PROCEDURE

Robert H. Welsh, Wellesley Hills, and Joseph M. Onorato, Westwood, Mass., assignors to Eastman Kodak Company
Filed June 2, 1972, Ser. No. 259,197
Int. Cl. D06p *5/04*
U.S. Cl. 8—173
No Drawing. 21 Pages Specification

A procedure for reliably processing synthetic fibers, e.g. polyester fibers to reduce the flammability thereof. A class of ethoxylated aliphatic alcohols, e.g. tridecyl alcohol condensed with 8 ethylene oxide groups, are particularly useful when used as cleaning agents in an aqueous bath.

PLANT PATENTS

GRANTED DECEMBER 19, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,272
ROSE PLANT

Roy L. Byrum, Richmond, Ind., assignor to Joseph H. Hill Company, Richmond, Ind.
Filed Apr. 29, 1971, Ser. No. 138,724
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—15 **1 Claim**

A new variety of hybrid tea rose developed as a seedling for greenhouse production of cut flowers and distinguished by the better color of its blooms over that of its parents, by the relative ease of its propagation, by its very strong resistance to disease and mildew, and by the fact that it is extremely fragrant for a hybrid rose and in comparison with most modern varieties.

3,273
PEACH TREE

Nikolai J. Friesen, 41857 Road 42, Reedley, Calif. 93654
Filed Apr. 15, 1971, Ser. No. 134,516
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—43 **1 Claim**

A new and distinct variety of peach tree broadly characterized by its regular bearing of highly colored, firmly textured, early and uniformly ripening, excellently setting fruit having a minimum of fuzz.

3,274
STRAWBERRY PLANT

Harold A. Johnson, Jr., Watsonville, Calif., assignor to Driscoll Strawberry Associates, Inc., Watsonville, Calif.
Filed Apr. 8, 1971, Ser. No. 132,621
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—49 **1 Claim**

1. The new and distinct variety of strawberry plant herein described and illustrated and identified by the characteristics enumerated above.

3,275
STRAWBERRY PLANT

Harold A. Johnson, Jr., Watsonville, Calif., assignor to Driscoll Strawberry Associates, Inc., Watsonville, Calif.
Filed Apr. 9, 1971, Ser. No. 132,920
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—49 **1 Claim**

1. The new and distinct variety of strawberry plant herein described and illustrated, and identified by the characteristics enumerated above.

3,276
CHRYSANTHEMUM PLANT

Grace H. Mack, New Canaan, Conn., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Grace H. Mack, New Canaan, Conn.
Filed Mar. 30, 1971, Ser. No. 129,648
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the known cultivar Early Gold by its ¾″ larger flowers, stronger stems, 6 days longer keeping quality, more decorative flower form, deeper flower color, taller, more spreading, more prolific branching, lighter and more deeply indented foliage, more coarse leaf serration, and more prominent stipules.

PATENTS

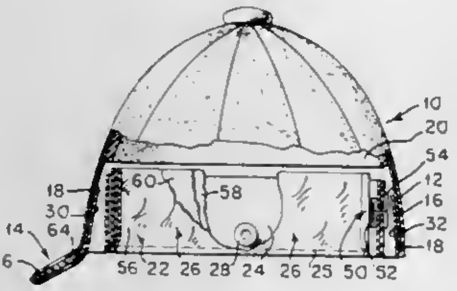
GRANTED DECEMBER 19, 1972

GENERAL AND MECHANICAL

3,706,101

HEAD PROTECTING HEADWEAR

Mario Plastino, 120 Tally Lane, Wantagh, N.Y.
Filed Nov. 27, 1970, Ser. No. 93,005
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 R **8 Claims**

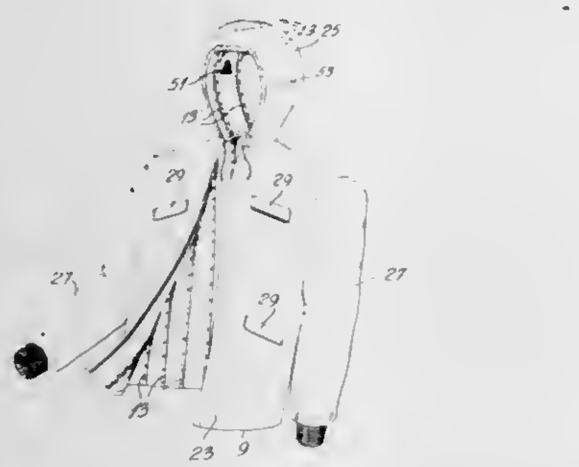


An article of head protecting headwear in which an outer head enclosing shell is supported on its sides on a head band which includes a stiffly flexible band of lesser length than the opening of the shell to thereby provide gaps between the shell and the band forwardly and rearwardly of the points of support. A sweat band is secured to the inner face of the stiffly flexible band. In a preferred embodiment, the stiffly flexible band is adjustable in length at the rear of the shell and the sweat band is non-continuous and terminates short of the adjustable portion of the band.

3,706,102

VENTILATED GARMENTS

Andre Grenier, 401 Moffat Street, Verdun 204, Quebec, Canada
Filed March 15, 1971, Ser. No. 123,965
Int. Cl. A41d
U.S. Cl. 2—84 **10 Claims**

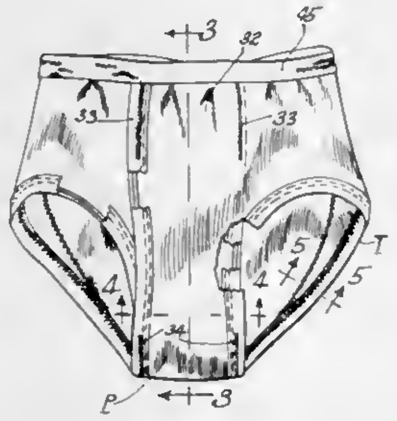


A ventilated insulating material formed of three spaced flexible linings; an outer and an intermediate lining defining between themselves an outer chamber allowing free air circulation and an inner chamber defined by the intermediate lining and an inner lining, the inner chamber being filled with a flexible air pervious insulating material. The outer and intermediate linings stand apart by spaced parallel tubes held against collapse by a cord of air pervious material. These tubes as well as the intermediate and outer linings have apertures for allowing ingress and egress of air.

3,706,103

BRIEF AND METHOD OF PRODUCTION

Karl E. Senser, Riverside, Ill., assignor to Sears, Roebuck and Co.,, Chicago, Ill.
Continuation-in-part of Ser. No. 874,260, Nov. 5, 1969, Pat. No. 3,541,865. This application March 19, 1971, Ser. No. 126,074
Int. Cl. A41b *9/02*
U.S. Cl. 2—224 A **8 Claims**

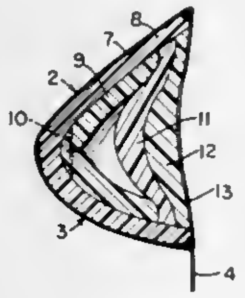


A brief for men and boys characterized by a generally yoke-shaped blank cut from tubular fabric and having a generally triangular central seat portion having a base line approximately the width of the wearer's crotch and a pair of similar elongated vertical panels on opposite sides of said seat portion each about the width of the base line. A continuous tape edge binding is attached to the lower edges of the blank. One of the panels is lapped over the other and a waist band is stitched to the top edge of the blank. The lower edges of the panels in overlapped relation are stitched to the base line of the central portion to complete the garment.

3,706,104

ARTIFICIAL BREAST REPLACEMENT

Leone S. Dehlin, Rte. 1, Box 519, Turner, Oreg., and Vesper J. Howard, 2285 Market St., Salem, Oreg.
Filed Oct. 13, 1971, Ser. No. 188,825
Int. Cl. A61f *1/00;* **A41c** *3/10*
U.S. Cl. 3—36 **6 Claims**

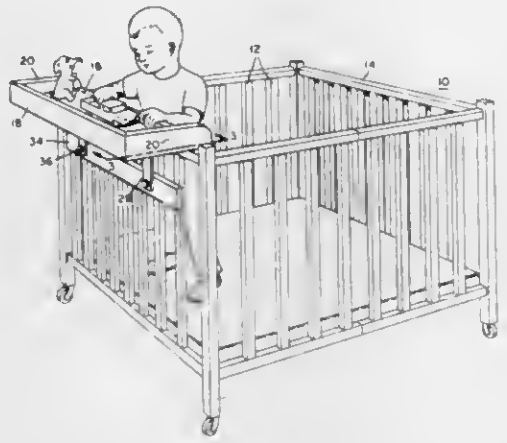


An artificial breast adapted to be worn inside a brassiere by women who have had their breast removed is provided. The breast is provided with a special concave back and specially arranged front cover which makes the breast fit tightly against the chest and gives it a very natural looking appearance.

3,706,105

PORTABLE PLAY PLATFORM

Winslow C. Nicholas, 705 N. Allen Street, State College, Pa., and Joseph L. Loomis, P.O. Box 81F, Pennsylvania Furnace, Pa.
Filed Nov. 5, 1970, Ser. No. 87,268
Int. Cl. A47d *7/00*
U.S. Cl. 5—93 R **5 Claims**

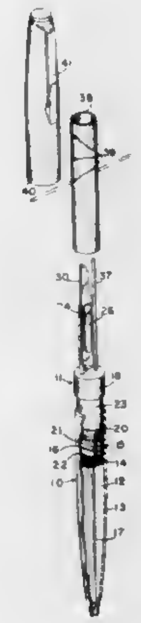


This invention is a portable play platform which may be attached or detached to commercially available children's playpens or cribs, giving the child a playing surface to play upon while the child is standing. In general, the device is comprised of a playing surface member usually mounted on the top of the playpen or crib by a bracket attached to the bottom thereof. An adjustable hook-like compression member attached to the playing surface member clamps the upper portion of the playpen against the bracket and a broad torque reaction bar secured between the brackets adjacent to the playpen bears against the playpen thus securing the device rigidly into position. Bolts with wing nuts may be provided to tighten the compression member so as to hold the bracket, and compression member rigidly against the playing surface member.

3,706,106

SURGICAL KNIFE

Norbert Leopoldi, 4180 Marine Drive, Chicago, Ill.
Filed Jan. 18, 1971, Ser. No. 106,992
Int. Cl. B26b *11/00;* **B67b** *7/44*
U.S. Cl. 7—14.1 **3 Claims**

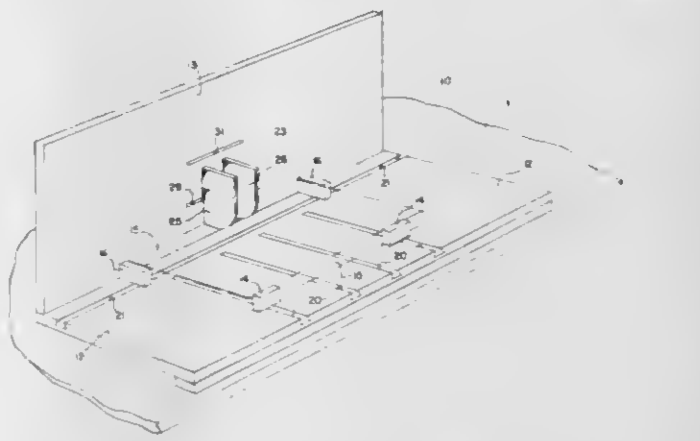


A surgical knife including a base portion having an element removably mounting a surgical steel blade and a removable pin guard for the knife edge and point with a cylindrical tube removably surrounding the knife and pin and having a removable protective cover for the assembly. The base portion is adapted for connection with a utilitarian article and preferably one normally carried on the person.

3,706,107

BOOK JACKETING DEVICE

James A. Cullen, Route 1, Box 159, Silverton, Oreg.
Filed Sept. 3, 1971, Ser. No. 177,581
Int. Cl. B42c *19/00*
U.S. Cl. 11—1 **6 Claims**

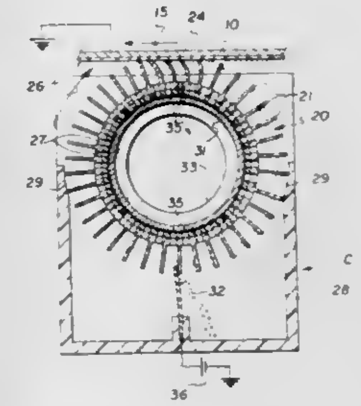


A device usable in the application of jackets to books and including a horizontal portion on which a stack of jackets are stored with retaining blocks confining the jackets in stacked alignment. The blocks are positionable on and lockable to the horizontal portion of the device. A pair of page holding plates confine the closed, upright pages of a book to be jacketed to permit the front and rear book covers to lie flat on the uppermost jacket sheet of the stack whereupon the user may rapidly and simultaneously fold both edges of the jacket over the book covers.

3,706,108

APPARATUS FOR CLEANING A RESIDUAL IMAGE FROM A PHOTOSENSITIVE MEMBER

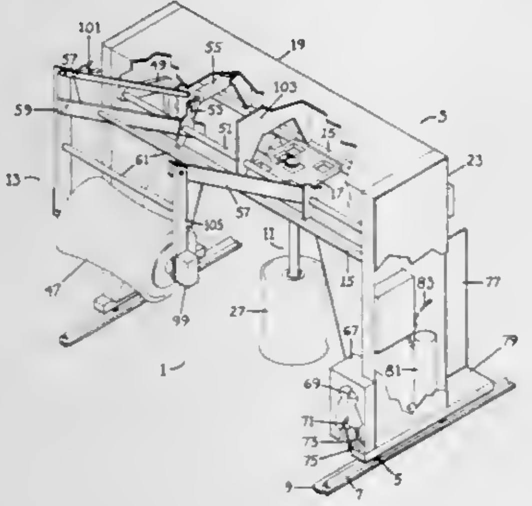
Clarence Reynold Taylor, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 28, 1970, Ser. No. 101,893
Int. Cl. B08b *1/02*
U.S. Cl. 15—1.5 **6 Claims**



Residual toner particles remaining after transfer of a developed image from a photoconductive surface are cleaned therefrom by a rotatable, hollow core cleaning brush whose blades sweep loose the toner particles from the photoconductor. The brush is provided with a plurality of openings located between the blades and in communication with the core through which the loosened toner particles are withdrawn by vacuum applied to the core. Removal of the residual toner particles may be further assisted by applying a bias voltage to the brush to attract the toner particles to the brush and by using a flicker bar to loosen the toner particles from the cleaning blades.

3,706,109
VEHICLE WASHING DEVICE

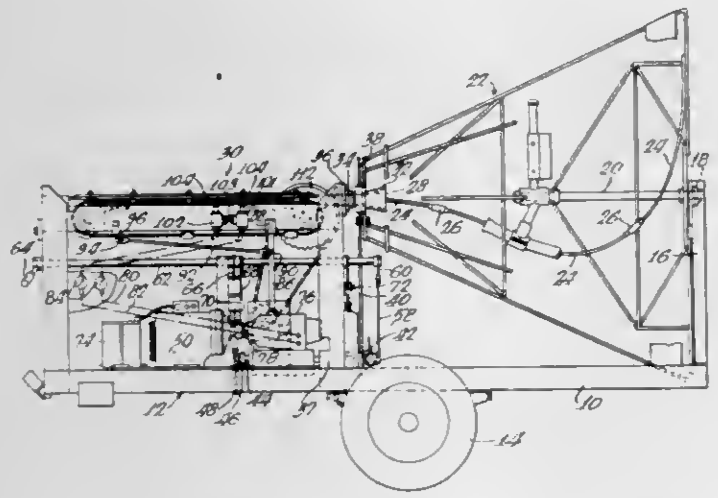
Charles W. Bevier, Dallas, Tex., assignor to Weben Industries, Inc., Dallas, Tex.
Filed April 20, 1970, Ser. No. 29,799
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 E **1 Claim**



A vehicle wash device providing one vertical, rotatable brush for cleansing of the front, rear and sides of the vehicle, and one horizontal rotatable brush for cleansing of the top of the vehicle. A movable carriage in the form of an arch extending over the vehicle is mounted on tracks adjacent to and on either side along the length of the vehicle and carries both brushes and spraying equipment. The vertical brush is employed to cleanse the sides of the vehicle as the carriage is moved along the tracks, and is employed to cleanse the front and rear of the vehicle by being moved across the overhead portion of the carriage arch while the carriage is stationary. The horizontal brush is applied to the top of the vehicle during movement of the carriage along the tracks. All functions are separately controllable by an operator who is positioned on and moves with the carriage.

3,706,110
CONDUIT CLEANING APPARATUS

Burton L. Siegal, Chicago, Ill., assignor to Conco Inc.
Filed Sept. 9, 1970, Ser. No. 70,774
Int. Cl. B08b *9/04*
U.S. Cl. 15—104.3 SN **8 Claims**



A conduit cleaning apparatus of the type for driving rods flexibly connected in end-to-end relationship with a cleaning tool at one end into and out of a conduit. The assembly includes a rotatably mounted rod storage device having an opening for ingress and egress of the rods and a chain mounting pusher blocks for propelling the rod into a conduit. The upper and rod driving run of the chain is mounted coaxially with the opening in the storage means so that the driving run of the chain is easily accessible. Sprockets mounting the chain are spaced by elongated elements extending directly between the sprockets so that forces applied to the frame are either tensional or compressional and do not create substantial bending moments. A control for the drive includes a system wherein the force applied to the rods, while being driven into a conduit in compression, is less than that applied when the rods are removed from the conduit and in tension.

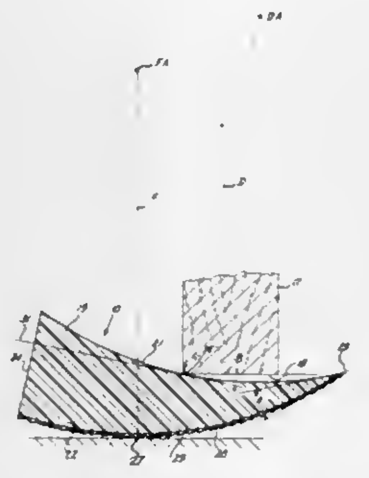
3,706,111
BRUSH BRISTLES

Dennis Edward Curtin, Parkersburg, W. Va., and John Edward Hansen, Wilmington, Del., assignors to E.I. du Pont de Nemours and Company, Wilmington, Del.
Division of Ser. No. 785,390, Dec. 19, 1968, abandoned, and a continuation of Ser. No. 66,661, Aug. 24, 1970, abandoned.
This application Aug. 21, 1970, Ser. No. 66,145
Int. Cl. A46b *1/00;* **A46d** *1/00*
U.S. Cl. 15—159 A **8 Claims**

Paint brush bristles formed from polybutylene-1,4-terephthalate exhibiting superior bend recovery and initial modulus of elasticity in flex as well as in paint solvents, satisfactory temperature dependence of modulus and amenability to flagging and tipping.

3,706,112
DOOR STOP

Ronald C. Newell, 1812 2nd Ave. S., Fort Dodge, Iowa
Filed Jan. 4, 1971, Ser. No. 103,616
Int. Cl. E05f *5/02;* **E05c** *17/54*
U.S. Cl. 16—82 **4 Claims**

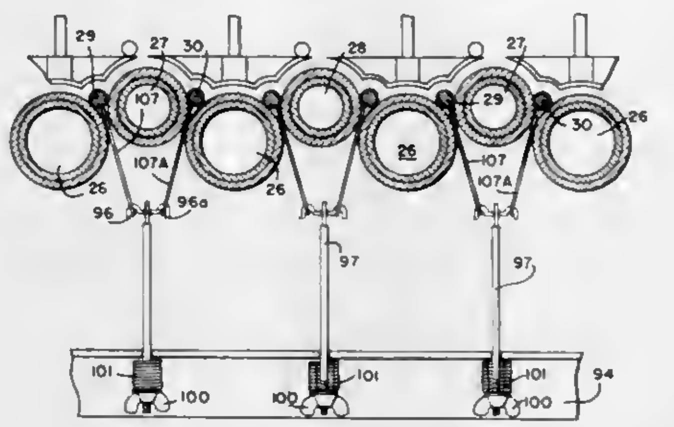


The door stop comprises a semi-crescent shaped wedge member having a highly polished or smooth door-engaging concave surface and a convex side having a floor-engaging surface of a rubber-like material. As the wedge member is advanced between the door and the floor, the lower side of the door travels or rides upwardly along the concave surface concurrently with a rolling of the convex side along the floor in a direction toward the large end of the wedge until the door is in a stop position.

3,706,113
INSERT HOLDDOWN DEVICES

James M. Lapeyre, and Robert F. Couret, both of New Orleans, La., assignors to The Laitram Corporation, New Orleans, La.
Filed July 19, 1971, Ser. No. 163,762
Int. Cl. A22c *29/00*
U.S. Cl. 17—73 **6 Claims**

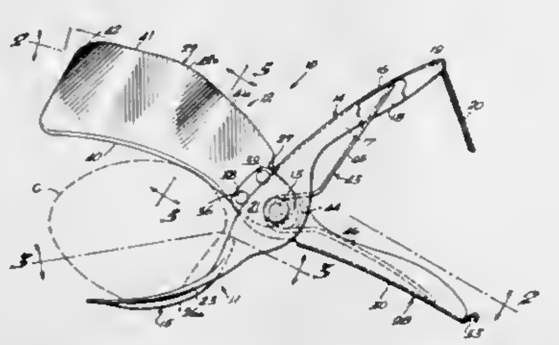
The present disclosure is directed to holddown devices for insert rolls on shrimp peeling machines and embodies an upright member subject to being spring-loaded at its base and carrying a cross-beam member proximate its top which is retained in the loose fit by a plastic filler material which will permit the cross-beam to rock relative to the upright member.



Each end of the cross-beam member is hooked downwardly to pass through and restrain insert roll holddown straps.

3,706,114
CLAM OPENER

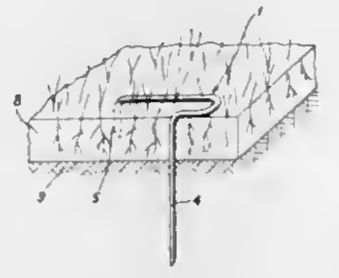
Friedrich Waechter, R.D. 2 Neversink Drive, Port Jervis, N.Y.
Filed Feb. 25, 1971, Ser. No. 118,916
Int. Cl. A22c *29/00*
U.S. Cl. 17—75 **8 Claims**



A manually actuated, unitary clam opener having bowl and knife members pivotally interconnected in scissors-like configuration is described. The knife and bowl members define normally open, opposed jaws of a mouth at one end of the opener between which a clam is placed for opening, which jaws are movable together in the closing direction upon manually squeezing together of handle portions at the other end of the clam opener. The knife jaw is so formed as to be of increased effective width from its inner edge to its outer edge to provide for wide spreading apart of the clam shell halves, while the bowl member is shallow enough to permit the resultant spreading apart of the hinge end of the clam supported therein.

3,706,115
STAPLE FOR SOD AND EROSION CONTROL MATTINGS

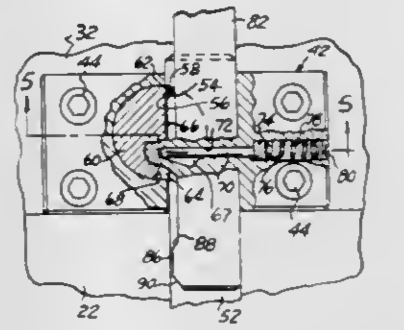
Robert F. Bleile, R.D. No. 2, South Norwalk Road, Ohio
Filed Feb. 9, 1971, Ser. No. 113,878
Int. Cl. A44b *9/00*
U.S. Cl. 24—87 C **5 Claims**



A staple for holding sod in place or for fastening erosion control mattings to the ground includes an asymmetric generally J-shaped head portion and two shank portions of different length which extend perpendicularly to the plane defined by the head portion; when the staple is introduced into the ground the head portion exerts a surface pressure on the sod and the shank portions provide a double anchorage of the staple therein.

3,706,116
LATCH ASSEMBLY FOR MOLD BASES

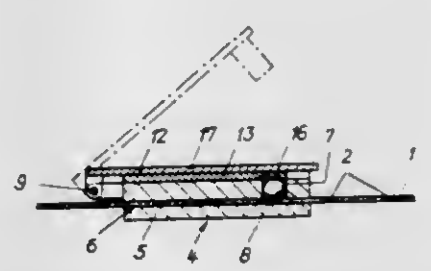
Herman J. Drazick, 34480 Commerce Road, Birmingham, Mich.
Filed April 1, 1971, Ser. No. 130,299
Int. Cl. A44b *19/00;* **A01j** *21/00;* **A21c** *3/00*
U.S. Cl. 24—230 AV **4 Claims**



A latch and release mechanism for predetermined, timed separating movement of a plurality of plate members relative to each other, which includes a longitudinal latch bar secured to one plate member and lockingly engagable by a rotatable detent which is spring biased in locking position; and a longitudinal release bar secured to another plate member which is movable relative to the one plate member; both bars are arranged in parallel overlying alignment and said release bar is provided with at least one cam surface adapted to move said rotatable detent member out of engagement with said latch bar when said another plate member is moved away from said one plate member; the rotatable detent is supported within a third plate member; the arrangement is such that in one position of said latch and release mechanism independent movement of said another plate member relative to said one and said third plate member is permitted and in the release position of said latch and release mechanism the third plate member is caused to move conjointly with said another plate member relative to said one plate member by means of a lost-motion connection between said another plate member and said third plate member and which has a magnitude of lost-motion movement corresponding to the distance of free movement of the longitudinal release bar relative to the longitudinal latch bar until the cam surface engages the rotatable detent thereby moving the detent out of locking engagement to release said third plate member from said one plate member.

3,706,117
BRACELETS AND THE LIKE

Walter Axisa, Geneva, Switzerland, assignor to Gemini Investment Etablissement, Vaduz, Liechtenstein
Filed July 27, 1971, Ser. No. 166,446
Int. Cl. A44b *17/00, 11/25*
U.S. Cl. 24—206 **5 Claims**



A bracelet comprises a flexible blade having recesses spaced therealong, a sheath slidably receiving the blade, and a clasp at a blade-receiving end of the sheath. A member incorporating a spring is slidably mounted on the clasp body between a position in which a ball is locked in a recess of the blade by the member, and a position in which the ball can be moved out of a recess by deformation of the spring.

3,706,118

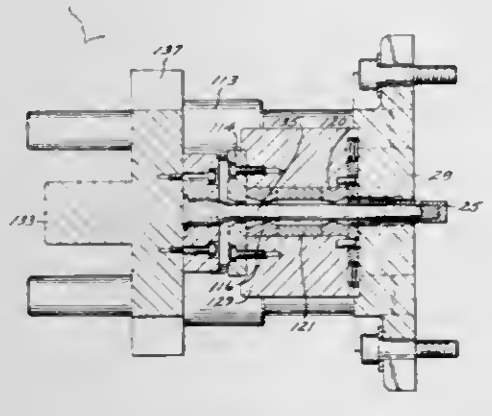
METHOD FOR THE MANUFACTURE OF AN ALUMINUM CARTRIDGE CASE

Ralph W. Hilton, 612 Catalina Avenue, Torrance, Calif., and Gilbert A. Moudry, 2740 Via Campesina, Palos Verdes Estates, Calif.

Continuation-in-part of Ser. No. 801,892, Dec. 16, 1968, abandoned, which is a division of Ser. No. 744,182, July 11, 1968, Pat. No. 3,498,221. This application June 16, 1971, Ser. No. 153,826

Int. Cl. B23p *15/22*

U.S. Cl. 29—1.3 **11 Claims**



A high-strength cartridge case made of an Al-Cu-Mg-Si type alloy is fabricated by backwardly extruding a deep drawn cylindrical blank into a cup-shaped member with a resultant movement in the metal blank of at least about 70 percent, the walls of the cup-shaped member are thinned and elongated by drawing the same through a die aperture of reduced diameter to effect a total metal movement in the original blank of at least about 90 percent, the resultant drawn member is solution heat treated and quenched in cold water to strengthen the metal, and a primer cavity is then forged in the base portion of the member to impart thereto at least about 15 percent cold work.

3,706,119

CALENDERING ROLL

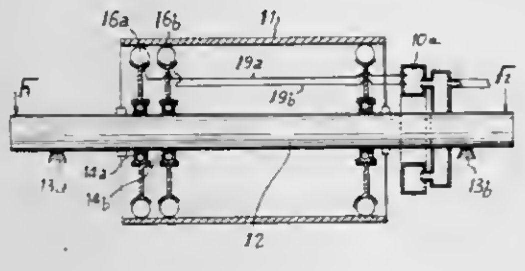
Etienne Collet, 4 bis, Avenue Halphen, Ville D'Avray, France

Continuation-in-part of Ser. No. 686,661, Nov. 29, 1967, Pat. No. 3,543,366. This application Sept. 17, 1970, Ser. No. 73,008

Claims priority, application France, Nov. 30, 1966, 6685516

Int. Cl. B21b *31/32*

U.S. Cl. 29—113 R **4 Claims**



This invention relates to a calendering roll and, more particularly, to a roll for use in the treatment of the surfaces of strip materials, the shape of the surface of the roll being adjustable by means of inflatable resilient cushions arranged internally along its axis of rotation.

3,706,120

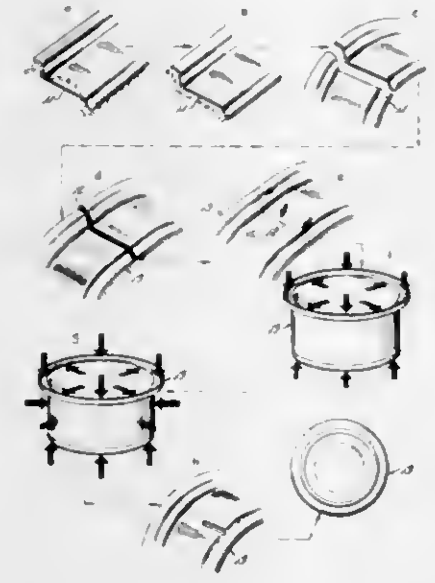
METHOD AND APPARATUS FOR PRODUCING VEHICLE RIMS

Walter William Bulgrin, 543 Woodland Avenue, Wadsworth, Ohio

Continuation of Ser. No. 871,126, June 23, 1969, abandoned, which is a division of Ser. No. 667,485, Sept. 13, 1967, Pat. No. 3,509,775. This application June 14, 1971, Ser. No. 153,081

Int. Cl. B21d *53/30*

U.S. Cl. 29—159.1 **5 Claims**



Forming a vehicle rim to precise tolerances by first forming a contoured strip into a closed hoop; then radially expanding the hoop in a press having radially outwardly moving die sections; finally precision-finishing by applying pressure to all parts of the rim in a press having radially inwardly moving die sections which lock against the outer rim surface while an axially moving punch exerts radial outward, as well as axial, pressure.

3,706,121

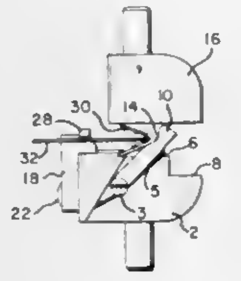
CRIMPING DIES FOR TERMINATING FOIL CONDUCTOR IN A FOIL CONDUCTOR TERMINATION AND FOIL LOCATOR AND HOLDER THEREFOR

James Francis Gillespie, Palmyra, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 27, 1970, Ser. No. 15,166

Int. Cl. H02g *15/00;* **H01r** *19/04*

U.S. Cl. 29—203 H **2 Claims**



The disclosure relates to crimping dies for crimping an electrical connector to a foil conductor and a foil locator and holder therefore and, more specifically, to crimping dies for use in termination of foil conductors to foil conductor termination and a locator and holder for the foil which is attachable to the crimping die.

3,706,122

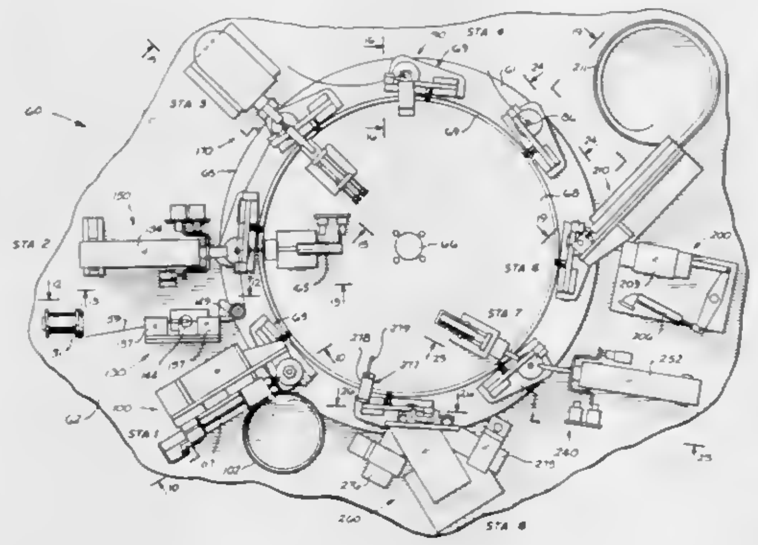
APPARATUS FOR ASSEMBLING ELECTRICAL COMPONENTS

Thomas A. La Valle, Annapolis, Md., assignor to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 878,017, Nov. 19, 1969, Pat. No. 3,618,204. This application Aug. 13, 1971, Ser. No. 171,623

Int. Cl. H01r *43/00;* **B23p** *19/04*

U.S. Cl. 29—203 D **4 Claims**



A rotatable turntable having a plurality of workholders spaced about the periphery thereof is indexed to advance each of the workholders successively through each of a plurality of work stations positioned adjacent the periphery of the turntable to assemble electrical components. A first part positioned in one of the workholders at a first work station has the leading end of an insulated wire extending from a supply of wire welded thereto at a second work station, after which the first part is indexed to a third work station without severing the wire extending from the first part to the supply. At the third work station a portion of the wire extending to the first part in the workholder is severed from the supply and the new leading end of the wire is attached to the first part in the next succeeding workholder. The first part is rotated in the first workholder while tensioning the wire extending from and secured to the first part to wind the wire thereon as the workholder is advanced with the turntable through a fourth and a fifth work station to a sixth work station. At the sixth work station a second part is assembled to the first part and, simultaneously, the insulation on a portion of the wire extending from the first part is stripped. At a seventh work station the trailing portion of the wire is welded to a metal cap which is secured to the second part and the strength of the weld is tested, whereafter the electrical component is advanced to a last work station and tested electrically and then sorted.

3,706,123

HYDRAULICALLY ACTUATED APPARATUS

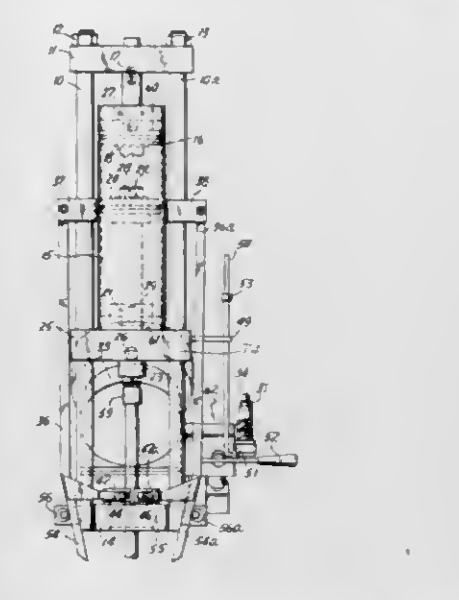
Jon Keyes Whitledge, Mantua, Ohio, assignor to Samuel Moore & Company, Mantua, Ohio

Filed Dec. 31, 1970, Ser. No. 103,187

Int. Cl. B23p *19/04*

U.S. Cl. 29—237 **9 Claims**

A device combining a die which is split longitudinally into a plurality of parts and a ram for pressing a coupling or fitting on a hose or the like into the die to swage the coupling on the hose. Means are provided for sequentially hydraulically (1) moving the ram towards the die while simultaneously moving the die component parts together to form a die cavity, (2) for pressing a hose and coupling assembly into the die cavity and thereby swage the coupling on the hose, and (3) for lifting the ram from the swaged product while separating the die parts to release the product therefrom.



3,706,124

PROCESS FOR THE PRE-TREATING OF METAL SHEETS WHICH ARE PROVIDED WITH A COATING FOLLOWING A FORMING OPERATION

Lambis Leontaritis, Cologne; Nikolaus Schon, Leverkusen, and Hans Hoffmann, Leichlingen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 3, 1970, Ser. No. 94,977

Claims priority, application Germany, March 7, 1970, P 20 10 888.7

Int. Cl. B44d *1/34;* **B21b** *45/02*

U.S. Cl. 29—424 **9 Claims**

This invention relates to an improved process for the pretreating of metallic materials wherein the metallic material is surface-treated, covered with a removable layer comprising a water soluble, film-forming organic polymer and at least one water soluble polymer with a molecular weight of up to substantially 2,000, subsequently formed and provided with a firmly adhering protective layer.

3,706,125

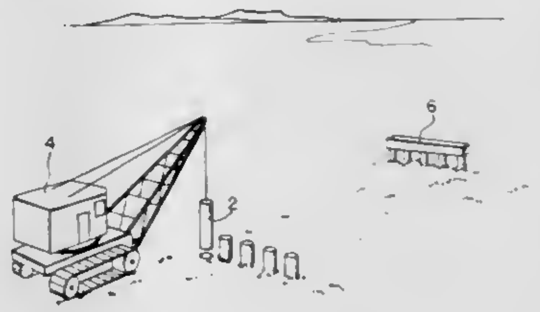
PIPE LINE CONSTRUCTION METHOD

John P. Hopkins, Mercer Island, Wash., assignor to John P. Hopkins Co., Mercer Island, Wash.

Filed Aug. 10, 1970, Ser. No. 62,372

Int. Cl. B23p *19/00*

U.S. Cl. 29—428 **9 Claims**



A method of construction an insulated pipe line and vehicular supporting means across an unstable surface including the steps of driving or otherwise inserting piling into the supporting surface along the pipe line path, pre-forming elongated hollow pipe-supporting structures having an upper surface capable of supporting vehicles, setting the structures on the piling by means of a crane which travels along the top of the structures already placed in position, eliminating the possibility of inadequate support, and then placing the pipe within the structure, again from the top of the structure, and sealing the structure from the outside atmosphere, simultaneously forming a relatively flat surface for vehicular traffic.

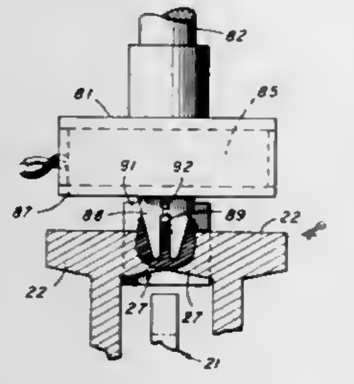
3,706,126
FUSION BONDING

Robert Holbrook Cushman, Princeton, N.J., assignor to Western Electric Company, New York, N.Y.

Division of Ser. No. 831,164, June 6, 1969, Pat. No. 3,591,755. This application Feb. 23, 1971, Ser. No. 118,160

Int. Cl. B23k *31/02, 35/24*

U.S. Cl. 29—498 **5 Claims**



Workpieces fabricated from lead, or other metallic materials having substantially similar characteristics, are fusion bonded by first abutting the workpieces to define an interface therebetween, and the inserting a heated ram having a slot therein into the workpieces, at the interface, to create a localized zone of molten material about the ram and in the slot of the ram. The ram is then withdrawn, the molten material in the slot flows back into the interface, and all the molten material re-solidifies, thereby bonding the workpieces one to the other.

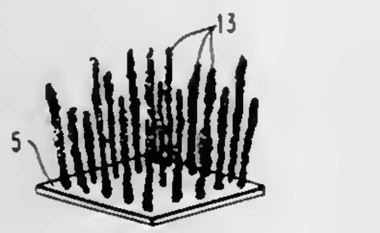
3,706,127
METHOD FOR FORMING HEAT SINKS ON SEMICONDUCTOR DEVICE CHIPS

Sevgin Oktay, Beacon, and Arnold F. Schmeckenbecher, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed April 27, 1970, Ser. No. 32,237

Int. Cl. B01j *17/00*

U.S. Cl. 29—576 **5 Claims**



A method is disclosed for producing a brush-like heat exchanging structure on a semiconductor device chip. A given amount of ferromagnetic powder is distributed uniformly in an electroless plating bath. Completed semiconductor device wafers are placed at the bottom of the bath, the rear wafer surfaces facing upward. An array of poles of a single electro-magnet is placed immediately below each wafer, each pole registering with a respective chip position on the wafer. The ferro-magnetic powder is permitted to settle on the rear surfaces of the wafers and then current is applied to each electro-magnet attracting substantially equal amounts of ferro-magnetic powder toward each magnet pole. This results in the erection of brush-like structures of ferro-magnetic particles on the rear surfaces of the wafer opposite the individual poles. The bath temperature is then raised to the required operating temperature for electroless plating while each electro magnet remains energized. A uniform deposit of electroless metal transforms the brush-like structures into rigid heat exchangers firmly attached to each wafer at the chip locations. The wafers are then diced to yield individual chips each having its own heat exchanging structure.

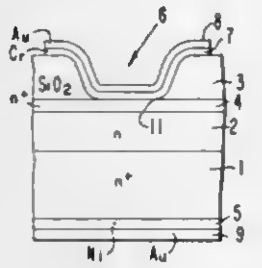
3,706,128
SURFACE BARRIER DIODE HAVING A HYPERSENSITIVE N REGION FORMING A HYPERSENSITIVE VOLTAGE VARIABLE CAPACITOR

John Heer, West Newbury, Mass., assignor to Varian Associates, Palo Alto, Calif.

Division of Ser. No. 674,821, Oct. 12, 1967, Pat. No. 3,579,278. This application June 30, 1970, Ser. No. 60,195

Int. Cl. B01j *17/00*

U.S. Cl. 29—578 **2 Claims**



A method of making a surface barrier diode, also known as a Schottky diode, having a hypersensitive voltage variable capacitance, is disclosed. The surface barrier diode structure comprises a silicon wafer of n^+ conductivity having an n-type epitaxial layer which is oxidized on its outer surface to form a silicon oxide layer overlaying the epitaxial n-region of the wafer. The silicon oxide coating is relatively thin, as of less than 5000 A, and is formed relatively quickly, i.e., in less than 20 minutes at a temperature within the range of 1150° to 1250° C in order to produce a hypersensitive n^+ impurity accumulation layer immediately adjacent to and underlying the oxide coating. A hole is then opened through the silicon oxide layer and a metal electrode, as of chromium, is deposited directly upon the hypersensitive n^+ region to form the rectifying junction of the diode. The surface barrier diode (Schottky diode) exhibits a hypersensitive voltage variable capacitance effect where "hypersensitive voltage variable capacitance" means that the capacitance is approximately inversely proportional to the first power of the applied voltage as contrasted with normal voltage variable capacitance effects in PN junction devices wherein the capacitance is approximately inversely proportional to the ½ or ⅓ power of the applied voltage.

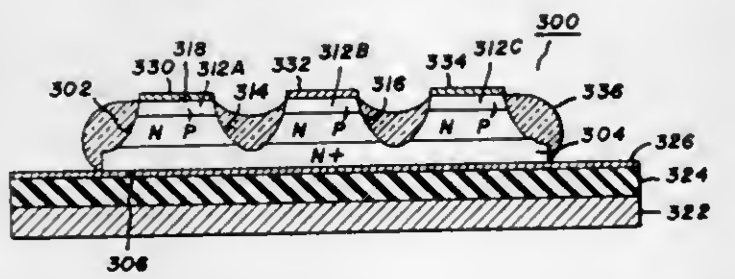
3,706,129
INTEGRATED SEMICONDUCTOR RECTIFIERS AND PROCESSES FOR THEIR FABRICATION

Joseph A. McCann, Auburn, N.Y., assignor to General Electric Company

Filed July 27, 1970, Ser. No. 58,271

Int. Cl. B01j *17/00*

U.S. Cl. 29—583 **8 Claims**



A wafer is diffused along opposite surfaces with bands of alternating conductivity type so that a band on one major surface is aligned with a band of an opposite conductivity type on the opposite major surface. Grooves are formed to separate bands along one major surface while grooves are formed at substantially right angles on the opposite major surface. The wafer may then be sub-divided along the grooves to form integrated rectifier units formed of unitary semiconductive elements. Contacts associated with one major surface may be utilized to provide a thermally conductive path to a thermally conductive, electrically insulative surface of a substrate. The contacts and a passivant associated with the semiconductive element together encapsulate the semiconductive element.

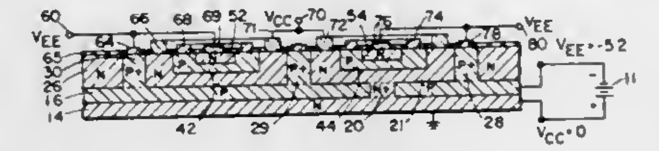
3,706,130
VOLTAGE DISTRIBUTION FOR INTEGRATED CIRCUITS

Walter C. Seelbach, Scottsdale, Ariz., and Kyriakose Lampathakis, Lake Park, Fla., assignors to Motorola, Inc., Franklin Park, Ill.

Continuation-in-part of Ser. No. 610,915, Jan. 23, 1967, abandoned, Division of Ser. No. 683,078, Oct. 30, 1967, Pat. No. 3,581,165. This application July 13, 1970, Ser. No. 61,039

Int. Cl. B01j *17/00*

U.S. Cl. 29—584 **3 Claims**



A voltage distribution system formed in a monolithic integrated circuit structure and a process for making same. Adjacent P-type and N-type conductivity semiconductor layers form respective portions of separate conductive paths for distributing electrical potentials to semiconductor devices or other components within the same integrated structure. P-type and N-type channels are formed within various portions of the semiconductor layers to complete the conductive paths, and reverse biased junctions electrically isolate the conductive paths and prevent electrical interference between same.

3,706,131
METHOD FOR THE FORMATION OF A UNILATERALLY METALLIZED ELECTRET FOIL

Jan Van Turnhout, Delft, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk, The Hague, Netherlands

Filed Nov. 9, 1970, Ser. No. 88,177

Claims priority, application Netherlands, Nov. 12, 1969, 6916997

Int. Cl. H01s *4/00*

U.S. Cl. 29—592 **9 Claims**

The method for manufacturing a unilaterally metallized electret foil consists in that a quadruple spiral, composed of a first unilaterally metallized foil, provided with a covering layer applied to its non-metallized side and whose metallized surface fits closely to a covering layer on the non-metallized surface of a second unilaterally metallized foil, is heated while a d.c. charging voltage is applied to its two metal layers after which the quadruple spiral is allowed to cool to room temperature, the voltage between the layers is switched off, the quadruple spiral is unwound, the covering sheets are removed and the electret foils separated for use.

3,706,132
MAGNETIC TRANSDUCER FABRICATION TECHNIQUE

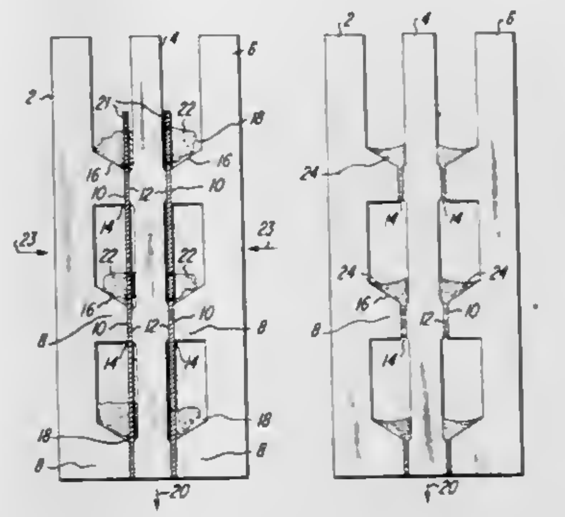
Harry Zane Weaver, Framingham, Mass., assignor to RCA Corporation

Filed Nov. 19, 1970, Ser. No. 90,934

Int. Cl. G11b *5/42;* **H01f** *7/06*

U.S. Cl. 29—603 **6 Claims**

There is described an efficient technique for simultaneously providing a large plurality of magnetic head cores with bonded gaps having reinforcing fillets.



3,706,133
ELECTRICAL SWITCHES

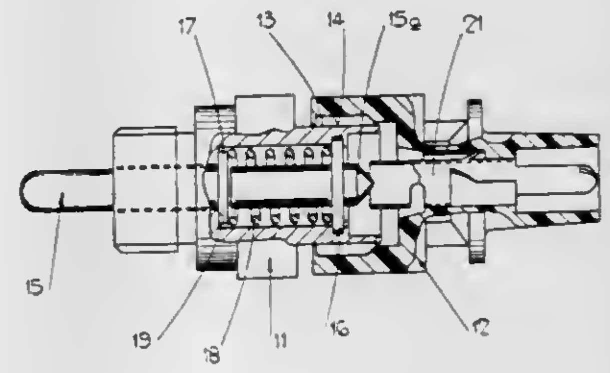
Robert Leonard Gleeson, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed March 15, 1971, Ser. No. 124,180

Claims priority, application Great Britain, March 20, 1970, 13,695/70

Int. Cl. H01h *11/00, 11/02, 11/04, 65/00*

U.S. Cl. 29—622 **4 Claims**



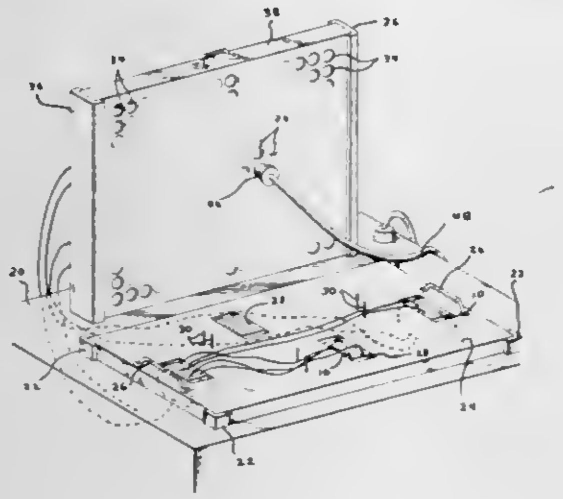
An electrical switch comprises first and second hollow body parts, a conductive plunger mounted in the first body part for axial movement relative thereto and a contact member carried by the second body part. The contact member is engageable by the plunger during axial movement of the plunger from an inoperative position to an operative position and resilient means act on the plunger to urge the plunger to the inoperative position. The first and second body parts are formed with mating screw-threaded portions respectively and one of the body parts has a portion which engages the other body part in a manner to prevent rotation of the one body part relative to the other body part.

In a method of assembling an electrical switch of the kind described, the plunger is moved axially relative to the one body part by a distance equivalent to the distance moved by the plunger when the plunger is moved from the inoperative to the operative position, the screw-threaded portions of the body parts are engaged, and the second body part is screwed onto the first body part until indicating means acting between the plunger and the contact member indicate that the plunger is in contact with the contact member, and the screw-threaded portion of at least one of the body parts is deformed so as to secure the body parts in position and prevent relative rotation between the body parts.

3,706,134
OPTICAL AID

Joseph Patrick Sweeney, Harrisburg, and Herman Rueger, Lancaster, both of Pa., assignors to AMP Incorporation, Harrisburg, Pa.

Continuation of Ser. No. 672,917, Oct. 5, 1967, abandoned.
This application Aug. 4, 1970, Ser. No. 60,941
Int. Cl. H02g *15/00*
U.S. Cl. 29—629 **4 Claims**

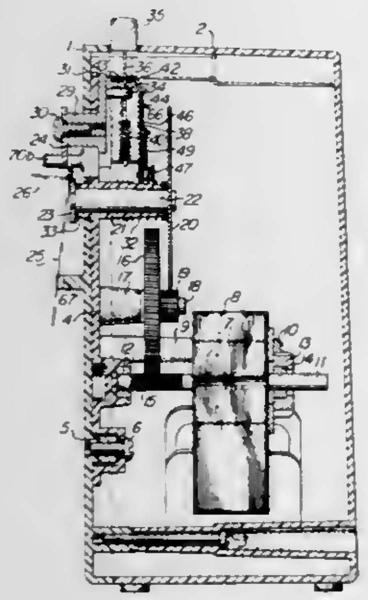


An optical aid is disclosed in several embodiments employing fiber optic cable to transmit light to the side of desired insertion of an electrical lead to better and more quickly identify said site thereby achieving cost savings and greater reliability in harness making. Embodiments are included wherein the optical aid may be programmed to provide a program wiring technique.

3,706,135
ELECTRICALLY POWERED CAN OPENER

Masao Fukunaga, Ichioka, Minato-ku, Osaka, and Kiyoyuki Amo, Amagasaki-shi, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Nov. 5, 1970, Ser. No. 87,053
Claims priority, application Japan, Nov. 8, 1969, 44/89465; Nov. 8, 1969, 44/89466; Nov. 8, 1969, 44/89467; Nov. 8, 1969, 44/89468; Nov. 8, 1969, 44/89469
Int. Cl. B67b *7/38*
U.S. Cl. 30—4 R **11 Claims**

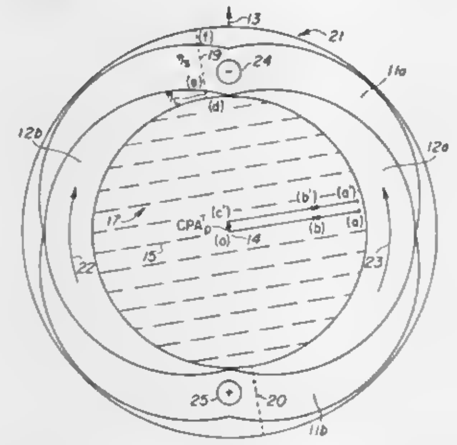


An electrically powered can opener comprising cutter blade operable by manually operated actuator which is operatively connected with cam plate operable to close electric switch for motor for driving feeding gear which in turn rotates and feeds can to be opened so that the latter is urged into cutting engagement with cutter blade. A spring is provided between cutter blade and actuator to allow same to have limited downward lost motion relative to cutter blade so that manual force on actuator is not required to drive cutter blade into cover of can. The spring holds cutter blade in engagement with opened can so that cutter blade cooperates with feeding gear to pinch edge of opened can.

3,706,136
VEHICLE MANEUVER INDICATOR

Ernst A. Sielaff, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed April 5, 1971, Ser. No. 131,382
Int. Cl. G01c *21/20;* **G01s** *7/06*
U.S. Cl. 33—1 SD **8 Claims**

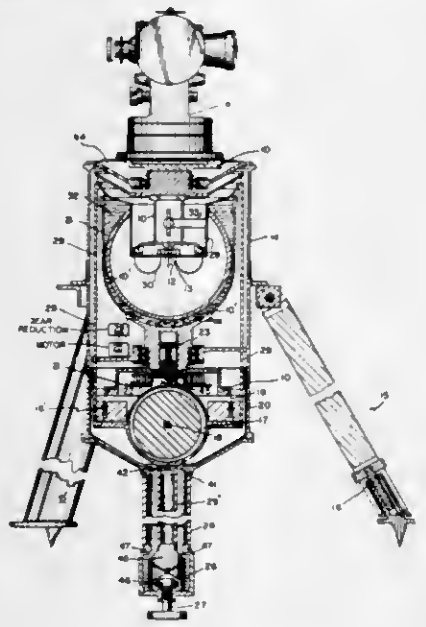


A maneuver indicator device in the form of an overlay for a radar plan position indicator screen is disclosed. The device includes a fixed frame member extending annularly about the periphery of the radar screen, and a transparent rotatable cursor member rotatable with respect to the annular frame about an axis coincident with the sweep axis of the radar screen. Rotation of the cursor member to align parallel lines inscribed on its face with the relative velocity vector as defined by the radar returns of an intruding vessel, aligns command indicia on the cursor with maneuver indicating segments defined on the fixed frame member to provide a direct indication of evasive action in terms of speed and/or course change, and the relative effectiveness of these commands.

3,706,137
FLOATED PENDULOUS GYROCOMPASS

Joseph Wu, Sherman Oaks, Calif., and Joseph Rae Conway, Shaker Heights, Ohio, assignors to TRW Inc., Redondo Beach, Calif.

Filed Oct. 27, 1969, Ser. No. 869,569
Int. Cl. G01c *19/38, 1/02*
U.S. Cl. 33—226 **1 Claim**

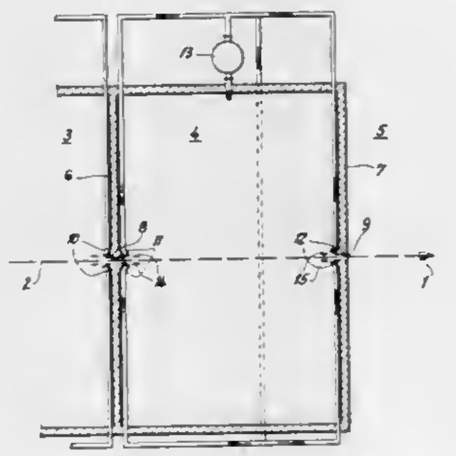


A pendulous gyrocompass wherein the gyro pendulum assembly is supported by a spherical float partially submerged in a bath of halocarbon oil. A set of pickoffs senses the precession of the gyro pendulum and causes a theodolite to follow-up the pendulum assembly so that the theodolite aligns to true north. A detachable pendulum arm is provided to give the advantage of a long pendulum arm for accuracy and a short pendulum arm for transit and storage.

3,706,138
METHOD AND DEVICE FOR SEALING ADJACENT CHAMBERS FROM EACH OTHER

Manfred Schuierer, Erbach/Odenwald, Germany, assignor to Bruckner-Apparatebau Michelstadt GmbH, Erbach/Odenwald, Germany

Filed Jan. 18, 1971, Ser. No. 107,317
Claims priority, application Germany, Jan. 20, 1970, P 20 02 349.8
Int. Cl. F26b *5/04*
U.S. Cl. 34—16 **1 Claim**

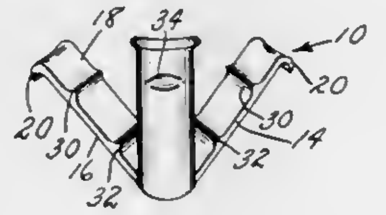


A method and device for sealing from each other adjacent fluid containing chambers connected by a slot to accommodate passage of web material, in which fluid from within chamber is blown inwardly into the chamber in the region of the slot in an angular relation to the web material.

3,706,139
CONSTRUCTION ELEMENTS FOR THE ASSEMBLY OF MOLECULAR MODELS, TOYS AND THE LIKE

George C. Brumlik, 154 Upper Mountain Avenue, Montclair, N.J.

Filed Aug. 12, 1971, Ser. No. 171,180
Int. Cl. G09b *23/26;* **F16b** *13/04*
U.S. Cl. 35—18 A **10 Claims**

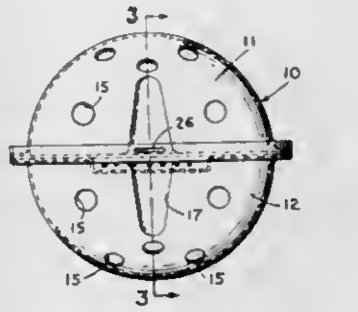


A coupling element for allowing a rod to be inserted and held in a hole in the thin wall of a spherical or other shape body and for maintaining proper alignment. The coupling element includes a plurality of outwardly biased segments with outwardly facing ridges and lips for securely gripping the thin wall. The inner surfaces of the segments include ridges for tightly gripping a rod inserted into the coupling element. The coupling element functions as a bore for the rod with proper alignment being maintained by the tight fit of the coupling element on the thin wall of the body.

3,706,140
MULTI-USE DISPENSING DEVICE

Andre R. Brillaud, New York, N.Y., and Lawrence F. Gallin, Somerset, N.J., assignors to Systematic Research & Development Corp., Somerset, N.J.

Filed Nov. 25, 1970, Ser. No. 92,696
Int. Cl. F26b *19/00*
U.S. Cl. 34—60 **13 Claims**



A dispenser consisting of an opened celled housing or vessel forming a chamber of predetermined size permeable to the ingress and egress of fluids more particularly volatile gases to permit escape or dispensing of such gases or other fluids from the chamber into a desired environment. At a critical temperature a means is mounted in or on the vessel for loading and holding of materials to be dissolved or volatilized at the critical temperature and for passing the dissolved substance or the resultant gas to the chamber for dispensing or escape through the permeable walls of the vessel. The material to be dissolved or volatilized will as a general rule be held in a carrier or like device which will degrade or act to release the material to be dissolved or volatilized.

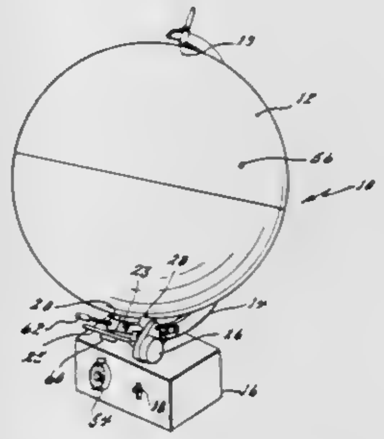
ERRATUM

For Class 35—18 A see:
Patent No. 3,706,139

3,706,141
ORBITING SYSTEM SIMULATOR

Thomas F. McGraw, 808 Felbar Ave., Torrance, Calif.

Filed Sept. 25, 1970, Ser. No. 75,507
Int. Cl. G09b *27/00*
U.S. Cl. 35—45 **7 Claims**



The orbiting system simulator provides a graphic, basic representation of the ground track or path followed by the movement, on the earth's surface of a point on an imaginary line drawn from the center of the earth to an orbiting satellite. The earth-globe of the simulator, and its optical indicator are motor-driven to illustrate the relative motion between the earth and the satellite and takes into account the angle of inclination, right ascension, earth rotation, and can include recession of the nodes. Furthermore, the simulator is easily adjustable and can utilize a plurality of accessories to permit simulation of a wide variety of possible ground tracks.

3,706,142

SUBMARINE DREDGING APPARATUS

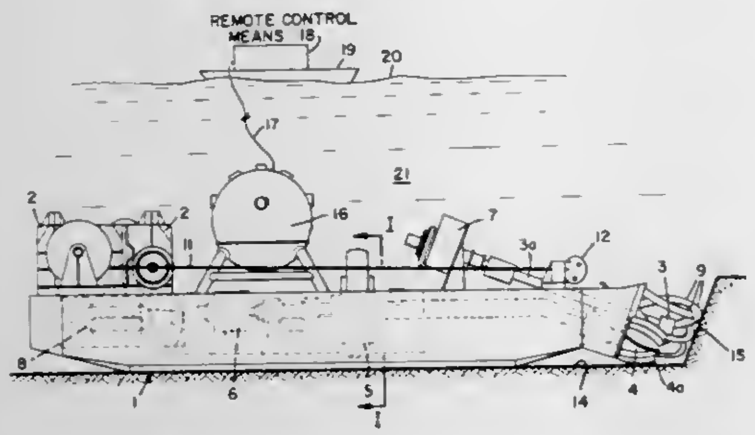
Guido Brunner, Milan, Italy, assignor to Shell Oil Company, New York, N.Y.

Filed Sept. 15, 1970, Ser. No. 72,427

Claims priority, application Italy, Sept. 17, 1969, 22,131 A/69

Int. Cl. E02f *3/92*

U.S. Cl. 37—56 9 Claims



An underwater dredging device comprising a self-propelled submersible mechanical craft having devices and equipment to carry out dredging work underwater, and means for supplying electrical energy from an external source to operate these devices and equipment, and control devices thereof, the control devices being contained in a watertight bell capable of accommodating one or more operators.

3,706,143

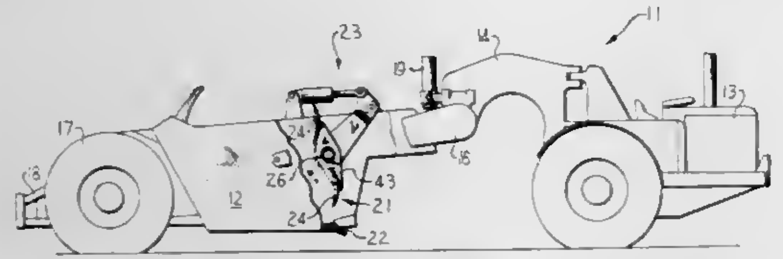
SELF-LOADING MECHANISM FOR A SCRAPER

Harvey A. Knell, Joliet; James A. Olthoff, South Netherlands; Barry A. Scoggin, Plainfield, and Roger M. Smith, Joliet, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed July 16, 1970, Ser. No. 55,465

Int. Cl. B60p *1/00*

U.S. Cl. 37—4 6 Claims



Movement of earth over the cutting edge of a scraper is assisted by a pair of blades which orbit around an axis above the cutting edge, the blades being maintained in an upright orientation throughout the orbit. To hold the blades in the fixed orientation with a minimum of structural complication, the blades are fastened to links which are connected between two eccentric rotary elements that revolve about spaced apart axes at one side of the blades.

3,706,144

CONTROL MEANS FOR A SNOW PLOW

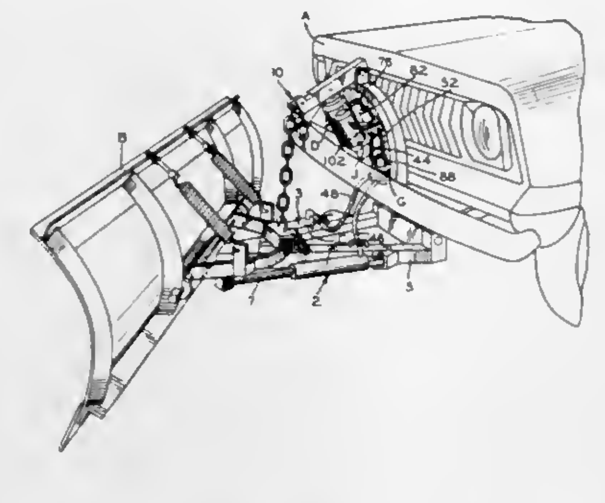
Marc L. Miceli, Cleveland, Ohio, assignor to Meyer Products, Cleveland, Ohio

Filed Aug. 6, 1970, Ser. No. 61,782

Int. Cl. E01h *5/04*

U.S. Cl. 37—42 9 Claims

The disclosure shows ram means connected to control the angle of the snow plow to push snow straight ahead or to either side, and a single-acting ram connected to lift the plow. An electric motor-driven pump delivers oil through a check valve to a selector valve connected to the lift ram and to an angle control valve and operable to direct oil under pressure to either the lift ram or the angle control valve to the exclusion of the other. A plow-lowering valve connecting the lift ram and the tank is operable to permit oil flow from the lift ram to allow the plow to come down, or to block such flow. The angle control valve has two connections with the angling ram means, with the selector valve as aforesaid, and with the tank, the tank connection being through a check valve normally positioned to prevent flow from the angle control valve to the tank but when there is pressure in the conduit connecting the selector valve and the angle control valve, the check valve is inoperative and oil flows to the tank. The three valves are solenoid-operated, the controls therefor being at the operator's station.



3,706,145

MACHINE FOR THE BALLASTING OF RAILROAD TRACKS

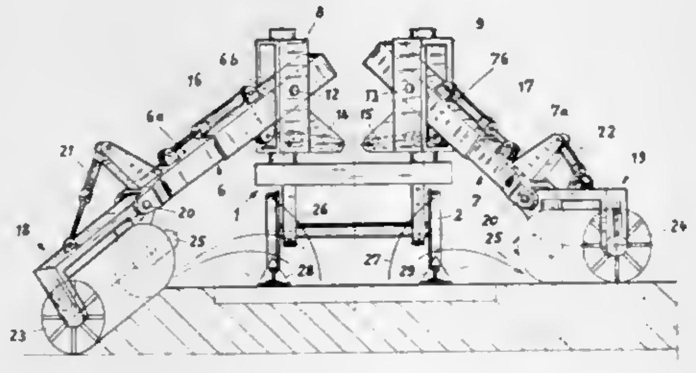
Herbert Bucksch, Ruskau, and Helmut Koch, Rhine, both of Germany, assignors to Rheiner Maschinenfabrik Windhoff Akt.-Ges., Rheine, Germany

Filed Sept. 14, 1970, Ser. No. 71,898

Claims priority, application Germany, Oct. 20, 1969, P 19 52 715.2

Int. Cl. E02f *5/22*; E01b *27/02*

U.S. Cl. 37—105 7 Claims



A machine for maintaining railroad tracks through the conveying of ballast from the roadbed on either side toward and into the track. The machine is adapted to ride on the track, and includes a pair of ballast brushes mounted on supporting arms which project outwardly on opposite sides of the track. The support arms are pivotally mounted on the machine for movement about vertical and horizontal axes and are telescopically extensible to obtain the desired arm reach with respect to the roadbed. The brushes are mounted on frames which tilt adjustably relative to the support arm and are driven by variable speed hydraulic motors.

3,706,146

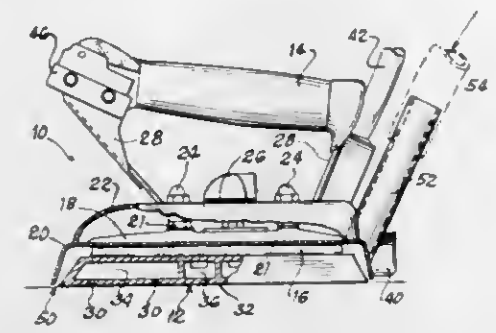
HAND IRON

Arvid B. Anderson, Park Ridge, Ill., assignor to Bishop Freeman Company, Evanston, Ill.

Filed March 29, 1971, Ser. No. 129,054

Int. Cl. D06f *75/00*

U.S. Cl. 38—75 4 Claims



An electrically heated steam and vacuum hand iron. A vacuum port is provided at the periphery of the soleplate of the iron and outwardly of the steam discharge apertures in the soleplate to extract steam and moisture from the pressed fabric, more quickly to dry the pressed fabric, thereby to speed hand ironing operations.

3,706,147

TAG FOR NETS

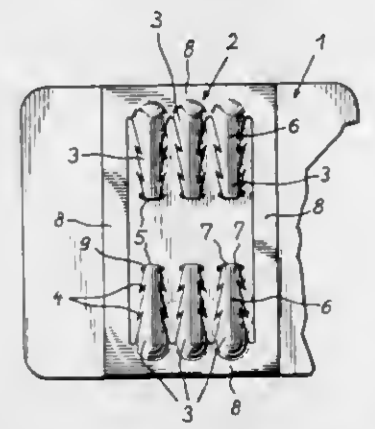
Jules Glaser, Zurich, Switzerland, assignor to Unisto AG, Horn, Thurgau, Switzerland

Filed Feb. 24, 1970, Ser. No. 13,467

Claims priority, application Switzerland, Feb. 27, 1969, 2992/69

Int. Cl. A44c *3/00*

U.S. Cl. 40—2 20 Claims



A tag destined to be attached to a net which will be used for packing articles, such as for example fruit and vegetables for display in a store, is formed by a small plate which is provided with a plurality of elongate strips having their longitudinal edges formed with barbs. The strips have one end fixed to the plate and extend in a direction slightly inclined to the plane of the plate, so that the free ends of the strips project outwardly beyond the back face of the plate. The projecting free ends of the strips are bent inwardly and resiliently abut against the back face of the plate. The tag is attached to the net by sliding some meshes of the net past said hook-shaped free ends of the strips into the space formed between the inclined strips and the back face of the plate, where the meshes are engaged by the barbs formed on the longitudinal edges of the strips.

3,706,148

DISPLAY ASSEMBLY

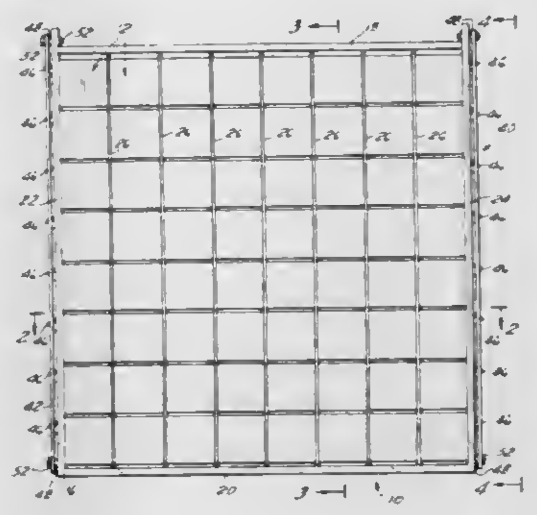
Shaun C. Johnston, 215 W. 83rd Street, New York, N.Y.

Filed Jan. 21, 1971, Ser. No. 108,519

Int. Cl. G09f *11/02*

U.S. Cl. 40—77.7 22 Claims

A display assembly comprises a plurality of display elements mounted on a framework in a composite array. Each display element is provided with a plurality of display surfaces having distinct appearance characteristics. The elements may be individually rotated on the supporting framework to any one of a plurality of display positions wherein one of its surfaces is in display orientation. Means are provided for facilitating this process by simultaneously tilting all elements out of their coplanar display orientation.



Means are also provided for automatically returning all display elements to a predetermined tilted orientation corresponding to a predetermined composite pattern, said means being in the form of a display element engaging means movable between first and second positions. Each time said display element engaging means is thus moved the elements projecting into its path are rotated to their next position until they all reach the predetermined orientation in which they remain clear of the display element engaging means.

3,706,149

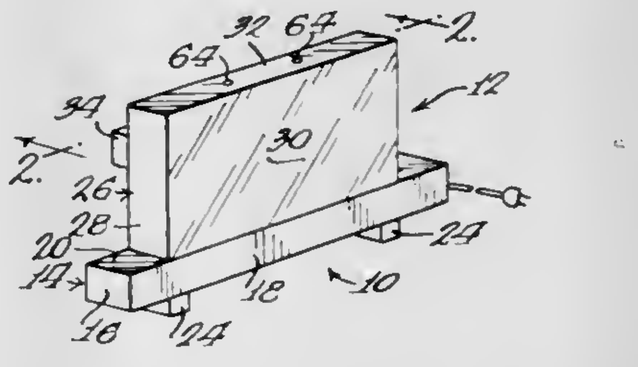
DISPLAY DEVICE

George Olivieri, Willow Springs, Ill., assignor to Thomas M. Rowan, Chicago, Ill., a part interest

Filed Sept. 29, 1970, Ser. No. 76,419

Int. Cl. G09f *13/24*

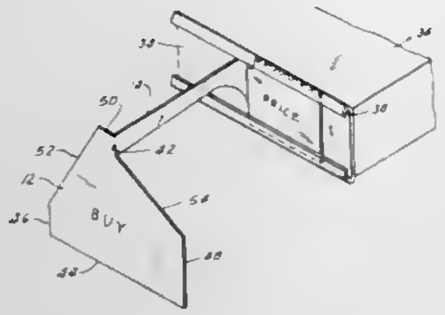
U.S. Cl. 40—106.22 11 Claims



A display device for producing a constantly changing, completely random multi-colored effect is disclosed herein. The display-device includes wall means dividing a fluid compartment into a plurality of juxtaposed chambers having highly viscous fluid therein, and means are provided in the lower portion of each chamber for generating bubbles of air within the fluid. Each of the fluids has a different color, and the walls within the chambers have sufficient light transmissibility, so that when a light source illuminates one side of the display device, the air bubbles passing upwardly through the chambers will create the desired visual effect.

3,706,150
THREE-DIMENSIONAL MOLDING SIGN AND METHOD OF FABRICATING SAME

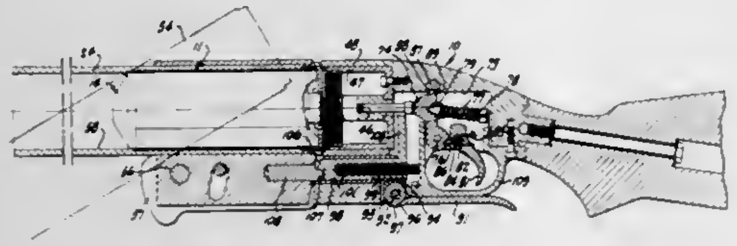
William Greenberger, White Plains, N.Y., assignor to The Hopp Press Incorporated, New York, N.Y.
Filed March 22, 1971, Ser. No. 126,824
Int. Cl. G09f *1/00*
U.S. Cl. 40—124.1 **1 Claim**



A three-dimensional molding sign which can be inexpensively produced from flat stock and folded on score lines to produce a three-dimensional sign with one end portion anchored in molding and a second end portion displaying information, the second end portion being parallel to the end portion in the molding and connected thereto by an intermediate portion which projects outwardly therefrom.

3,706,151
GUN AND PROJECTILE FOR SHOOTING FLUIDS

Robert M. McNelll, Box 1353, Mountain View, Calif.
Filed May 1, 1970, Ser. No. 33,691
Int. Cl. F41c *27/06*
U.S. Cl. 42—1 R **13 Claims**

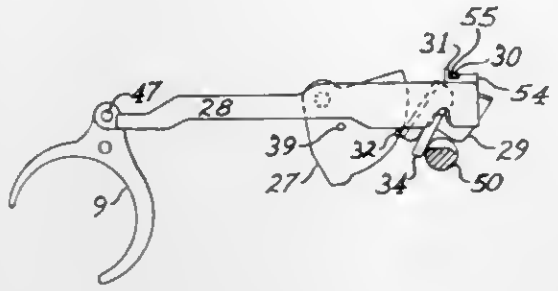


A gun and projectile for shooting a volume of fluid or gas payload such as water, napalm jelly, or a marker dye. The fluid is enclosed in a thin plastic envelope carried by a sabot which is mounted in a cartridge case for breech loading in the gun. The cartridge includes a self contained deflagration charge and primer which, when ignited by the firing mechanism of the gun, generates gas which fills an expansion chamber in the receiver of the gun. The gas pressure builds up within the chamber to a predetermined value at which a frangible connection between the sabot and cartridge base is broken allowing relatively low pressure gases to act against the sabot seal plate through a large port in the cartridge base and urge the sabot from the barrel and along its trajectory towards the target. In flight the sabot elements fall away allowing only the envelope of fluid to strike the target.

3,706,152
FIREARM

Gary Wilhelm, Hamden, Conn., assignor to Stoeger Arms Corporation, Hackensack, N.J.
Division of Ser. No. 766,380, Oct. 7, 1968, Pat. No. 3,614,908. This application Sept. 27, 1971, Ser. No. 90,199
Int. Cl. F41c *17/08*
U.S. Cl. 42—70 D **2 Claims**

Shown in a toggle action recoil operated semiautomatic pistol is a safety shoe interposed between the sear and a rotatable shaft controlled by a lever mounted on the outside of the gun frame. The sear is channel shaped with side walls extending rearward, its transverse leading edge being releaseably engaged with the hammer when the gun is cocked. The sear and the safety shoe are pivotally mounted on the same pin with the safety shoe positioned between the side walls of the sear. A projection on the leading edge of the safety shoe in loose fit engagement in a slot in the sear retains the safety shoe in loose fit engagement in a slot in the sear retains the safety shoe at right angles to the hammer engaging edge of the sear. Limited rotation of the shaft will cause the safety shoe to be wedged between it and the sear, preventing its disengagement from the hammer.

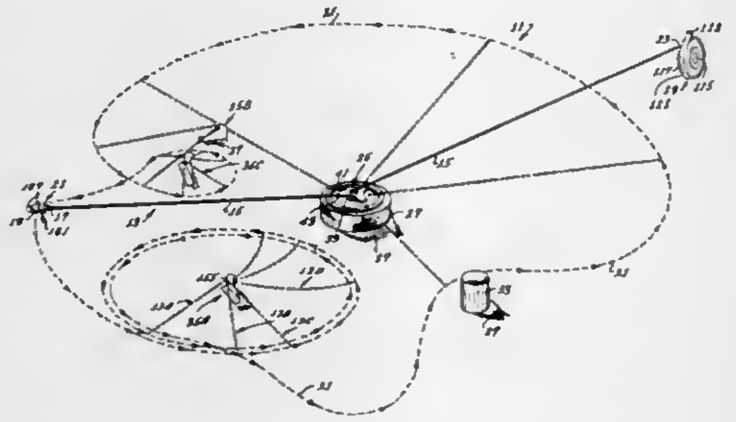


ERRATUM

For Class 43—53.5 see:
Patent No. 3,706,154

3,706,153
REMOTELY CONTROLLED WHEELED TOY VEHICLE SYSTEM

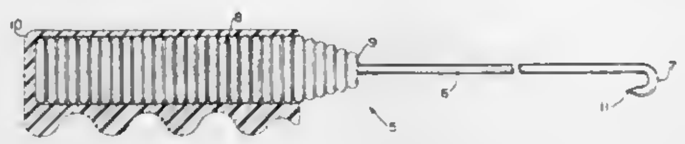
Henry J. Folson, Redondo Beach; Denis V. Bosley, Palos Verdes Peninsula; James Kingsbury, Manhattan Beach; Shlomo Kraitzer, Los Angeles; George Soulakis, North Hollywood, and Jlmmle L. Whittington, Manhattan Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed March 1, 1972, Ser. No. 230,684
Int. Cl. A63h *17/36*
U.S. Cl. 46—202 **16 Claims**



A system whereby a powered toy vehicle is attached to one end of a hand-held control line that slidably passes through a hub member rotatably mounted on a stationary base, the length of the line between the vehicle and the hub being controlled by manual movement of the remainder of the line toward and away from the hub. The system may also include one or more fixed pylons disposed on the playing surface between the vehicle and the hub to temporarily engage the line and thereby shorten the length of the line about which the vehicle pivots.

3,706,154
FISHHOOK REMOVER

Earl H. Luebbers, 611 21st Street, Carlyle, Ill., and Bertis N. Kingsley, Albers, Ill.
Filed Feb. 16, 1971, Ser. No. 115,227
Int. Cl. A01k *97/00*
U.S. Cl. 43—53.5 **4 Claims**



An improved fishhook remover producible on a mass production basis from relatively stiff wire stock so as to have a relatively stiff shank portion with a fishhook engaging hook formation on one end of the shank and a handle integrally formed on the opposite portion in the form of an elongated tightly coiled spring. The spring handle may be telescopically inserted within a grip member. The fishhook engaging hook portion may be either coplanar with the shank or in a plane approximately at right angles thereto.

3,706,155
JOINTED FIGURE TOY HAVING COOPERATING BEARING SURFACES OF DUPLICATE SIZE AND CONTOURS

Armando M. Balza, Whittier, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Aug. 30, 1971, Ser. No. 175,985
Int. Cl. A63h *3/46*
U.S. Cl. 46—151 **2 Claims**

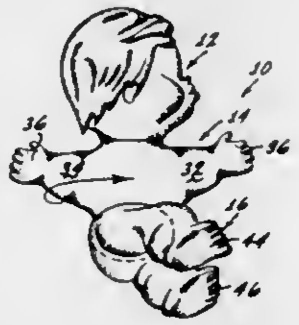
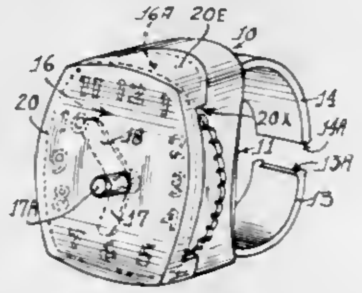


Figure toy torso, having same appearance when viewed from either the front or the rear, is rotatably connected to trunk along a 45° planar surface so that figure toy is converted from standing position to a sitting position by rotating torso 180° placing trunk normal to torso. A head is rotatably connected to torso and is turned to face the front of doll after rotation of torso.

3,706,156
MUSICAL WRISTWATCH TOY

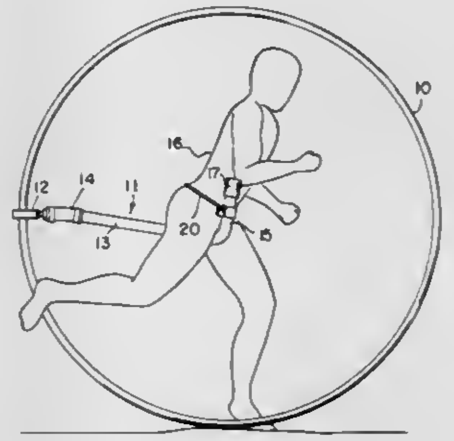
Ernest LaVerne Thornell, Horicon, Wis., assignor to Marlin Toy Products, Inc., Horicon, Wis.
Filed Feb. 22, 1972, Ser. No. 227,881
Int. Cl. A63h *5/00*
U.S. Cl. 46—175 R **16 Claims**



A toy wristwatch containing a wind-up music box which drives the hour hand. Molded plastic components are contrived to form a simple assembly including a watch case contoured to fit the wrist and provide a sound chamber in which the music box is disposed in a particular angular orientation and spacing for acoustic and wind-up purposes by a combination mounting and resonating panel having snap-fit engagement therein, other molded components interfitting with the case structure to complete the assembly including wrist bands secured in a seated condition by the resonating panel.

3,706,157
FOOT PROPELLED UNICYCLE

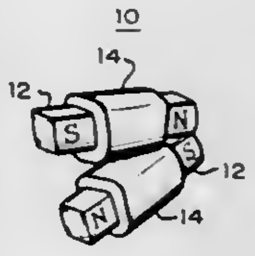
Leon D. Bandy, 1652 East Roeser Road, Phoenix, Ariz.
Filed April 26, 1971, Ser. No. 137,242
Int. Cl. A63h *17/14*
U.S. Cl. 46—220 **4 Claims**



A foot propelled unicycle directed and motivated by body movement of the operator.

3,706,158
MULTI-MAGNET MAGNETIC TOY

David R. Jensen, Mountain View, Calif., assignor to J/D Scientific, Palo Alto, Calif.
Filed April 29, 1971, Ser. No. 138,496
Int. Cl. A63h *33/26*
U.S. Cl. 46—236 **10 Claims**

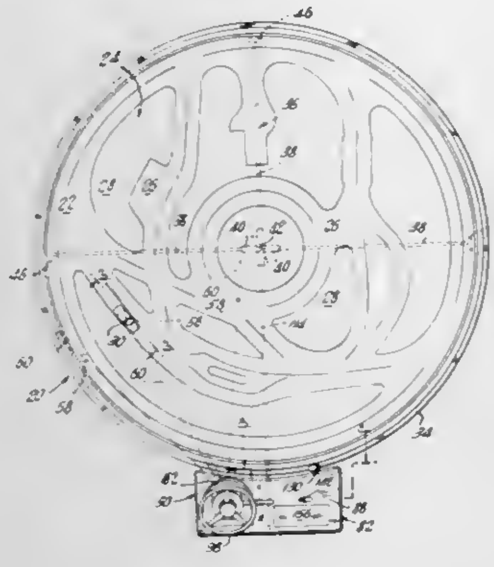


A plurality of miniature permanent bar magnets, each of which has a nonmagnetic sleeve generally centrally positioned thereon, may be removably joined together at opposite poles to form a multi-segment sculpture, doodle, or other art form or structure. The resultant art form or structure may be supported on a ferromagnetic metal plate fixedly mounted on a nonmagnetic base.

3,706,159
TOY FOR SIMULATING VEHICLE TRAVEL

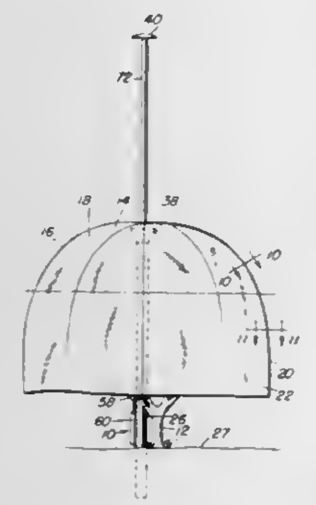
Raymond J. Lohr, and Carl J. Merl, both of Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,969
Int. Cl. A63h *33/26*
U.S. Cl. 46—240 **12 Claims**

A toy which simulates the travel of a vehicle along roads. A rotary disc has an upper surface which simulates roads and terrain bordering on the roads. A drive is connected to the disc for rotating the latter, and a toy vehicle has wheels which rest on the upper surface of the disc so that when the latter rotates the vehicle will appear to travel on the upper surface of the disc. A manually operable structure coacts with the vehicle for moving the latter with respect to the disc, so that by manipulation of the manually operable structure it is possible to maintain the vehicle on roads which move with the rotating disc.



3,706,160
UMBRELLA AND UMBRELLA TREE FROST COVER

Harold Leroy Deibert, R.D. 2, Greenwich, Ohio
Filed Aug. 19, 1971, Ser. No. 173,027
Int. Cl. A01g *13/02*
U.S. Cl. 47—21 **9 Claims**



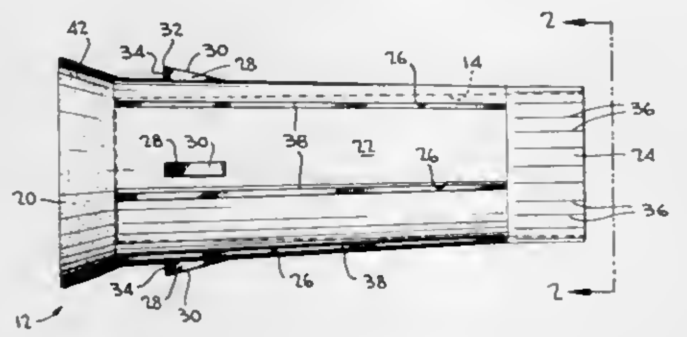
This device is an umbrella and an umbrella tree frost cover which is operable to open and to closed position by a valve controlled pneumatic pressure mechanism. It has an umbrella rod to which umbrella ribs are pivotally secured and it includes an inner two-way hoist cylinder in which the umbrella rod is secured to a piston rod and piston actuated by the pressure to push up the umbrella ribs and an attached cover from out of an outer base cylinder, and the pressure may then be exerted on the top of the piston to retract the umbrella ribs and cover the outer base cylinder.

When used as a tree frost cover, the outer base cylinder is partly embedded in the ground adjacent the trunk of the tree it will cover, and when operated, the umbrella portion extends over the top of the tree and has depending tree frost cover portions which droop down from the umbrella portions to adjacent the ground. It may be made in various sizes to fit different size trees.

In the umbrella form, the ribs are tempered and of inverted U-shape, and support the umbrella cover in usual umbrella position. In tree frost cover form, the ribs extending from the inverted U-shaped tempered ribs beyond the umbrella portion are flattened out, not tempered, and are flexible, so that the tree frost cover thereon droops down to below the lower tree branches, thus protecting the fruit against frost.

3,706,161
TREE MEDICATION CAPSULE

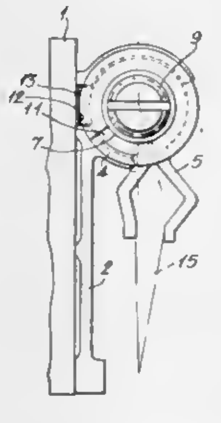
Clark E. Jenson, Route 2, Blair, Nebr.
Filed Nov. 16, 1970, Ser. No. 89,815
Int. Cl. A01g *7/06*
U.S. Cl. 47—57.5 **4 Claims**



A tree medication capsule for insertion into a hole in the trunk of a tree includes a hollow cartridge driven into a predrilled hole in the tree with wound dressing sealing the hole; barbs on the cartridge engage the sides of the hole to prevent the tree from ejecting the capsule while the tree sap dissolves sealant material in slots in the cartridge to free the medication in the capsule for absorption by the tree.

3,706,162
SEALING MEANS FOR DOORS

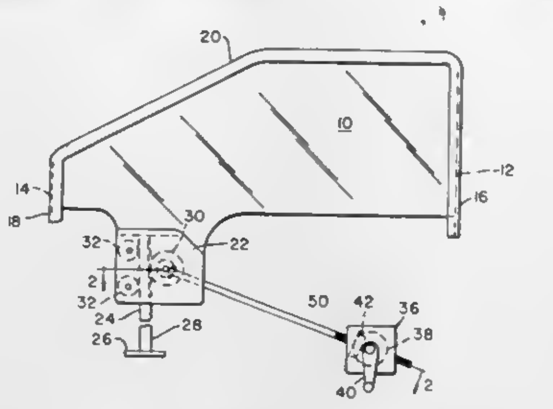
Per Gunnar Werner, 1460 Spro, Norway
Filed Jan. 20, 1971, Ser. No. 107,940
Int. Cl. E06b *7/20*
U.S. Cl. 49—312 **2 Claims**



Sealing means for doors, comprising a resilient list rotatably mounted on the door and pivotable by contact of a journal with the door frame, from horizontal to sealing position against the doorsill, by axial motion of a control member against a spring force and in co-operation with a stationary inclined surface. The journal is surrounded by the helical spring and disposed in a sleeve-shaped member which is provided with the inclined surface, and the said journal has a projection extending beyond the peripheral surface of the sleeve and sliding in an axial groove in a mounting member secured to the door.

3,706,163
WINDOW REGULATOR

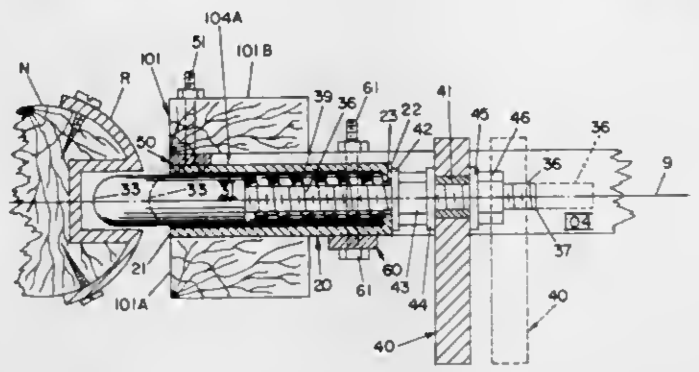
Joseph Pickles, Birmingham, Mich., assignor to Ferro Manufacturing Corporation, Detroit, Mich.
Filed May 11, 1970, Ser. No. 36,110
Int. Cl. E05f *11/42*
U.S. Cl. 49—362 **11 Claims**



Window regulating mechanism for vehicle windows of the type connected to a slightly curved vertically extending post for vertical guided movement between open and closed positions.

3,706,164
GATE LATCH ADAPTABLE FOR USE WITH MULTI-PANELS TYPE FARM GATES

Loy E. Glause, RFD No. 1, Palmer, Nebr., and Gene N. Glause, RFD No. 1, Libory, Nebr.
Filed March 22, 1971, Ser. No. 126,696
Int. Cl. E05c *17/04*
U.S. Cl. 49—394 **3 Claims**

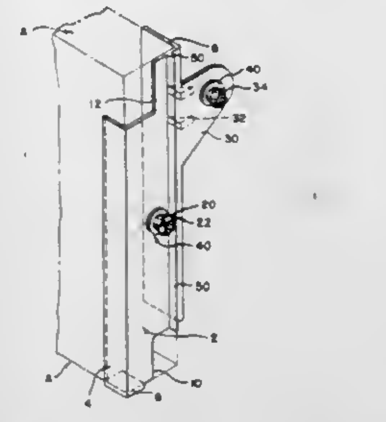


There is provided an exceptionally reliable, versatile, and sturdy gate latch assembly having particular utility with multipanels type farm gates. The gate latch assembly generally comprises an elongate tubular housing horizontally positionable between forwardly disposed upright-panels of a farm gate, a linearly elongate manually rearwardly resiliently depressible spindle disposed within and extending forwardly of the tubular housing, and means (preferably in the form of at least one dual-lobed mounting-ear) for attaching the tubular housing to an upright closure such as a multipanels type farm gate.

3,706,165
SUPPORT ASSEMBLY FOR THE LOUVER OF JALOUSIE WINDOWS

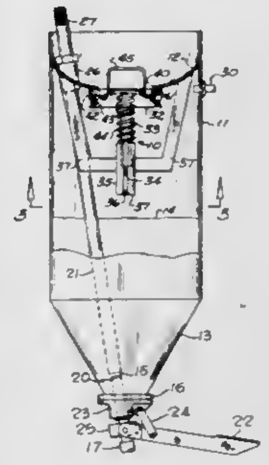
Manuel Ray Baldrich, G.P.O. Box 3443, San Juan, P.R.
Filed May 20, 1971, Ser. No. 145,197
Int. Cl. E06b *7/08*
U.S. Cl. 49—403 **2 Claims**

A louver for a jalousie window is provided with an end clip by which the louver is pivotally supported on the window frame and to which rotary movement is imparted to operate the louvers. The clip is integrally formed from a synthetic plastic material and has two pins with enlarged heads which are transversely compressible providing, respectively, pivotal support means and connection to the louver operating means, allowing the clip to be easily installed by an unskilled person using only manual pressure, and has a washer integrally formed at the base of each pin which separates the clip from its support and reduces friction between them, and has a flexible fin formed on the bottom surface of the clip to seal the joint between the clip and its support. Two elongated strips are provided in the window opening which, respectively, support the pivot pins and provide the operating means for rotating the clips, these strips being flexible to permit them to be coiled for shipment from factory to job.



3,706,166
FILL CAP ASSEMBLY FOR SANDBLASTING MACHINES OR THE LIKE

James D. Burtin, c/o Detroit Tool and Engineering Co., P.O. Box 232, Lebanon, Mo.
Filed June 18, 1970, Ser. No. 47,526
Int. Cl. B24c *3/00*
U.S. Cl. 51—12 **9 Claims**

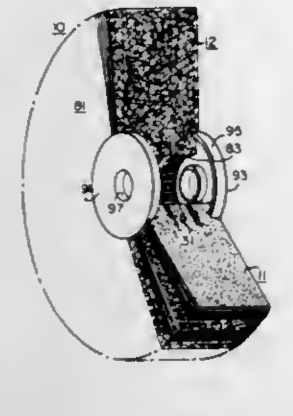


The assembly includes a spring-loaded closure cap and attached stem reciprocatively mounted to a support carried internally of a pressurized tank. The support includes a pair of armsholding a slotted sleeve in register with the container fill aperture and in alignment with the stem. The stem is provided with a latch pin received by the slotted sleeve and the assembly may be held in an open position by depressing the closure cap sufficiently so that the pin clears the sleeve to permit the stem to be rotated to a latched position. In the closed position of the fill cap assembly, internal container pressure secures the seal. The closure cap is dome-shaped to facilitate the filling process and shield the working parts of the assembly.

3,706,167
FINISHING APPARATUS

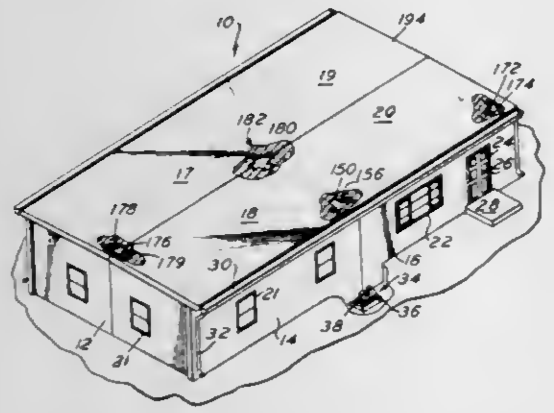
Rober D. Schaffner, Pittsburgh, Pa., assignor to Schaffner Manufacturing Co., Inc.,, Pittsburgh, Pa.
Filed Oct. 13, 1970, Ser. No. 80,375
Int. Cl. B24b *9/02;* **B24d** *11/00*
U.S. Cl. 51—334 **3 Claims**

There is disclosed a work-finishing wheel including an annulus of flaps bonded near the center to form a substantially solid hub in which flaps of woven abrasive web or fabric are interleaved with flaps of non-woven fibrous abrasive web or fabric of the material disclosed in Hoover et al. U.S. Pat. No. 2,958,593.



3,706,168
PREFABRICATED BUILDINGS

Andre Pilish, Wyncote, Pa., assignor to The Pennstar Company, Warminster, Pa.
Filed Sept. 15, 1970, Ser. No. 72,467
Int. Cl. E04b *2/00*
U.S. Cl. 52—234 **4 Claims**

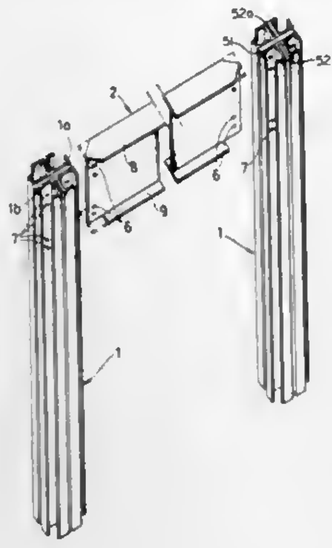


A prefabricated reinforced concrete building is disclosed, wherein pre-cast separate footings are spaced in an arrangement defining the floor plan of the building, and pre-cast wall-forming panels, disposed in edge-abutting relation, are supported by the footings. Roof-forming panels overlie the upper edges of the wall-forming panels. The abutting wall-forming and overlying roof-forming panels are interconnected by parallel upwardly extending studs, anchored in adjacent abutting portions of the wall-forming panels, and extending successively through a first apertured tie plate overlying upper edge portions of the wall-forming panels; the roof-forming panels; and a second tie plate overlying the roof-forming panels. The studs and tie plates are embedded in cast in situ concrete, so that the roof and wall-forming panels form a monolithic membrane.

3,706,169
BUILDING-FRAME STRUCTURE

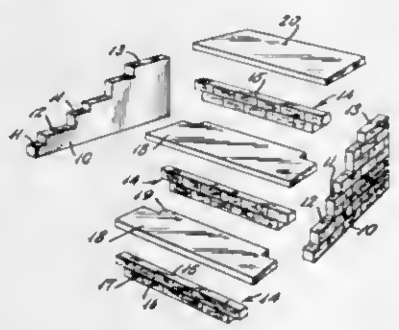
Eberhard G. Rensch, Lerchesbergring 24, Frankfurt/Main, Germany
Filed June 9, 1970, Ser. No. 44,848
Claims priority, application Germany, June 9, 1969, P 19 29 175.9; March 10, 1970, P 20 11 258.7
Int. Cl. E04c *3/32*; **E04b** *1/24*
U.S. Cl. 52—263 **9 Claims**

A building-frame structure is assembled from prefabricated columns and girders or beams forming a horizontal grid, each of the columns being composed of two or more parallel uprights forming vertical channels therebetween to receive the webs of the beams. Profiled connectors, with ribs of the same width as the beams, can also be clamped between these uprights to secure the column to a wall consisting of one or more framed panels onto which the connector can be clipped.



3,706,170
PREFABRICATED PLASTIC STAIRWAY AND METHOD OF MANUFACTURE

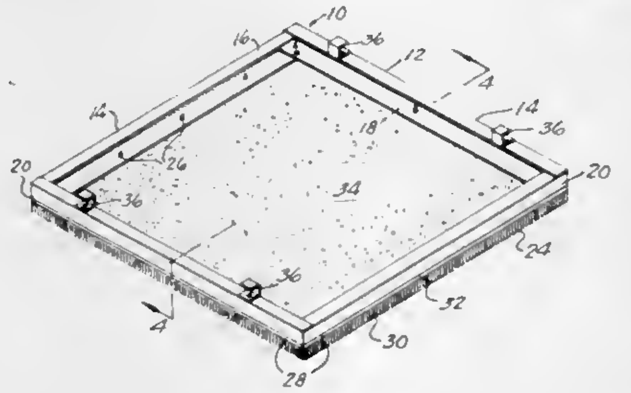
Neil E. Argraves, 154 Brady Ave., Salem, N.H., and David A. Mann, 12 Burnell Drive, Yarmouth, Maine
Filed July 14, 1970, Ser. No. 54,711
Int. Cl. E04f *11/14, 11/00*
U.S. Cl. 52—189 **4 Claims**



This invention is a prefabricated molded or precast stairway and method of making the same and with such structure having a facing representing brick, stone or other desired ornamental finish.

3,706,171
DECORATIVE ACOUSTICAL CEILING PANEL

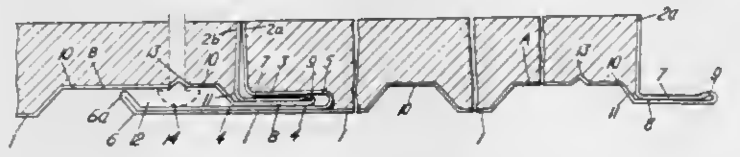
Harry I. Shayman, 777 North Michigan Avenue, Chicago, Ill.
Filed April 2, 1971, Ser. No. 130,611
Int. Cl. E04b *5/52*; **E04c** *2/38*
U.S. Cl. 52—475 **6 Claims**



A decorative acoustical ceiling panel which, when assembled with other like panels in edge-to-edge relation in a suitable ceiling installation, provides the appearance of a blanket of carpeting covering the ceiling. The panel comprises a rigid rectangular frame member having a rectangular layer of carpeting material fastened to its lower surface so as to form a facing thereover. Mounting means in the form of hook members are fastened to the upper surface of the frame member for mounting the panel on support members suspended from a ceiling.

3,706,172
FOAM LAMINATES

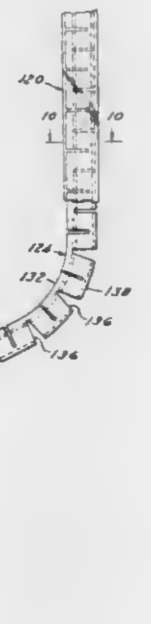
Donald George Keith, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Aug. 5, 1970, Ser. No. 61,050
Claims priority, application Great Britain, Aug. 21, 1969, 41,845/69
Int. Cl. E04c *1/10, 2/10*
U.S. Cl. 52—521 **3 Claims**



A foam laminate, the lower facing sheet is a preformed metal pan with sharp vertical edges, two opposite edges of the pan being shaped, near the foot thereof, one as an outwardly-extending and the other as a co-operating inwardly-extending hairpin bend such that, when a pair of pans are to be connected, the hairpin bends form a snap-fit with each other.

3,706,173
FLEXIBLE MOLDING STRIP AND METHOD OF MAKING SAME

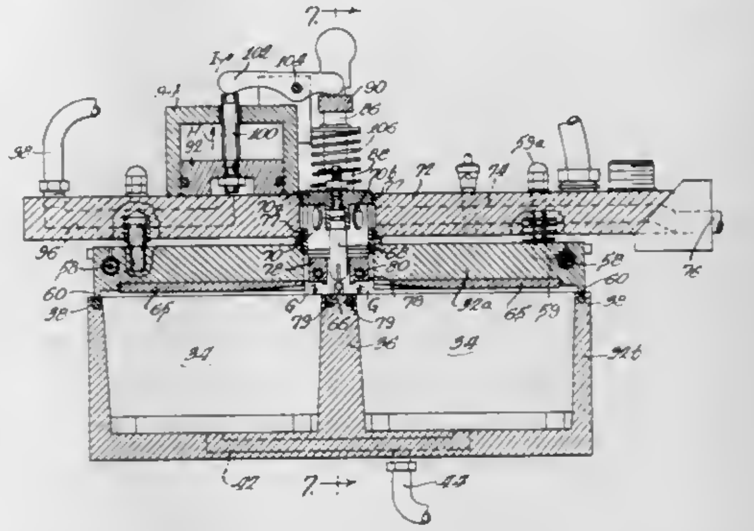
Alfred E. Taylor, 686 Rivard Boulevard, Grosse Pointe, Mich.
Continuation-in-part of Ser. No. 850,434, Aug. 15, 1969, abandoned. This application Jan. 10, 1972, Ser. No. 216,409
Int. Cl. E06b *7/16*
U.S. Cl. 52—716 **9 Claims**



A flexible molding strip including a non-metal channel-shaped core member having a plurality of transverse slots providing the requisite molding flexibility, and a stretchable cover enclosing the core member and concealing the slots. The core member includes opposed gripping flanges within the channel adapted to secure the molding, and the cover may be stretched over the core to prevent buckling when the molding is secured over a relatively sharp radius. The cover may also include a laterally extending flange or wing to conceal a joint or the like.

3,706,174
PACKAGING MACHINE AND METHOD OF FORMING PACKAGES

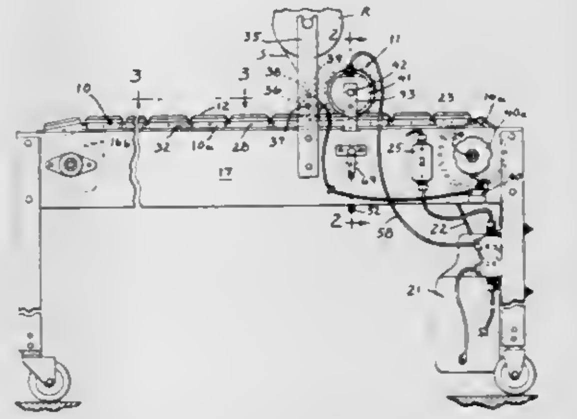
William E. Young, Stamford, Conn., and Arthur D. Jezuit, Wood Dale, Ill., assignors to W. R. Grace & Co., Duncan, S.C. and John Morrell & Co., Chicago, Ill.
Filed March 3, 1971, Ser. No. 120,512
Int. Cl. B65b *31/02*
U.S. Cl. 53—112 R **7 Claims**



A machine and method for evacuating sealed packages formed from flexible sheet material which may be heat sealed, and for sealing the package. A heat-sealing device has two sections disposed opposite each other and movable toward each other to seal two sheets of the flexible material together to form a sealed package. One of the sections comprises a suction head for applying vacuum to one of the sheets of flexible material to cause the one sheet to move toward a knife member fixedly secured in the suction head to form a pierced opening in the one sheet through which air is exhausted from the package through the pierced opening. A heat-sealing member is disposed in and reciprocable in the suction head for movement between a retracted position and an extended sealing position. The heat-sealing member is adapted to heat seal the sheets together in an area surrounding the pierced opening when in its extended position. In the preferred form of the invention, the other section of the heat-sealing device also comprises a vacuum head for applying suction to the other sheet of flexible material to grip the other sheet while the one sheet is being pierced and the air is evacuated from the package.

3,706,175
METHOD AND APPARATUS FOR CLOSING CONTAINERS

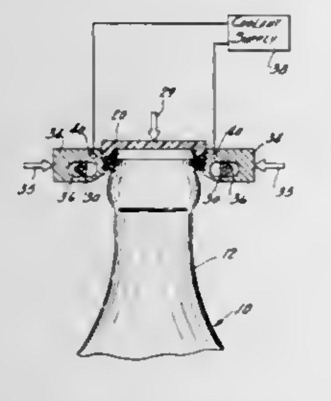
Ralph F. Anderson, 332 Calvin Park Boulevard, Rockford, Ill.
Filed Oct. 31, 1969, Ser. No. 873,032
Int. Cl. B65b *7/28*
U.S. Cl. 53—39 **16 Claims**



A method and apparatus for applying a cover from a continuous strip to rim top containers as they are advanced by a conveyor, in which the cover strip is progressively sealed to a container rim as it is advanced and the cover strip is then severed at the trail side of a sealed container before being sealed to the next succeeding container. The cover strip advances with the container while it is being sealed thereto and advance of the cover strip with the container is interrupted after it is severed from the sealed container, until the next succeeding container is advanced to a position adjacent the severed end of the cover strip.

3,706,176
CLOSURE MEMBER AND METHOD FOR CLOSING CONTAINERS

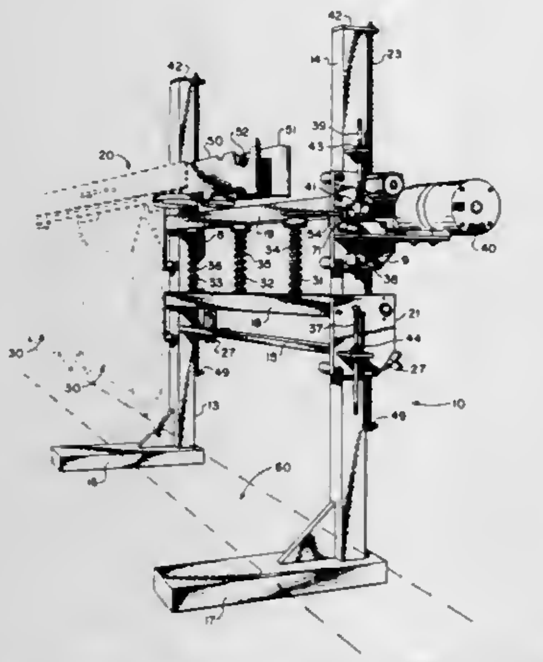
Alfred F. Leatherman, Columbus, Ohio, assignor to said Heller, by said Leatherman
Filed March 10, 1971, Ser. No. 122,762
Int. Cl. B65b *7/28*
U.S. Cl. 53—42 **16 Claims**



A technique for capping a container utilizes a thermoplastic cap having integral means for heating portions thereof by means of a high frequency magnetic field. The steps of the method include placing the cap on the container, subjecting the heatable portions of the cap to a high frequency magnetic field to soften these portions, bringing the softened portions of the cap into engagement with the container, and cooling the cap to removably affix the cap to the container.

3,706,177
AUTOMATIC BAG CLOSING MACHINE

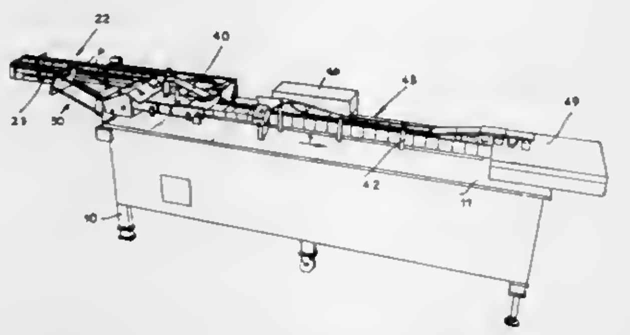
George L. Willett, Gretna, La., assignor to Westvaco Corporation, New York, N.Y.
Filed March 18, 1971, Ser. No. 125,616
Int. Cl. B65b *57/00*
U.S. Cl. 53—76 **4 Claims**



Pinch-style multi-wall bags are sealed with an automatic bag closing machine wherein the sealing unit is mounted on a framework which permits up and down movement thereof. The sealing unit is resiliently mounted to move in a vertical plane so as to accommodate bags of slightly varying height. A mechanically driven gear system is employed for orienting the sealing unit, and an electronic sensing device is arranged for sensing the presence of a bag to be sealed and for triggering the movement of the sealing unit to the proper bag height.

3,706,178
MACHINE FOR THE PACKAGING OF OBJECTS

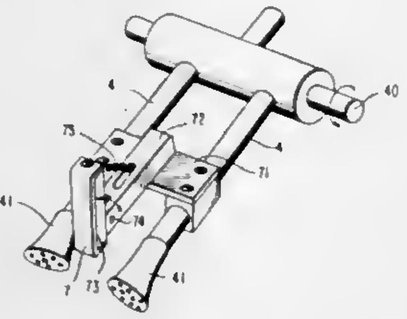
Pierre Lucien Antoine Magnard, Issoudun, and Lemaitre, Andre Jules Emile, Bezons, both of France, assignors to The Mead-Corporation, Dayton, Ohio
Filed June 10, 1970, Ser. No. 44,958
Claims priority, application France, June 13, 1969, 6919714
Int. Cl. B65b *61/14, 57/16*
U.S. Cl. 53—131 **10 Claims**



A packaging machine for assembling yogurt containers into two-packs includes an endless conveyor belt formed from hinged platelets some of which are integral with upstanding C-shaped brackets having perforated flanges parallel to and spaced from the conveyor surface. Cardboard blanks with foldable sections, designed to form a prismatic envelope for the beaded tops of a pair of containers, have one section provided with two holes which in a feeding operation come to register with respective perforations of two brackets supporting a blank. Two containers are then inserted into these holes from above, with the assistance of an overhanging inclined strip, so as to hang down by their beads into the spaces surrounded by the brackets while moving with the conveyor belt past a gluing station and a folding station, the latter imparting to the blank its prismatic shape. The resulting packages are cammed out of their brackets by a stationary ramp for deposition on a receiving table.

3,706,179
BAG OPENING AND SUPPLYING DEVICE

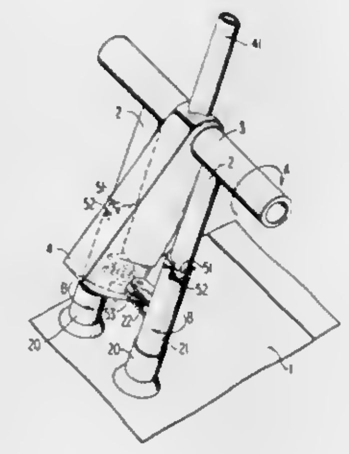
Hiroshisa Tanaka; Mitiaki Wada, and Keijo Kaneko, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed June 28, 1971, Ser. No. 157,526
Claims priority, application Japan, June 30, 1970, 45/57053
Int. Cl. B65b *43/28*
U.S. Cl. 53—188 **6 Claims**



A bag opening and supplying device comprising a hopper for storing bags therein in stacked relation, movable suction pipes for removing bags one-by-one from the hopper by suction, and a bag receiving bracket to which the bags are supplied by the suction pipes. A friction member is provided between the pipes for engaging a bag carried by the pipes and insuring that it is accurately positioned without slippage on the bag receiving bracket.

3,706,180
BAG OPENING DEVICE

Keiji Kaneko; Kitimaru Shoji, and Minoru Mukai, all of Minami Ashigara, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed June 30, 1971, Ser. No. 158,323
Claims priority, application Japan, June 30, 1970, 45/57054
Int. Cl. B65b *43/28*
U.S. Cl. 53—386 **10 Claims**



A bag opening device comprising a pair of suction heads adapted to engage a portion of a bag from one side thereof and to twist the bag to open the mouth thereof when the heads are moved in opposite directions. The suction heads are movably mounted on the ends of a pair of suction arms and are positioned to engage a cam member to effect the opposite movement of the heads in response to predetermined movement of the suction arms. The suction heads may be mounted on the suction arms for rotatable or reciprocatory movement relation thereto.

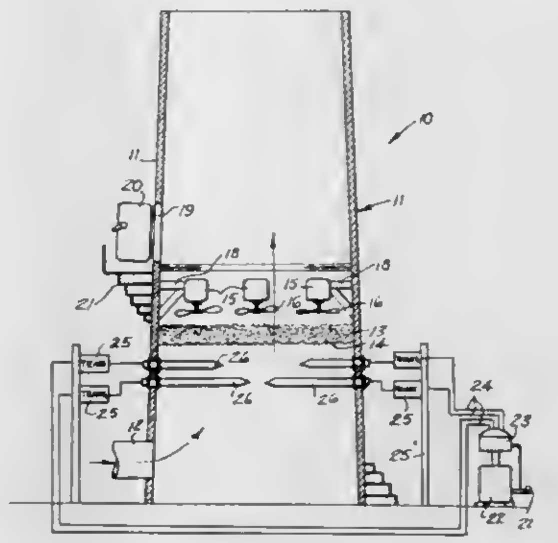
3,706,181
PROCESS FOR THE SAFE HANDLING OF C_3 AND C_4 ACETYLENIC HYDROCARBONS

David G. Walker, Baytown, and Donald A. Keyworth, Houston, both of Tex., assignors to Tenneco Chemicals, Inc.
Filed Nov. 20, 1970, Ser. No. 91,567
Int. Cl. B01d *53/02*
U.S. Cl. 55—63 **18 Claims**

An improved safe method for the handling, concentration, purification, storage, and transportation of C_3 and C_4 acetylenic hydrocarbons involves contacting a gas stream that contains 10 mole percent or less of these compounds with activated carbon to form compositions that comprise activated carbon on whose surface about 2 percent to 10 percent, based on the weight of the carbon, of C_3 and/or C_4 acetylenic compounds have been adsorbed. These activated carbon compositions, which are air stable and which cannot be detonated, can be handled, stored and transported without appreciable danger of explosion. Concentrated and purified acetylenic compounds can be recovered by stripping the carbon with, for example, a nitrogen-methylene chloride mixture. Further improvement in the safety of the method results when the pyrolysis gas is diluted with an inert, non-explosive gas that has carbon adsorption characteristics similar to those of the C_4 acetylenic compounds prior to the treatment of the activated carbon with the pyrolysis gas stream.

3,706,182
ANTI-POLLUTION APPARATUS

Ray Sargent, P.O. Box 234, Hardin, Mont.
Filed Dec. 2, 1970, Ser. No. 94,242
Int. Cl. B03c *3/14*
U.S. Cl. 55—124 **4 Claims**

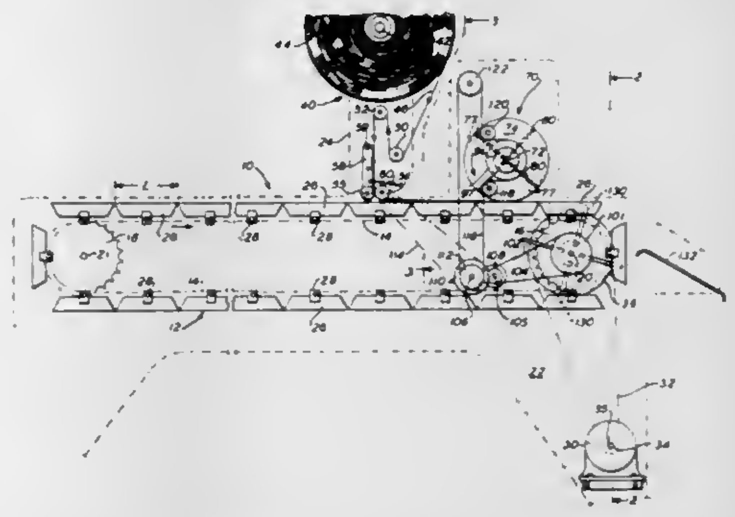


An anti-pollution device for insulation in factory smoke stacks. This device includes a charcoal filter through which the smoke is pulled by fan blades.

The device also includes high voltage electrodes for producing an arc from point to point which is accomplished by a distributor.

3,706,183
ROTARY HEAT-SEALING AND CUT-OFF MECHANISM

Lawrence J. Talarico, Deal, N.J., assignor to Anderson Bros. Mfg. Co., Rockford, Ill.
Filed Oct. 22, 1969, Ser. No. 868,537
Int. Cl. B65b *7/28*
U.S. Cl. 53—329 **7 Claims**



A packaging machine that has a unique rotary heat-sealing drum and cut-off mechanism within the drum for sealing a continuous web of thermoplastic material to the open tops of trays containing the articles to be packaged and for cutting off the web selectively between successive trays. A reciprocating cam shaft within the axial bore of the drum's axle selectively engages and disengages a caming surface on inwardly biased cut-off blades mounted within the drum near its peripheral surface to drive the blades outwardly and inwardly from the peripheral surface of the drum. By having the cut-off mechanism within the sealing drum, the continuous web of thermoplastic material being fed to the sealing drum can be cut off prior to being sealed to the tops of the open trays so that the continuous web can be controlled and registered independently of any influence of the sealing drum on the web.

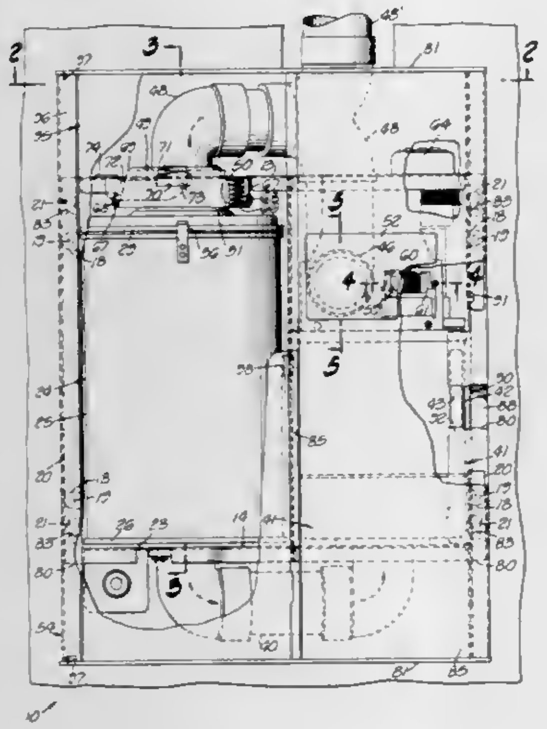
3,706,184
WALL-RECESSED SUCTION CLEANER

Council A. Tucker, Glendale, Calif., assignor to Matter Mfg. Corp., Temple City, Calif.

Filed June 9, 1969, Ser. No. 831,456

Int. Cl. B01d *46/02*

U.S. Cl. 55—356 **32 Claims**



A suction cleaner mountable substantially entirely between the faces of a room wall and equipped to have a dirty air suction hose coupled thereto and to discharge clean air back into the room from a semi-concealed outlet discharging laterally from a protruding edge of the cleaner and generally across the adjacent face of the room wall. The exterior cover means for the working components is detachably secured in place by hidden connectors and conceals the cleaner proper from view. The suction air unit is mounted beside and parallel to an air filter canister which is removable as a unit for servicing.

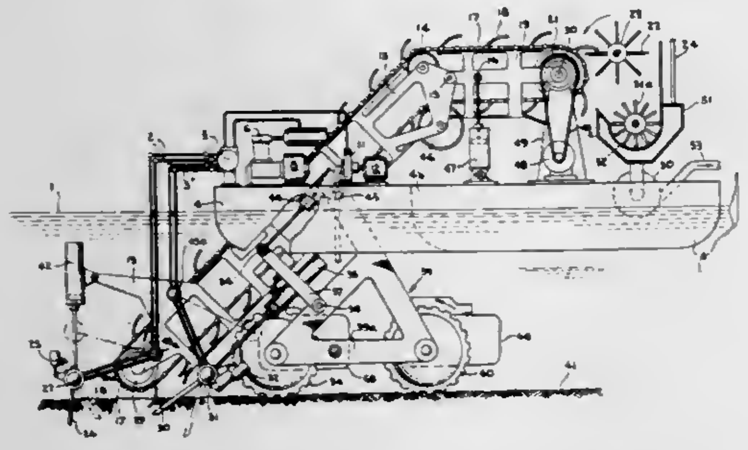
3,706,185
APPARATUS FOR REMOVING MARINE GROWTHS AND ROOTS

Merle P. Chaplin, 609 Driver Avenue, Winter Park, Fla.

Division of Ser. No. 764,586, Oct. 2, 1968, Pat. No. 3,540,194. This application June 23, 1970, Ser. No. 59,830

Int. Cl. A01d *45/08*

U.S. Cl. 56—9 **10 Claims**



Apparatus for removing weeds and plants from the bottoms of lakes and waterways, involving injecting water and subsequently compressed air directly below the root systems of such plants, thus forcing them away from the bottom of the lake or waterway. A preferred embodiment of my invention involves a conveyor utilized in concert with this fluid pressure injection, which enables the removed plants to be carried to the surface of the water and disposed of, instead of leaving portions of the uprooted plants in the water to decay.

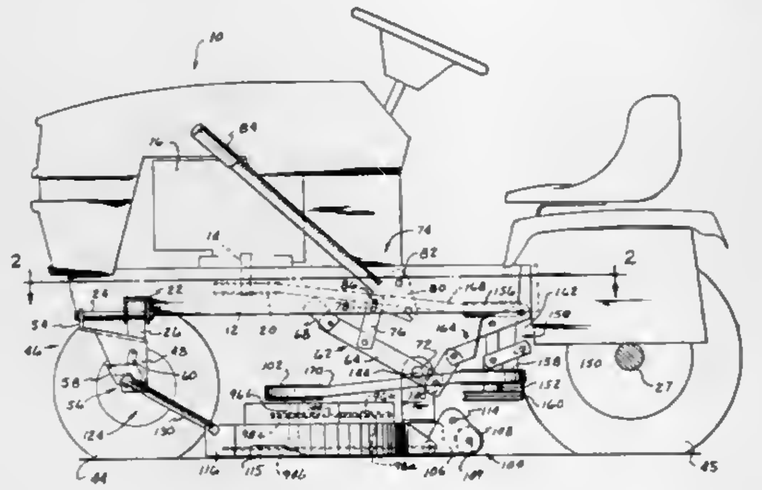
3,706,186
SUSPENSION SYSTEM FOR A MOWER UNIT

Joseph C. Hurlburt, Leola, and John H. Freimuth, New Holland, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed July 7, 1971, Ser. No. 160,288

Int. Cl. A01d *35/26*

U.S. Cl. 56—15.8 **11 Claims**



A mower suspension system for tractively coupling a rotary mower unit beneath the belly or main frame of a tractor. The mower suspension system is basically comprised of a generally parallel four bar linkage arrangement including a front draft linkage interconnecting a front pivotal axle of the tractor with a front portion of the mower unit and a rear lift link pivotally interconnecting an intermediate portion of the tractor chassis structure with a rear portion of the mower unit. Further provided is a ball joint attaching assembly within the rear lift linkage structure which enables the mower unit to tilt from side to side in response to movement over ground irregularities of ground engaging rollers disposed rearwardly on the mower unit and the front wheels, and yet maintain the mower unit in a plane generally parallel to the chassis when the axle and associated front wheels are disposed on generally level ground terrain.

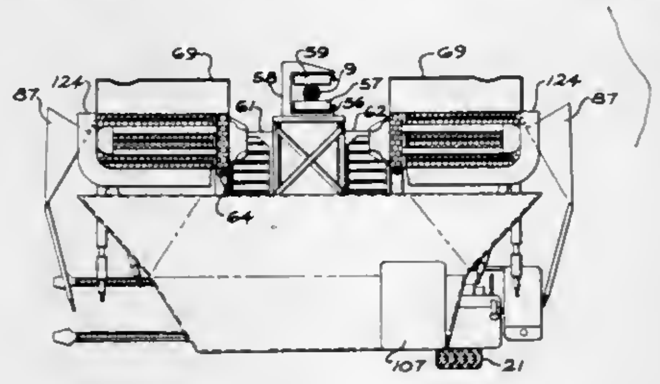
3,706,187
HARVESTING MACHINE ESPECIALLY FOR TREE FRUITS

Gary M. Toet, 1470 Wendell Way, Yuba City, Calif.

Filed Sept. 2, 1971, Ser. No. 177,248

Int. Cl. A01g *19/06*

U.S. Cl. 56—329 **29 Claims**



A harvesting machine especially for tree fruits has a mobile carriage including a main frame adapted to be driven alongside a tree trunk so that a shaker on the frame can engage the trunk. The main frame is adapted to pick up, hold and discharge a fruit bulk bin. A catching frame overlies the main frame and extends under one side of the tree branches. A pair of subframes are swung on pivots on the main frame from retracted position to extended position on opposite sides of the tree trunk. Support arms pivotally mounted on the subframes carry flexible catching wings adapted to supplement the catching frame and to extend from retracted position to extended position underlying the remaining branches of the tree. Fruit falling onto the catching frame and catching wings when the shaker operates is led to a conveyor system carrying the fruit to the bulk bin.

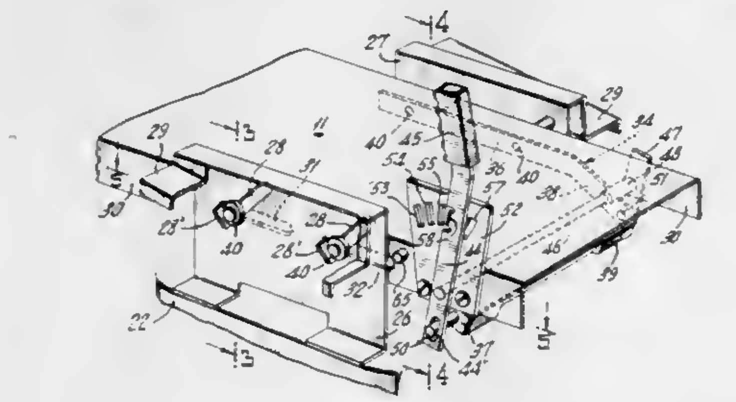
3,706,188
ELEVATING APPARATUS FOR TRACTOR ATTACHMENTS

Ronald G. Quiram, Michigan City, Ind., assignor to Poloron Products of Indiana, Inc., New Rochelle, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,546

Int. Cl. A01d *35/25*

U.S. Cl. 56—11.6 **11 Claims**



An elevating mechanism for tractor attachments such as mowing apparatus which includes a pair of vertically disposed plates secured to the attachment and having inclined slots engaged by pins carried by the tractor so that as the pins are displaced longitudinally the attachment carried by the plates will be displaced vertically.

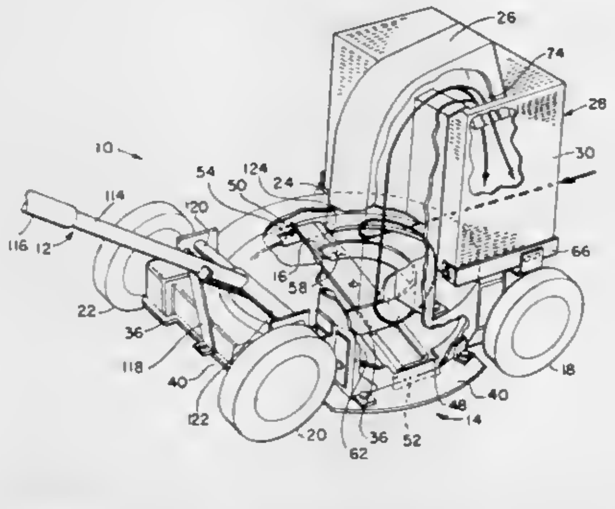
3,706,189
SAFETY MOWER AND LEAF HARVESTER-MULCHER

Harry T. Rutherford, 1123 Wood Heights Avenue, Baltimore, Md.

Continuation-in-part of Ser. No. 173,469, Aug. 20, 1971, Pat. No. 3,680,295. This application Feb. 4, 1972, Ser. No. 223,680

Int. Cl. A01d *87/10*

U.S. Cl. 56—13.4 **6 Claims**



A combined rotary mower and leaf harvester and mulcher having a special 180° baffle fixed circumferentially around the blade axis to direct airflow for mulching and a deflector plate for upward discharge through a gooseneck chute which exhausts downwardly into a deck-mounted porous collector; coacting safety features include an unbroken 360° guard skirt in the plane of the blade and a lower plate concealing the tips of the blade except at flange-protected lateral slots which allow full-width cut; height control is adjustable and the front can be raised independently of the rear for leaf cutting by the height control mechanism; a safety adapter for non-collecting mowing is also provided.

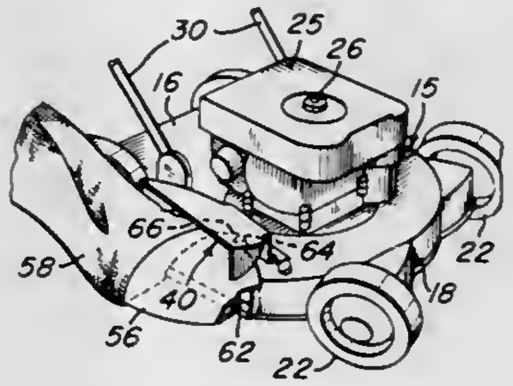
3,706,190
ROTARY POWER MOWER HAVING AN IMPROVED DEFLECTOR FOR THE DISCHARGE OUTLET

Jack D. Taub, New York, N.Y., assignor to G. W. Davis Corporation, Richmond, Ind.

Filed Oct. 20, 1971, Ser. No. 190,727

Int. Cl. A01d *35/26*

U.S. Cl. 56—13.4 **9 Claims**



The deck member of a rotary power mower has a grass discharge outlet which is normally covered by a scoop-like deflector member for directing grass clippings, stones and other solid objects back onto the ground outboard of the wheels supporting the deck member. The upper portion of the deflector member is pivotally connected to the deck member adjacent the top of the discharge outlet, and the deflector member is movable from its lower operative position covering the outlet to an upper retracted or inoperative position against the bias of torsion coil springs to provide for attaching a grass catcher bag adapter directly to the deck member. The deflector member includes front and rear curved walls which are rigidly connected by an outer wall sloping downwardly and outwardly from the top of the discharge outlet, and the lower edges of the walls are substantially level with the lower edge of the deck member.

3,706,191
RAKING IMPLEMENTS

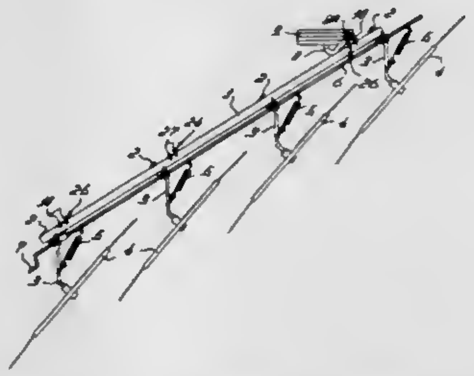
Claude Barbot, Senonches, France, assignor to C. van der Lely C., N.V., Maasland, Netherlands

Filed March 22, 1971, Ser. No. 126,703

Claims priority, application Netherlands, March 20, 1970, 7003965

Int. Cl. A01d *77/06*

U.S. Cl. 56—377 **15 Claims**



A raking implement for attachment to a prime mover to displace crop lying on the ground, has an inclined main frame beam and a plurality of rotatable rake wheels mounted on the frame beam. The main frame beam has different coupling points for other frame parts to be releasably connected thereto so that the implement can be converted to different types of rakes.

3,706,192

PROCESS AND APPARATUS FOR FALSE TWISTING SYNTHETIC YARNS

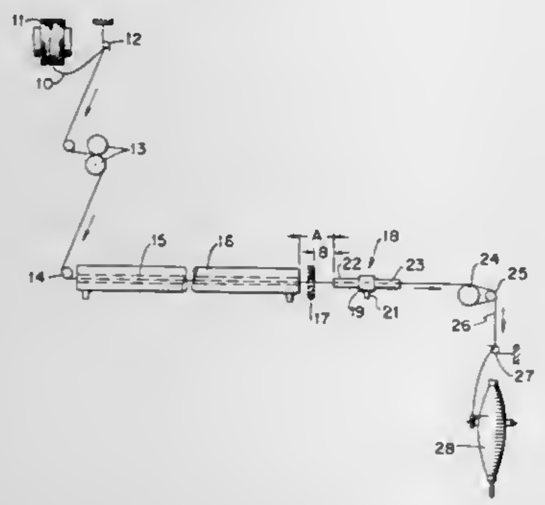
Bertus Leibbrand, Elst; Johan J. Mertens, Rozendaal; Harm A. Ploeger, Arnhem; Robert Sluijters, Arnhem, and Leendert van Assendelft, Arnhem, all of Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

Filed Oct. 8, 1970, Ser. No. 79,231

Claims priority, application Netherlands, Oct. 14, 1969, 6915479; Oct. 14, 1969, 6915480; Oct. 14, 1969, 6915481; Oct. 14, 1969, 6915482

Int. Cl. D02g *1/16, 1/02*

U.S. Cl. 57—34 HS **11 Claims**



A system is provided to false twist and simultaneously draw a linear synthetic high polymer yarn. The yarn is first heated and then false twisted in a novel false twister wherein the diameter of the twisting chamber is considerably greater than the yarn feeding and discharge channels.

3,706,193

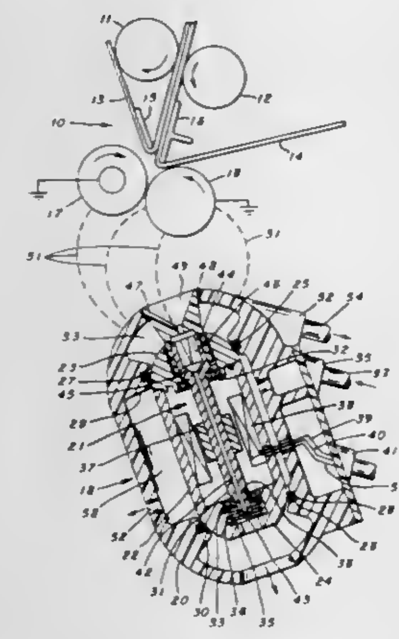
SPINNING HEAD

Richard A. Amato, Bolton, Mass., assignor to Electrospin Corporation

Filed April 19, 1971, Ser. No. 135,320

Int. Cl. D01h *1/12*

U.S. Cl. 57—58.89 **2 Claims**



A spinning head for textile yarn spinning apparatus of the electrostatic type having a high voltage electrode for producing, in conjunction with a cooperating electrode, an electrostatic field by which textile fibers are transported from a fiber source to the spinning head and having integral electrical driving means for rotating a spindle and yarn forming gripper carried therein which receive the fibers and twists them into yarn.

3,706,194

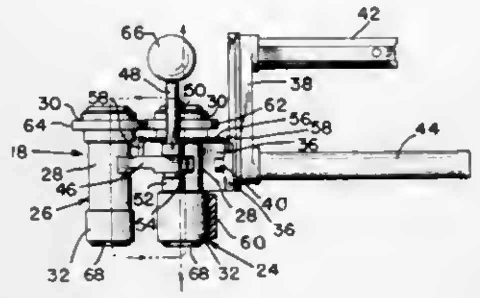
APPARATUS FOR IMPARTING FALSE TWIST TO YARN

Joseph F. Smith, Greensboro, N.C., assignor to Pem-Ims, Inc., Greensboro, N.C.

Filed Aug. 6, 1970, Ser. No. 61,536

Int. Cl. D02g *1/04*

U.S. Cl. 57—77.45 **10 Claims**



An assembly for false twisting yarns including first and second spindle units mounted for displacement relative to each other upon a common support. The units include friction drive rings normally maintained in driving relation which receive their drive from a belt in engagement with one of the spindle units. A friction bushing is positioned in each end of each spindle unit for applying a false twist to yarns drawn through the units.

3,706,195

SYNTHETIC YARNS

Anthony Charles Davis, and Brian Franklin Amos, both of Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Feb. 8, 1971, Ser. No. 113,661

Claims priority, application Great Britain, Feb. 13, 1970, 7,102/70

Int. Cl. D02g *3/04, 3/44*

U.S. Cl. 57—140 BY **5 Claims**

A blended fibrous structure comprising synthetic filaments or fibers having a high electrical resistance together with extruded synthetic polyester or polyamide filament, having an extension to break of at least 200 percent, containing between 5 to 20 percent by weight inclusive of conductive carbon black.

3,706,196

CONSTURCTION OF THIN TIMEPIECE

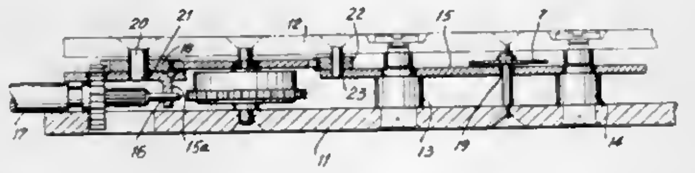
Hirohisa Kurita, Shimosuwa-machi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed July 27, 1971, Ser. No. 166,372

Claims priority, application Japan, July 29, 1970, 45/66016

Int. Cl. G04b *29/00, 33/00*

U.S. Cl. 58—52 **4 Claims**



Two bridges of thin sheet material are spaced apart by means of pillars having a plurality of shoulders. A third sheet member is held intermediate the two sheet members by means of shoulders on the pillars. A portion of the intermediate sheet member is turned at right angles to the remainder of the sheet and is apertured for reception of the stem. The intermediate sheet member also serves to hold in place gears between the third sheet member and one of the two bridge members during emplacement of the other bridge sheet member on the pillars.

3,706,197

DATE CORRECTING DEVICE FOR WRIST WATCHES

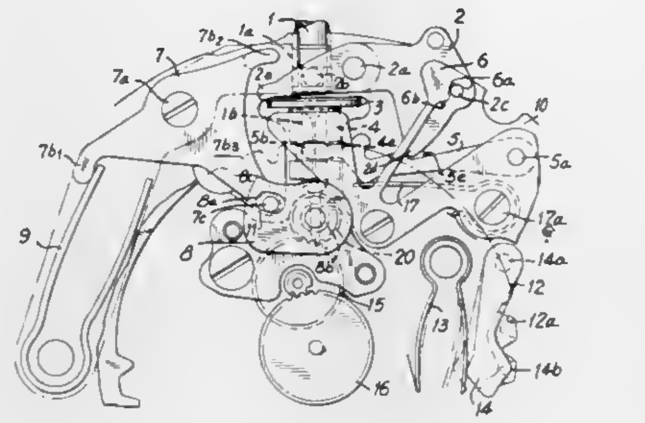
Eiichi Matsura, Chiba-shi, Chiba, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed June 14, 1971, Ser. No. 152,834

Claims priority, application Japan, June 20, 1970, 45/60760

Int. Cl. G04b *19/24*

U.S. Cl. 58—58 **5 Claims**



A wrist watch comprising a date correcting device wherein the first corrector and the second corrector are rotated by the turning of a setting lever in response to the pulling out of a winding stem so as to drive a date dial and change dates, and said first corrector and second corrector are returned by the force of a date corrector spring when said winding stem is released.

3,706,198

SEALING STRUCTURE IN A WATERPROOF WATCH

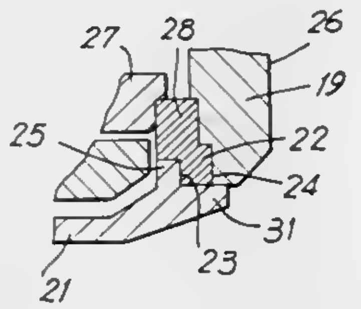
Takekazu Fukushima, Kamiina-gun, Nagano-ken, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Nov. 24, 1971, Ser. No. 203,111

Claims priority, application Japan, Nov. 28, 1970, 45/117721; Nov. 28, 1970, 45/117722

Int. Cl. G04b *37/08*

U.S. Cl. 58—90 R **1 Claim**



A water-tight seal in a watch results from radial compression of a synthetic resin gasket between a portion of the case-back and the interior of the case-body. The gasket may also serve to mount the watch mechanism within the case-body.

3,706,199

MANUFACTURE OF ROLLER CHAIN

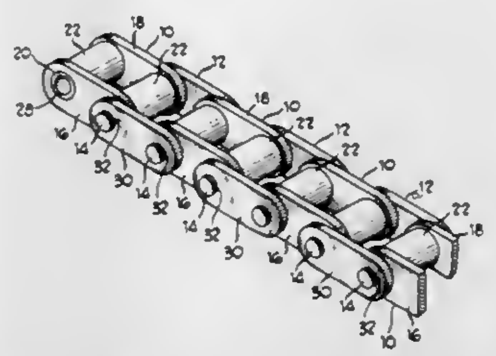
George A. Zimmer, Ithaca, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed June 30, 1971, Ser. No. 158,199

Int. Cl. B21l *9/02*

U.S. Cl. 59—8 **5 Claims**

To improve retention of the cylindrical bushings in the side plates of a roller chain, the bushing surfaces are roughened, as by shot-peening, fine knurling or fine scoring, prior to hardening. Thereafter, a side plate is press fitted on each end of the bushing, and the chain is assembled.



3,706,200

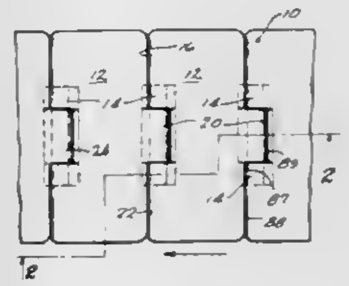
METHOD OF FORMING A CONVEYOR CHAIN LINK HAVING KNUCKLES FORMED INTEGRALLY WITH EDGE

Clair W. Mueller, Wauwatosa, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis.

Division of Ser. No. 827,677, May 26, 1969, abandoned. This application June 21, 1971, Ser. No. 155,317

Int. Cl. B21l *11/00*

U.S. Cl. 59—35 **6 Claims**



A flat top metal conveyor chain link is formed with the curled knuckles of one edge extending a short distance into the flat body of the link. The remainder of the one edge outwardly of the knuckles is swaged to a rounded form corresponding to the portion of the knuckles integral with the link body. The opposite edge is beveled or undercut to allow adjacent connected links to overlap slightly and interfit more closely. The cold working of the metal by swaging produces localized increases in strength allowing relative changes in the widths of the knuckles on respectively opposite edges of the link, whereby an increase in the ultimate and fatigue strengths of the link may be attained.

3,706,201

DUAL FLUID CROSSOVER CONTROL

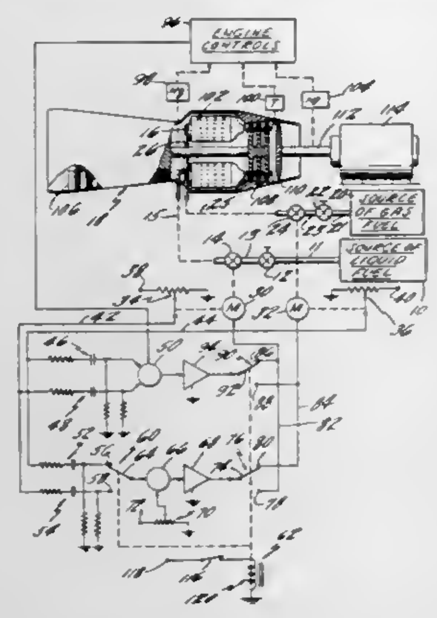
John S. Williamson, Ellington, Colo., assignor to United Aircraft Corporation, East Hartford, Colo.

Division of Ser. No. 711,754, Jan. 12, 1970, Pat. No. 3,517,679. This application Jan. 12, 1970, Ser. No. 7,427

Int. Cl. F02c *9/04*

U.S. Cl. 60—39.28 R **3 Claims**

A dual manifold gas turbine operates on either gaseous fuel or liquid fuel supplied thereto through respective servocontrol valves, the valve relating to fuel in use being controlled by operating conditions of the engine through a servoloop. To change from one fuel to the other, the oncoming valve is controlled by the operating servoloop which has as one input the closing of the offgoing valve. The offgoing valve is closed by a special servoloop used only for that purpose.



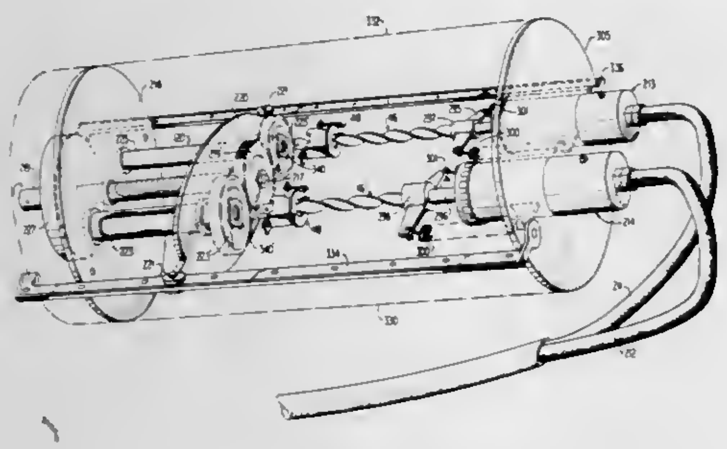
3,706,202
MANUALLY OPERATED FLUID PRESSURE DRIVEN ROTARY DRIVE

Napoleon A. Basa, 46 Cordillers Street, Quezon City, Philippines

Filed Nov. 16, 1970, Ser. No. 89,760

Int. Cl. F15b *7/00*

U.S. Cl. 60—54.5 R **5 Claims**



Manually operated single or multiple fluid motors for generating fluid pressure and driving a reciprocating servo motor having a screw like reciprocating force transmitting element and a rotary power take off member connected to a coupler or transmission for use as an auxiliary or primary drive for various work devices.

3,706,203
WALL STRUCTURE FOR A GAS TURBINE ENGINE

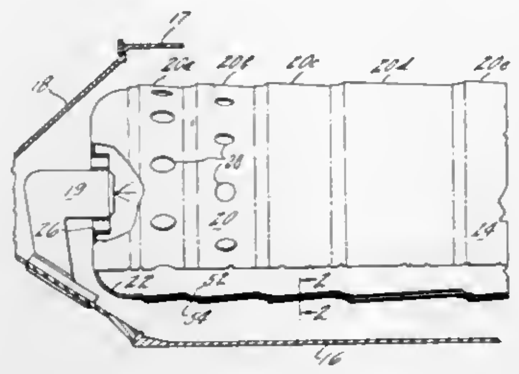
Perry Goldberg, West Hartford, and Irwin Segalman, Bloomfield, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation-in-part of Ser. No. 812,793, April 2, 1969, abandoned. This application Oct. 30, 1970, Ser. No. 85,629

Int. Cl. F02c *7/18*

U.S. Cl. 60—39.65 **4 Claims**

A combustion wall or liner construction which utilizes a unique geometry, primarily a plurality of flow channels with predetermined length-to-diameter ratio which are positioned between the walls of the liner, to maintain the liner wall at an acceptable operating temperature. Cooling air flows through the flow channels and control of the frictional pressure losses of this stream provide the control of the wall temperature.



ERRATUM

For Class 61—36 see:
Patent No. 3,706,581

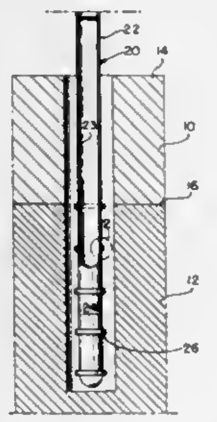
3,706,204
METHOD AND APPARATUS FOR IMPROVING BEARING STRENGTH OF PILES IN PERMAFROST

Erwin L. Long, 5741 College Drive, Anchorage, Alaska

Filed Feb. 10, 1971, Ser. No. 114,258

Int. Cl. E02d *3/12, 5/48, 27/30*

U.S. Cl. 61—46 **4 Claims**



A pile has a lower portion insertible into the permafrost or permanently frozen region of the soil, an intermediate portion extending through the seasonal frost or seasonal-thaw region and an upper portion exposed to the atmosphere above the soil. The lower portion is provided with cylindrical or segmented cylindrical rings which extend radially outwardly beyond the surface of the pile. The piles are used in a method of improving the bearing strength of the pile by inserting into a hole down into the permanently frozen region a pile having laterally extending rings or segments of rings on its lower portion below the seasonal-thaw region and then filling the hole surrounding the pile with fill material which eventually freezes and becomes an integral part of the permafrost soil surrounding the hole.

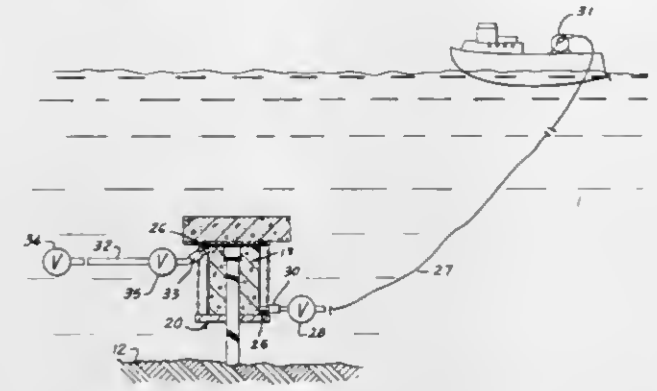
3,706,205
APPARATUS AND METHOD OF MAKING AN UNDERWATER CONNECTION BETWEEN A STRUCTURAL MEMBER AND A SUPPORTING PILE

Ernst A. Wald, Dallas, Tex., and Joseph J. Dodson, Jr., Robert, La., assignors to U.S. Industries, Inc., New York, N.Y.

Filed March 4, 1971, Ser. No. 120,879

Int. Cl. E02d *5/40, 5/50*

U.S. Cl. 61—46 **12 Claims**



This invention provides an apparatus and method for making underwater connections between structural members and a plurality of supporting piles. The piles are driven to elevations equal to or below design elevation. A spacer is mounted on the top of any pile that is below design elevation to distribute the load of a structural member among the piles and to support the member at design elevation. Hollow form members having openings are mounted on the underside of the structural member so that the piles will extend into the openings when the structural member is lowered onto the piles. The openings in the form members are sufficiently large to accommodate substantial horizontal displacement of the upper end of the pile thereby allowing the piles to be driven to less stringent tolerance. The space in each opening between each form member and each pile is filled with cement to connect the structural member to the piles.

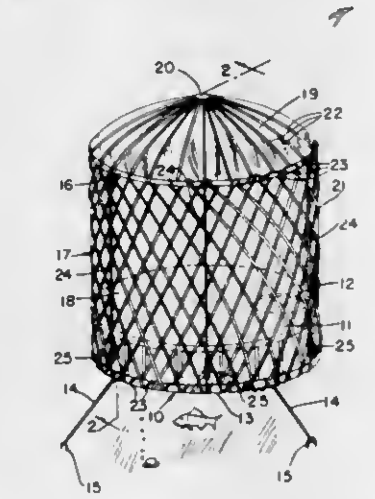
3,706,206
LIGHTWEIGHT READILY PORTABLE UNDERWATER HABITATION AND METHOD OF ASSEMBLY AND EMPLACEMENT

James F. Clark, 132 South Shore Drive, Toms River, N.J.

Filed Jan. 27, 1971, Ser. No. 110,195

Int. Cl. B63c *11/00*

U.S. Cl. 61—69 R **14 Claims**



A lightweight readily portable underwater habitation features a rigid base frame for anchorage to natural ballast and a largely transparent flexible thin-walled inflatable body portion forming the main enclosure of the habitation. The inflatable body portion is two layered, including a transparent film and an overlay of reinforcing mesh which relieves stresses on the film and imparts the requisite strength to the flexible body portion. The habitation may embody a basic module or plural interconnected modules.

3,706,207
APPARATUS FOR BURYING A PLASTIC DRAINAGE PIPE LINE IN THE GROUND

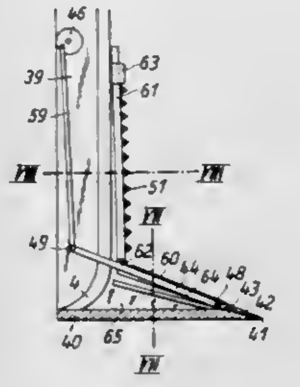
Werner Cornelius, and Friedrich Kaminski, both of Nordhastedt, Germany, assignors to Werner Cornelius KG, Tief- und Kulturbau, Nordhastedt, Germany

Filed Feb. 22, 1971, Ser. No. 117,506

Claims priority, application Germany, Feb. 26, 1970, P 20 08 995.6

Int. Cl. E02l *5/02;* **A01b** *3/64;* **F16l** *1/00*

U.S. Cl. 61—72.6 **13 Claims**



The apparatus comprises a coulter with a guide passage for the pipe extending therein from an opening in the upper part thereof to its rear edge and a nose projecting from the lower section of the coulter front edge. The nose is provided with a roof-like oscillatory edge member sloping upwardly from the nose peak to the coulter front edge. The apparatus suspended at a tractor and engaging the ground with its lower section can be dragged with a smaller tractor output or with higher speeds than similar tools without an oscillatory nose edge member.

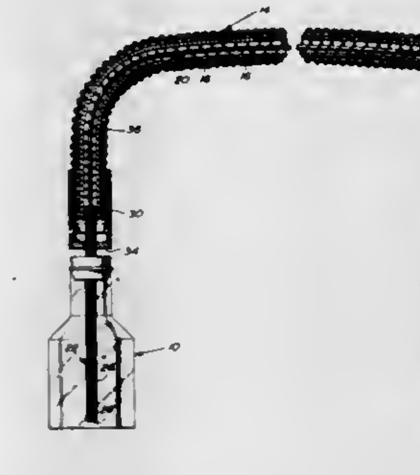
3,706,208
FLEXIBLE CRYOGENIC LIQUID TRANSFER SYSTEM AND IMPROVED SUPPORT MEANS THEREFOR

Frank J. Kadi, Bethlehem; Ralph C. Longsworth, Allentown, and Richard N. Meier, Macungie, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Jan. 13, 1971, Ser. No. 106,167

Int. Cl. F25d *25/10*

U.S. Cl. 62—55 **9 Claims**

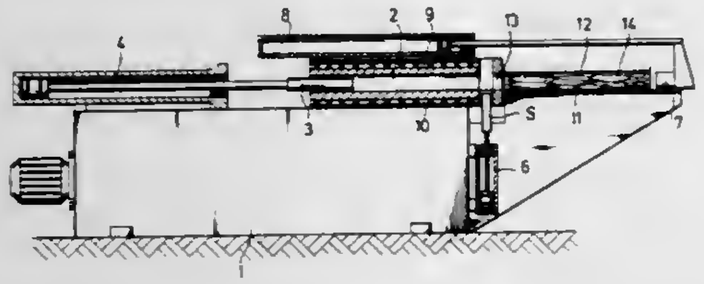


A flexible cryogenic fluid transfer system wherein the fluid conduit is held in spaced relation to the outer flexible hose by an improved support system. The support system is characterized in that a hollow support member surrounding the fluid conduit is provided with a plurality of helicly disposed slotted apertures on its surface. A continuous filament is wrapped around the support member and those portions of the filament in the slotted apertures serve to position and hold the inner fluid conduit.

3,706,209
MEANS FOR PRODUCING DEEP-FROZEN FILLET BLOCKS

Hermann Walter Gehlen, Kaiserslautern/Pfalz; Karl Hartmann, Bremerhaveo, and Gerbard Thieme, Kaiserslautern/Pfalz, all of Germany, assigoors to Eisenwerke Kaiserslautern GmbH, Kaiserslautern/Pfalz, Germany

Filed Feb. 13, 1969, Ser. No. 798,915
Int. Cl. B30b *15/34*
U.S. Cl. 62—341 **4 Claims**

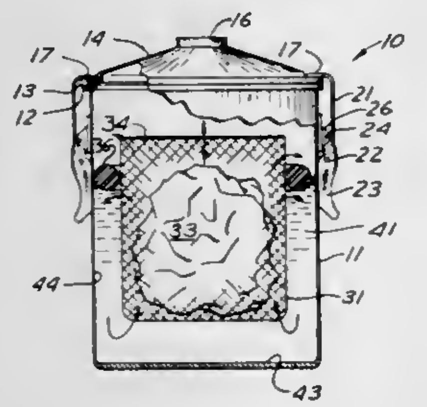


Fillet blocks of fish and other meat are produced by deep-freezing the fresh fillets to be treated and compressing the same while in deep-frozen condition into blocks of predetermined weight and dimension. Apparatus for the carrying into effect the process comprises a deep-cooled compression chamber, a pressure and ejection piston mounted for displacement therein, and a closure piston acting as a closure valve for said chamber, to enable compression of a fillet portion placed in said chamber into a block in the closed position of said closure piston, as well as ejection of the block formed by said pressure piston in the open piston of said closure piston, respectively. A third feeding piston serves to introduce the pre-frozen fillets into the chamber in the open position of the closure piston.

3,706,210
MOBILE WASHING MACHINE

Lester J. Gendron, 106 N. Gateway Drive, Madera, Calif.

Filed Sept. 9, 1971, Ser. No. 161,803
Int. Cl. D06f *35/00*
U.S. Cl. 68—152 **6 Claims**

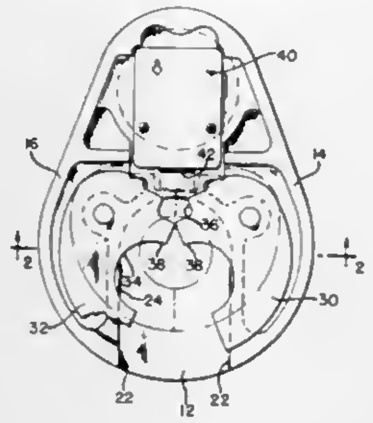


A large outer tub carried on a house trailer, camper or boat contains a smaller mesh basket having a buoyant collar adjacent the upper end to float the basket when the tub is filled nearly to the top with water. Soiled laundry is placed in the basket and after adding to the water a suitable quantity of soap, or the like, the tub lid is tightly closed. As the motor vehicle or boat proceeds on is way, the motion causes the wash water to slosh vigorously. The attendant agitation of the basket relative to the tub and the water which sluices in, through, around and out of the basket effectively dislodges dirt and grime in the laundry. After a few miles, or at its destination, the vehicle or boat can be stopped, the wash water emptied from the tub and the clean contents of the basket removed for drying.

3,706,211
SECURITY DEVICE

Alvin L. Owen, 3244 West Lake Sammamish Parkway N.E., Redmond, Wash., assignor tu Alvin L. Owen, Redmond, Wash.

Filed March 4, 1971, Ser. No. 121,073
Iot. Cl. B60r *25/00;* **F16b** *41/00*
U.S. Cl. 70—232 **4 Claims**

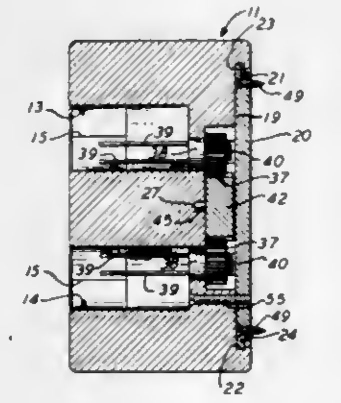


A pair of jaws are mounted in a housing for engagement around the kingpin of a trailer. The jaws when closed may be locked to prevent the removal of the device from the kingpin. The bottom wall of the housing is provided with a guide way to guide the kingpin into engagement with the jaws and the jaws will rest on the head of the kingpin when closed. The housing side walls are deformable to permanently lock the jaws closed if struck by an external force.

3,706,212
LOCK MOUNTED WITH BLIND FASTENERS

Richard E. Middleton, 517 Locust Ave., Hillside, N.J., and Donald Meyer, 26 Willow St., Glen Ridge, N.J.

Filed July 26, 1971, Ser. No. 166,223
Int. Cl. E05b *9/08*
U.S. Cl. 70—369 **9 Claims**

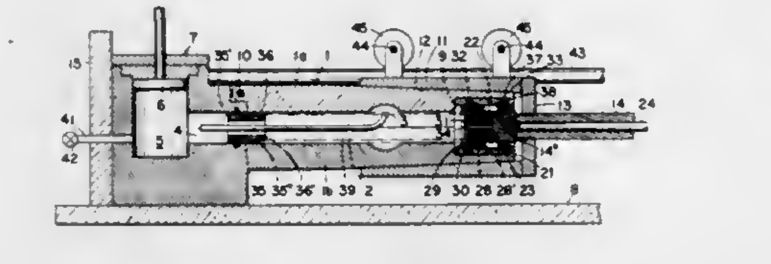


A lock mounted with blind fasteners comprising a mounting plate fastened to a door or door jamb by screws passing through holes in the plate, a lock housing normally covering the mounting plate rendering the fastening screws inaccessable, the housing having a bore to detachably receive a lock core, movable bolt means on the housing operatively connected to the lock core, the bolt means preferably being a flat bar having a rock gear on one edge engaged to a spur gear mounted on the housing and driven by rotation of a first key in the lock core through a pair of connecting pins, the lock core being detachable from the bore in the housing in response to a second key, a second bore in the bottom of the bore in the housing adapted to receive a bolt extending therethrough and engagably in a threaded bore in the mounting plate thereby detachably securing the housing to the plate.

3,706,213
BULGING APPARATUS

Masanobu Nakamura, 2-10-2, Shichirigahama Higashi, Kamakura, Kanagawa, Japan

Filed May 6, 1970, Ser. No. 35,192. The portion of the term of this patent subsequent to Oct. 19, 1988, has been disclaimed.
Int. Cl. B21d *26/04*
U.S. Cl. 72—58 **6 Claims**

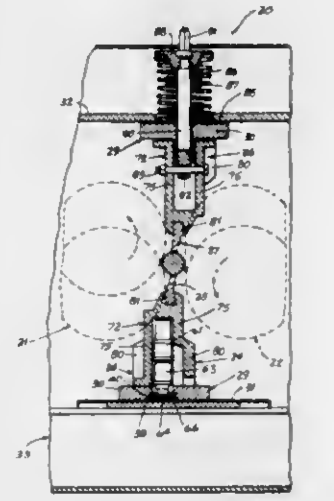


This invention relates to a bulging apparatus in which a horizontal die of split type consisting of upper and lower die members formed with a die cavity inside and tapered on the outside over a certain desirable distance from the front end and which is formed with an inlet port in communication with the piston chamber of hydraulic pressure generating means is associated with an outer cylinder for fastening the die with a tapered hollow adapted to receive the tapered die members together, said outer cylinder being movable horizontally with the axis of the die into and out of engagement with the die body.

3,706,214
ADJUSTABLE GUIDE HOLDER ASSEMBLY

Walter L. Siegerist, Saint Louis, Mo., assignor to Meeco Inc., Saint Louis, Mo.

Filed Nov. 23, 1970, Ser. No. 91,758
Int. Cl. B21b *41/00*
U.S. Cl. 72—99 **13 Claims**

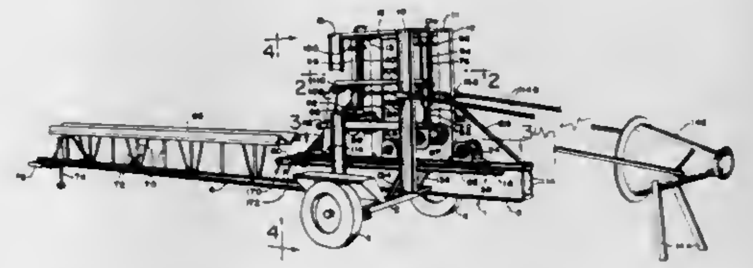


There is disclosed a novel power adjustable guide holder or support for a bar and tube straightening machine. A lower guide holder or support assembly includes an elongated strong base unit comprising a centrally hollow base plate and an integral elongated housing supporting operating parts. A power adjustable cover is disposed over the elongated housing and includes on the top thereof a tapered skewed groove which receives and retains against accidental removal a guide, the upper edge of which is adapted to be engaged by a bar, tube, or the like, being straightened by the machine. The over also prevents scale, coolant, and other foreign matter from falling into and jamming the mechanical operating structure within the guide holder assembly. Hydraulic motors within the housing are selectively actuatable to rotate vertical threaded shafts carrying rider nuts for raising and lowering the ends of the cover to adjust the positions of the retained guides. The elongated base unit is a structural member of sufficient strength to resist the turning forces of a bar as it goes through the machine on top of the guide and yet is narrow enough so that the guide holder does not interfere with the rolls of the machine. The top of the cover is wide enough to permit the skewing of the guide retaining groove, thereby giving additional clearance in respect to the rolls.

3,706,215
ROTARY PIPE STRAIGHTENER

Herbert D. Horton, P.O. Box 6434, Odessa, Tex.

Filed Feb. 19, 1971, Ser. No. 116,767
Int. Cl. B21d *3/04*
U.S. Cl. 72—99 **9 Claims**

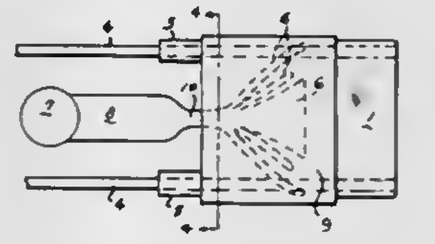


A pipe straightener which utilizes V-shaped upper and lower rollers combined with hydraulic cylinders to apply pressure between alternate V-shaped rollers so as the pipe is moved between the rollers the bends and twists are removed therefrom. By adjusting the top and bottom rollers from a right angle with respect to the pipe up to approximately 45° with the upper rollers being adjusted in opposite angular relation to the lower rollers, pipe may be readily straightened. At least some of the upper rollers and some of the lower rollers are power driven, preferably with hydraulic motors, the conduits of which hydraulic motors are connected in series so that all the rollers will be driven at a uniform speed, with certain rollers being idler rollers. The entire device may be mounted on a structural frame, which in turn is mounted on a trailer axle and may be trailed from place to place, which obviates the necessity of bringing the bent or "cork screwed" pipe to the machine. A V-trough is provided, at one end of the machine, to guide the pipe to and between the rollers and a cone shaped guide is provided at the opposite end for guiding the pipe outward therefrom. The source of hydraulic power is usually furnished by the vehicle towing device, however, a separate and independent hydraulic system, having an outside source of power, may be used, such as a motor or internal combustion engine. Both the upper and lower V-shaped rollers are adjustable to vary the center distances between the rollers to enable the device to be used on pipe of all sizes.

3,706,216
PROCESS FOR REINFORCING EXTRUDED ARTICLES

Joseph L. Weingarteo, 144 Bellaire Aveoue, Dayton, Ohio

Filed Dec. 16, 1970, Ser. No. 98,812
Int. Cl. B21c *23/22;* **B29f** *3/00*
U.S. Cl. 72—258 **8 Claims**



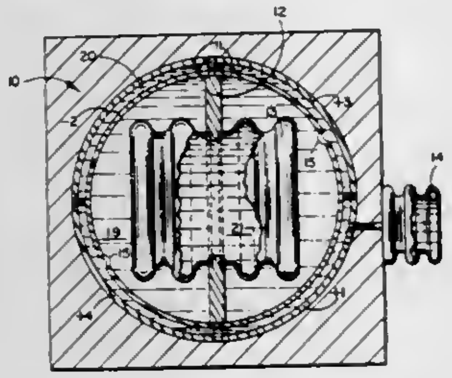
At least one reinforcing member is introduced into a pressure chamber and, from thence, into an extrusion zone through an entry port communicating between the two. Simultaneously, heated extrudent is delivered, from an extruder, to points around the reinforcing member in the extrusion zone where it encompasses the reinforcing member. Continued pressure from the extruder forces extrudent and the encompassed reinforcing member through a die in the front or downstream end of the extrusion zone. Upon emerging from the die the extrudent cools and sets around the encompassed reinforcing member and a reinforced extruded article is the result. The pressure chamber is utilized to prevent extrudent from escaping from the extrusion zone through the entry port provided for the introduction of the reinforcing member. This invention is useful in that it provides a method for incorporating reinforcing members into extruded articles.

3,706,217
ACCELEROMETER

John M. Slater, Fullerton, and Doyle E. Wilcox, Hacienda Heights, both of Calif., assignors to North American Rockwell Corporation

Filed June 10, 1970, Ser. No. 44,967
Int. Cl. G01p *15/08*

U.S. Cl. 73—497 **4 Claims**



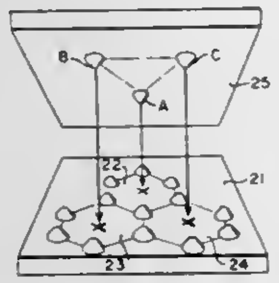
The invention is directed to a three-axes translational, digital accelerometer, comprising a proof mass contained within a cavity which closely surrounds the proof mass with a dampening liquid filling the space between the proof mass and the inner walls of the cavity. The proof mass is constructed and arranged to have a cubical coefficient of expansion substantially the same as that of the dampening liquid so as to minimize any temperature-dependent scale factor changes. Means are provided for detecting departure of the proof mass from a mull position within the cavity under the influence of an acceleration force. Additional means are provided which are responsive to the detected departure of the proof mass from a null position which means are used to force the proof mass towards the null position such that the amount of force required is directly proportional to the acceleration sensed by the proof mass.

3,706,218
PATTERNED DIFFUSE REFLECTING

William B. Elmer, 113 Pinckney Street, Thornton, N.H.

Division of Ser. No. 729,781, May 16, 1968, abandoned. This application May 25, 1970, Ser. No. 48,686
Int. Cl. B21j *13/02*

U.S. Cl. 72—379 **5 Claims**



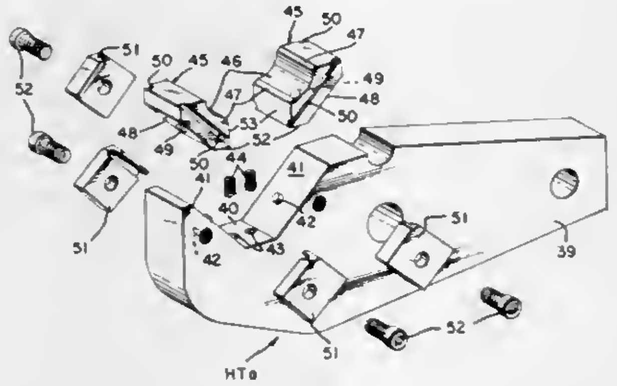
A reflecting surface provides a controlled degree of diffusion by forming a number of generally congruent depressions of predetermined depth and shape. The surface prior to forming the depressions is typically essentially a specular reflecting surface. The depressions may be formed by placing the specular reflecting sheet between two opposed dies having intermeshing projections, each projection typically covering about one-third the area between adjacent projections and of generally pyramidal shape with rounded tops.

3,706,219
CRIMPING TOOL AND DIE ASSEMBLY

Joseph Willard Hoffman, Liverpool, and Henry William Demler, Sr., Lebanon, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 667,461, Sept. 13, 1967, Pat. No. 3,575,036. This application May 21, 1970, Ser. No. 39,410
Int. Cl. B21d *41/00*

U.S. Cl. 72—402 **4 Claims**



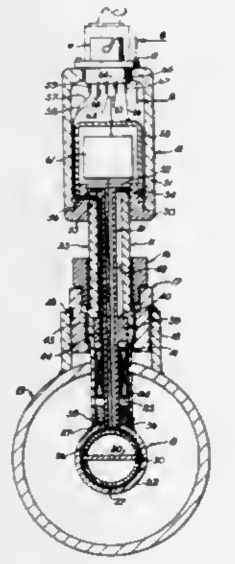
A die assembly comprises opposed carrier members in which pairs of die members are pivotally mounted so that the pairs of die members are disposed opposite each other. Spring means maintain the pairs of die members in positions so that the crimping areas thereof are directed away from each other in a nonoperating position and the crimping areas are moved toward each other upon interengagement of the pairs of die members to define a crimping configuration to be applied to a ferrule when positioned within the crimping areas.

3,706,220
DENSITOMETER

Charles Eveleigh Miller, Boulder, Colo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed March 11, 1971, Ser. No. 123,254
Int. Cl. G01n *9/00*

U.S. Cl. 73—32 **2 Claims**



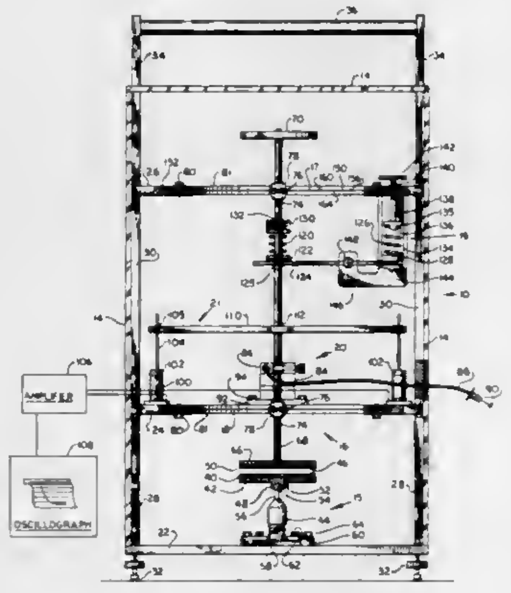
A temperature insensitive vibration densitometer utilizing a thin vibrating vane of Ni Span C, a first cylinder of 416 stainless steel to carry the vane, and a second cylinder outside the first. An interference fit exists between cylinders. The second cylinder is also made of Ni Span C. When the second cylinder thickness is about equal to or somewhat less than that of the first cylinder, the instrument is practically temperature insensitive. The 416 stainless steel has a thermal coefficient of expansion greater than that of the Ni Span C. Even though the relationship of the densitometer resonant frequency to temperature is extremely difficult to analyze, the necessary correction can be made as aforesaid. The invention thus overcame a difficult problem.

3,706,221
PARALLEL-PLATE VISCOMETER WITH DOUBLE-DIAPHRAGM SUSPENSION

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Thomas H. Sauer, 1132 Atlee Drive, La Canada, Calif.; Robert F. Landel, 1027 Sunmore Lane; Robert F. Fedors, 2127 Pinecrest Drive, both of Altadena, Calif., and Harry T. Fearnehough, 158 West Palm Drive, Arcadia, Calif.

Filed May 12, 1971, Ser. No. 142,719
Int. Cl. G01n *11/10*

U.S. Cl. 73—57 **10 Claims**



A parallel-plate viscometer employing an upper optical flat attached to the lower end of a vertical rod axially suspended by a pair of thin, concentrically perforated metal diaphragms and a counter-balance spring system. The upper optical flat is centered and is parallel to a fixed lower optical flat. The upper flat is weighted and lowered until it is just touching a sample placed on the lower flat. The upper flat is then released. The position of the weighted flat as it reduces the height of the sample is recorded, and these recorded values are employed in a mathematical formula to determine absolute viscosity.

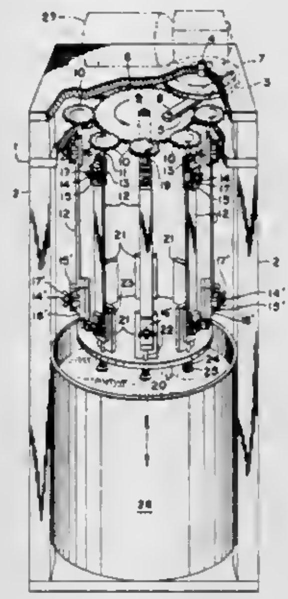
3,706,222
AQUATIC TORSION-FATIGUE TEST APPARATUS

Sydney Smith, Akron; Jerry Donald Hunt, Cuyahoga Falls, and Richard Brotherton Esler, Clinton, all of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed March 24, 1971, Ser. No. 127,692
Int. Cl. G01n *3/32*

U.S. Cl. 73—91 **1 Claim**

The apparatus described herein involves equipment for testing rubber-coated fabrics under stress, twisting and flexing in fluid media corresponding to those to which the material might be subjected while undergoing similar physical abuse in



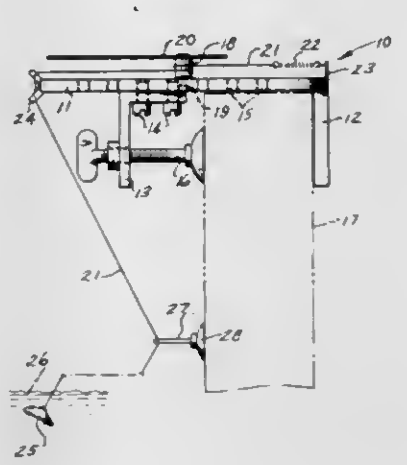
actual use. The test equipment is designed specifically to correlate with field conditions.

3,706,223
SPEED INDICATOR FOR BOATS

Harry R. Dickens, 6915 N. Crestline, Spokane, Wash.

Filed April 5, 1971, Ser. No. 131,227
Int. Cl. G01c *21/10*

U.S. Cl. 73—184 **2 Claims**



A device for indicating speed of a boat in the water. This device includes a clamp for attachment to the hull of a boat and on the clamp is carried a rotatable disc needle or pointer which will indicate the speed of the boat by aligning with the calibrations on the disc portion of the device. The device utilizes the principle of drag upon an object within the water.

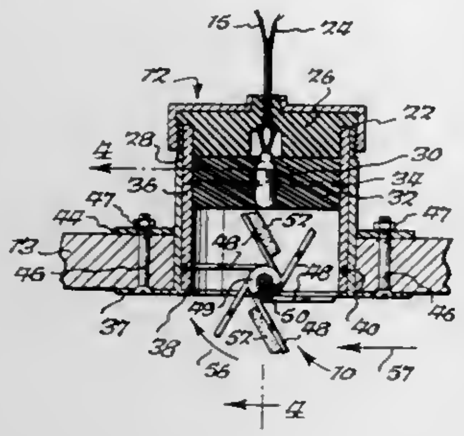
3,706,224
MARINE SPEEDOMETER

Ronald R. Overs, 119 Wickham Drive, Williamsville, N.Y.

Filed Feb. 3, 1971, Ser. No. 112,268
Int. Cl. G01c *21/10*

U.S. Cl. 73—187 **1 Claim**

A low drag impeller wheel mounted in an enclosure which when installed in the hull of a ship will rotate through the force of water acting upon it, and operate magnetically a pulse generating mechanism that through a current responsive instrument will indicate the speed of the vessal.



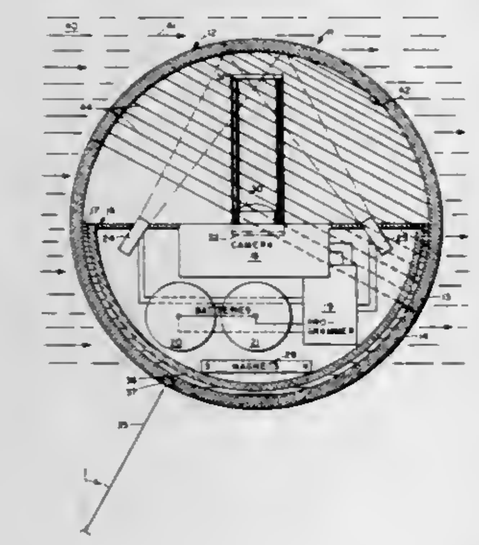
3,706,225

DIRECTIONAL INCLINOMETER

Paul B. Stimson, Falmouth, Mass., assignor to The United States of America as represented by the Secretary of the Navy

Filed Oct. 22, 1970, Ser. No. 82,884
Int. Cl. G01p *5/00*

U.S. Cl. 73—189 **4 Claims**



A device for indicating and recording data representative of direction and degree of inclination of a body or a line or of current direction and velocity by means of a tethered buoyant pendulum is provided. The device includes an outer sphere, one half of which is lined with concentric circles of various colors, and an inner hemispherical chassis which is adapted to float within the outer sphere on a thin layer of liquid between the spheres. The chassis carries photographic equipment and magnets, the former photographing arcs of the concentric circles to indicate current velocity and the latter aligning the chassis so that inclination and direction are indicated by the colors and positions of the arcs photographed.

3,706,226

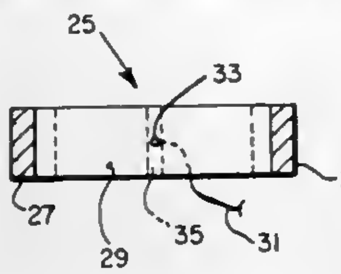
CALORIMETER FOR OBEJCTS OF LOW SOLAR ABSORPTIVITY

Otis G. Kramer, Hawthorne, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed May 5, 1971, Ser. No. 140,400
Int. Cl. G01k *17/00*

U.S. Cl. 73—190 H **1 Claim**

A rectangular calorimeter with a copper body except for an upper surface of constantan foil. To the calorimeter's base is attached a thermocouple and a differential thermocouple wire, and to the upper surface is attached a copper center tap wire. A series of these calorimeters is achieved by attaching each center tap wire to the base of an adjacent calorimeter.



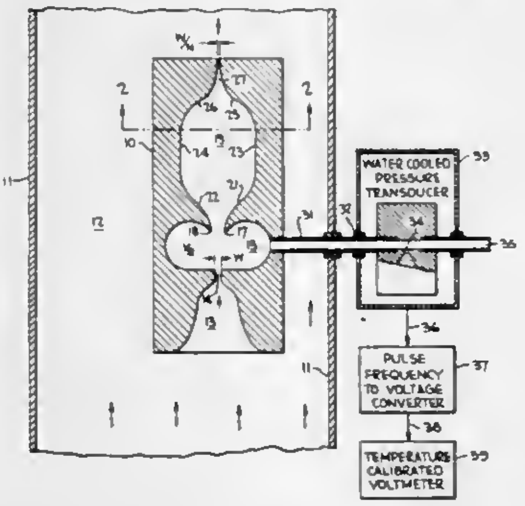
3,706,227

PNEUMATIC THERMOMETER

Richard N. Gottron, Kensingtun, Md., and Wilmer Gaylord, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Army

Filed March 27, 1963, Ser. No. 268,497
Int. Cl. G01k *11/26*

U.S. Cl. 73—339 A **3 Claims**


WATER COOLED PRESSURE TRANSDUCER
PULSE FREQUENCY TO VOLTAGE CONVERTER
TEMPERATURE CALIBRATED VOLTMETER
33
36
34
37
38
39
11
12
10
2
2

A pneumatic thermometer is disclosed having a fluid operated oscillator in which the frequency is sensitive to temperature changes. The oscillator is of an open type and contains a stilling chamber to dampen out the oscillation. The pulses obtainable from the oscillator chambers are fed to a transducer and the output of the transducer is fed to a pulse converter to which a temperature calibrated indicator is connected.

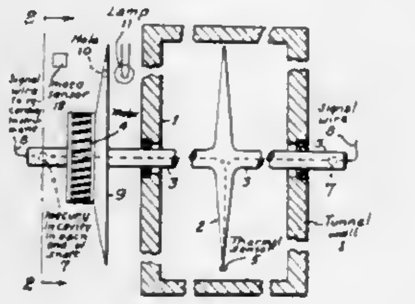
3,706,228

TEMPERATURE AND VELOCITY APPARATUS FOR MOVING FLUIDS

Clarence C. Bush, Bel Air, Md., assignor to The United States of America as represented by the Secretary of the Army

Filed Jan. 5, 1971, Ser. No. 103,974
Int. Cl. G01k *1/14, 7/00, 13/02*

U.S. Cl. 73—343 R **8 Claims**



In order to measure the temperature and velocity of a high speed stream of a gas such as air a temperature sensor is placed on the peripheral area of a disc wheel and the disc is positioned in the path of air flow and is spun until its periphery is traveling at the velocity of the air. The sensor, when moving downstream, has zero velocity with respect to the fast-flowing air and therefore gives a true reading of the air temperature.

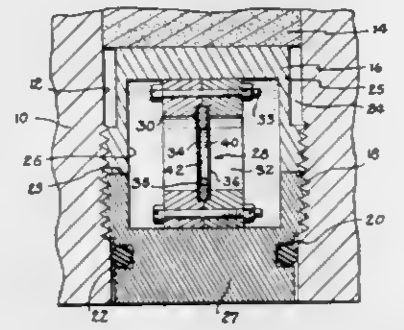
3,706,229

PRESSURE GAGE FOR RECORDING PEAK PRESSURES

Valmore F. De Vost, and John W. Simkins, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Feb. 1, 1971, Ser. No. 111,392
Int. Cl. G01l *7/08*

U.S. Cl. 73—396 **7 Claims**



A pressure gage for recording peak pressures including a pair of pressure responsive flexible diaphragms fixed in a spaced, opposed relationship. One of the diaphragms includes a surface coated with a non-drying dye. The diaphragms are positioned a selectable predetermined fixed distance from each other and are adapted to come into mutual contact upon the application of external pressure. The contact causes an imprint to be formed in the dye of a size proportional to the peak pressure experienced by the gage.

ERRATUM

For Class 73—497 see:
Patent No. 3,706,217

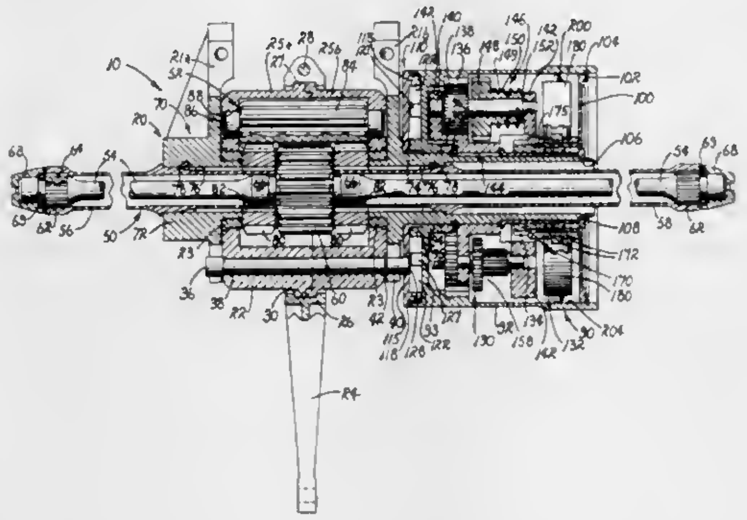
3,706,230

ROTARY ACTUATOR

George M. Low, Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of; Allan R. McDougal, Crescenta, Calif., and Richard L. Moore, Glendora, Calif.

Filed Jan. 5, 1971, Ser. No. 104,048
Int. Cl. F16h *5/40*

U.S. Cl. 74—2 **21 Claims**



A rotary actuator particularly suited for use aboard operative spacecraft for deploying pivotally supported structures such as, for example, solar panels and the like. The actuator is characterized by a torsion bar coupled with a pivotally supported crank arm through a gear cluster in a manner such that the torsion bar continuously applies a constant deployment force to said solar panel, when the solar panel is in a retracted configuration; serves to deploy the panel at a controlled, sinusoidal rate of acceleration; and subsequently supports the panel in its deployed configuration with minimal supporting forces being applied to the panel through a maximum moment arm whereby structural rigidity for the deployed panel is achieved.

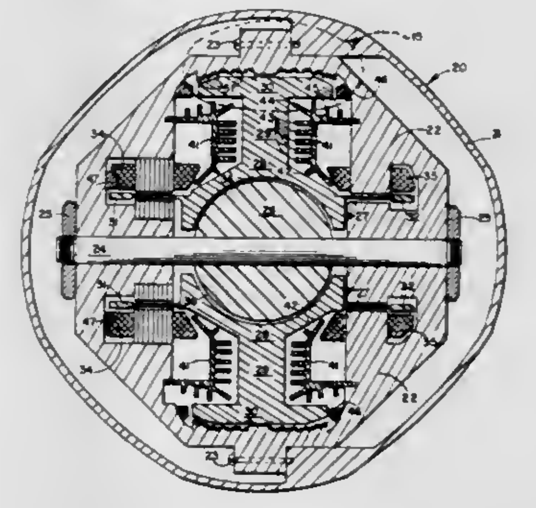
3,706,231

TURBULENCE AND VORTEX SUPPRESSION IN GYROS

Raymond Noar, Bellflower; Robert H. Tuffias, Costa Mesa; Kenneth P. Gow, Whittier, and Thomas A. Drew, Orange, all of Calif., assignors to North American Rockwell Corporation

Filed Oct. 2, 1970, Ser. No. 77,472
Int. Cl. G01c *19/04*

U.S. Cl. 74—5 R **4 Claims**



A gyro in which the rotor operates in a fluid medium generally has a non-laminar flow causing gyro drift and hence inaccuracy. Certain inventive features are built into the structure of the tyro which minimize vortex or turbulent flow in the fluid medium together with minimization of waviness of vortex or turbulent flow, thereby increasing the drift stability of the gyro.

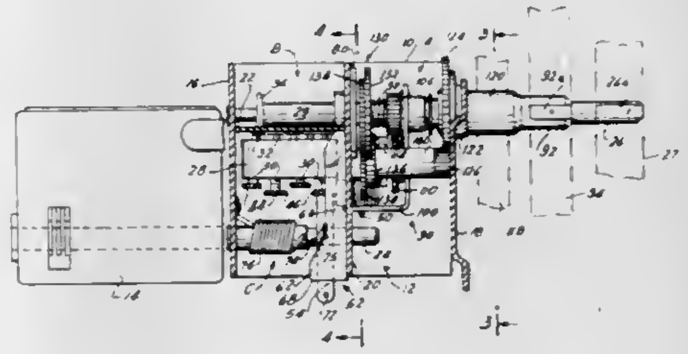
3,706,232

PRESET TUNER WITH IMPROVED TUNING LINKAGE

Alexander Robertson, Springfield, Mass., assignor to General Instrument Corporation, Newark, N.J.

Filed July 2, 1971, Ser. No. 159,349
Int. Cl. F16h *35/18*

U.S. Cl. 74—10.6 **32 Claims**



A preset tuning mechanism of the type having a channel selector drum including a plurality of adjustable tuning projections is provided with a mechanism adapted to operatively disengage the rotor shaft from the selected tuning projection during channel selection. This mechanism includes a ram which is spring biased into contact with the selected tuning projection and operatively connected to the rotor shaft for converting its axial sliding movement into rotary fine tuning adjustment.

The ram is operatively connected to a slide bracket which is provided with a cam follower biased into engagement with a lobe type cam mounted on the channel selector shaft. As the channel selector shaft is rotated the slide bracket is moved downwardly into engagement with the ram thereby in turn to move the ram out of engagement with the selected tuning projection. The drive mechanism for the channel selector drum is also mounted on the channel selector shaft in a manner synchronizing drum rotation with ram actuation. Thus the rotation of the drum occurs only during a dwell stage at which the ram is moved completely clear of the tuning projections, thereby eliminating all relative lateral movement between the tuning projections and the ram.

The second embodiment provides an improved indexing mechanism for the drum comprising a pair of molded toothed ratchet wheels spring biased into meshing engagement. One of the ratchet wheels is mounted on the drum for rotation therewith and the other is spring biased into meshing engagement with the drum wheel by spring means mounted on the chassis. The ratchet wheels may be conveniently converted from six to 12 teeth by a simple machining operation.

3,706,233

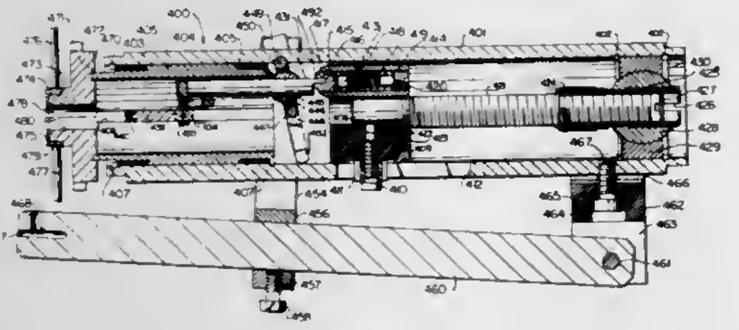
ECCENTRIC MECHANISM FOR CONVERTING A ROTARY MOVEMENT INTO A RECIPROCATING RECTILINEAR MOVEMENT OF VARIABLE AMPLITUDE

Manuel Claude Sanz, Geneva, and Rene Weber, Bern, both of Switzerland, assignors to Micromedic Systems, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 849,025, Aug. 11, 1969, Pat. No. 3,614,896. This application Aug. 19, 1970, Ser. No. 27,217

Int. Cl. F16h *21/16*

U.S. Cl. 74—25 **20 Claims**



A mechanism vehicle converts rotary motion to reciprocal linear or arcuate motion of variable amplitude consisting of a tubular housing having a rotary member therein with longitudinal slots for accomodating a slide piece. A block carrying an offset pivot bearing is mounted in said housing in spaced relation to said rotary member and a crank arm is positioned between said pivot and a lug which is in offset hinged relation to a slide positioned in said slots so that rotation of said crank arm generates a cone. A carrier bearing and assembly translates the rotation of said crank arm into reciprocal linear movement of a pair of slide blocks positioned in slots in said housing. A threaded adjustment member determines the spacing between said rotary member and said block carrying the pivot bearing so as to vary the stroke of the slide blocks in relation to the position of the carrier bearing on the cone generated by rotation of said crank arm.

3,706,234

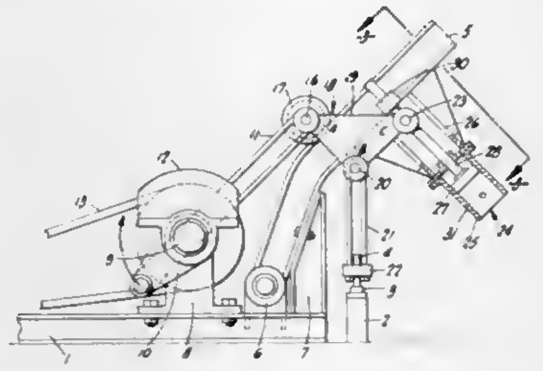
OIL WELL PUMP ACTUATING MECHANISM

Reuben R. Erich, Fayetteville, Ark., assignor to Richard R. Erich, Fayetteville,, Ark., a part interest

Filed Dec. 29, 1970, Ser. No. 102,303

Int. Cl. G05g *1/00*

U.S. Cl. 74—41 **5 Claims**



A mechanical movement characterized by structural mechanism operative to convert reciprocating motion of a crank-actuated connecting rod assembly to straight-line reciprocating motion of another part; the mechanism being especially designed but not limited--for operating the sucker rod of a deep well oil pump.

3,706,235

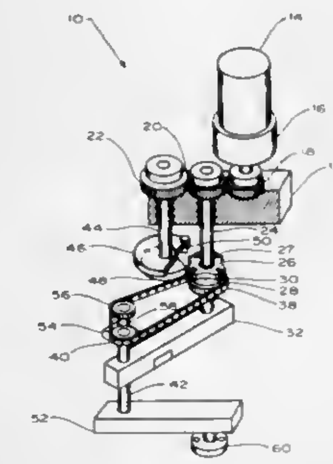
ORTHOGONAL LINE GENERATOR

William E. Duncan, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed March 10, 1971, Ser. No. 122,952

Int. Cl. F16h *27/00*

U.S. Cl. 74—52 **3 Claims**



An orthogonal line generator is provided which comprises a combination of a straight line generator and a geneva mechanism. The straight line generator is a rotating system of two equal length arms. A first or base arm rotates about one of its ends while a secondary arm pivoted on the other end of the base arm rotates in the opposite direction.

3,706,236

TAILGATE WINDOW REGULATOR

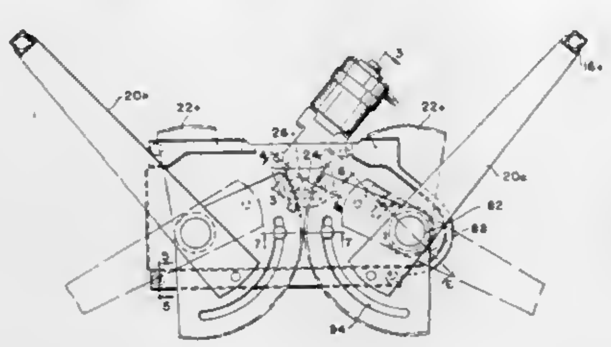
Joseph Pickles, Birmingham, Mich., assignor to Ferro Manufacturing Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 819,035, April 24, 1969, abandoned. This application Nov. 12, 1970, Ser. No. 88,803

Int. Cl. F16h *27/02*

U.S. Cl. 74—89.11 **8 Claims**

A double arm tailgate window regulator comprising a toothed sector for each arm, the sectors being mounted with the toothed portions in minimum clearance condition. A separate drive pinion is in mesh with each sector and said pinions are in mesh with each other. Due to the minimum clearance between the toothed sectors, the pinions are substantially displaced from a line joining the pivot axes of the sectors. One of the pinions is directly connected to a motor through planetary gearing.



3,706,237

DEVICE FOR DRIVING A ROTARY ELEMENT CAPABLE OF DEFORMATION AND OF DISPLACEMENT PARALLEL TO ITS THEORETICAL AXIS OF ROTATION

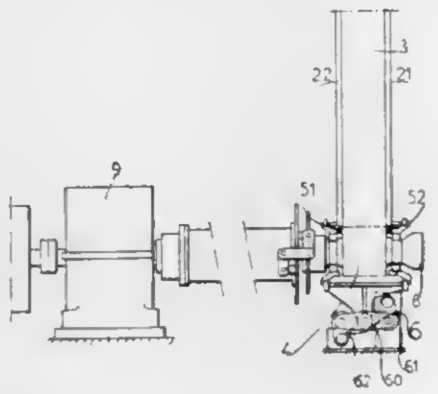
Gerard Pere, Le Breuil, France, assignor to Creusot-Loire, Paris, France

Filed Sept. 28, 1971, Ser. No. 184,557

Claims priority, application France, Jan. 8, 1971, 7100525

Int. Cl. F16h *57/00*

U.S. Cl. 74—410 **7 Claims**



A device for driving a rotary element, more particularly a rotary kiln, capable of deformation and displacement along its axis and comprising a toothed rim driven by a pinion mounted in a housing articulated on a fulcrum and bearing on two cylindrical tracks coaxial with the rim by way of at least one pair of rollers, characterized in that the housing is connected to a fixed block by a member capable of producing displacement of the fulcrum in a direction parallel to the axis of rotation of the kiln, freely following displacements of the kiln.

3,706,238

APPARATUS AND METHOD FOR CONVERTING ROTARY TO HARMONIC RECIPROCATING MOTION

Oliver Duane Johnson, East Brunswick, N.J., assignor to International Business Machines Corporation, Armonk, N.Y.

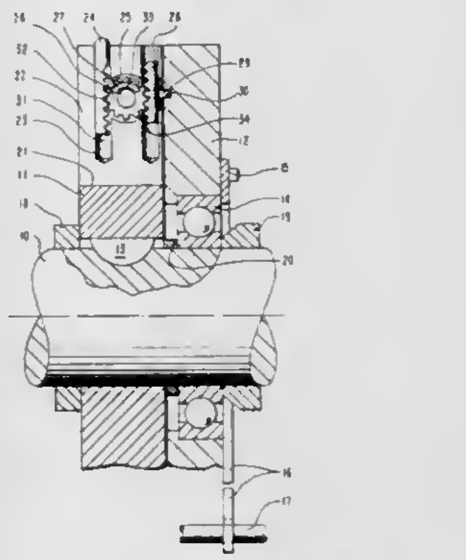
Filed Oct. 28, 1971, Ser. No. 194,081

Int. Cl. B65h *79/00*

U.S. Cl. 74—573 **10 Claims**

As a web or the like passes around a driven roll, a member (e.g., a tractor pin or punch) rotatably carried by the roll at a preselected nominal distance from the roll axis is reciprocated with substantially harmonic motion in a generally radial direction toward and away from said axis by a pendulum-like mechanism having an oscillation frequency that increases as the angular velocity of the roll and hence centrifugal force on the member increases.

The mechanism comprises an oscillatory element having an eccentric mass center or center of oscillation that at the midpoint of the member's reciprocation stroke is farthest from the roll axis. A cam follower preferably couples the element to a stationary cam that encircles the roll and has a follower-receiving groove of a configuration that ensures synchronization of the element so that it will oscillate at a fundamental natural frequency through one or more complete cycles during each successive revolution of the roll despite frictional drag. Driving force exerted by the oscillatory element on the member thus desirably increases as the angular velocity of the roll increases, whereas the load on the cam remains substantially negligible irrespective of angular velocity. This enables operation at very high rotational (and hence reciprocating) speeds that produce centrifugal forces significantly exceeding those possible with prior art arrangements.



3,706,239

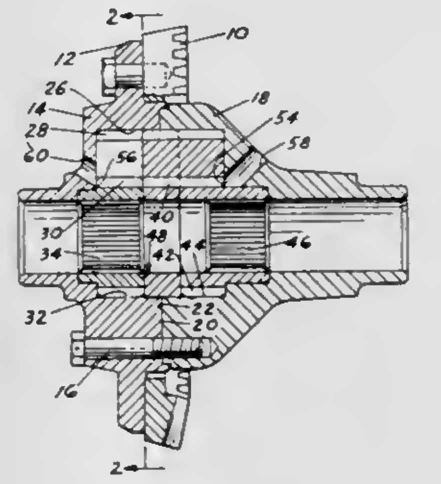
PINION DIFFERENTIAL MECHANISM HAVING INTERNAL BIAS TORQUE

Albert F. Myers, Warren, Mich., assignor to Boise Cascade Corporation, Boise, Idaho

Filed Feb. 9, 1971, Ser. No. 113,899

Int. Cl. F16h *1/38*

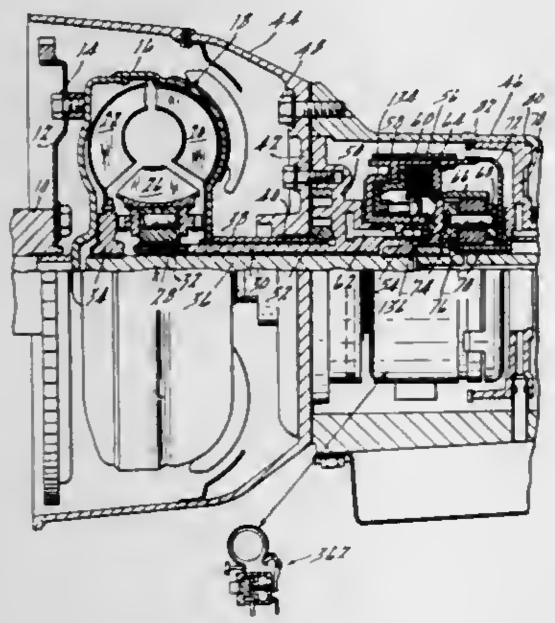
U.S. Cl. 74—715 **5 Claims**

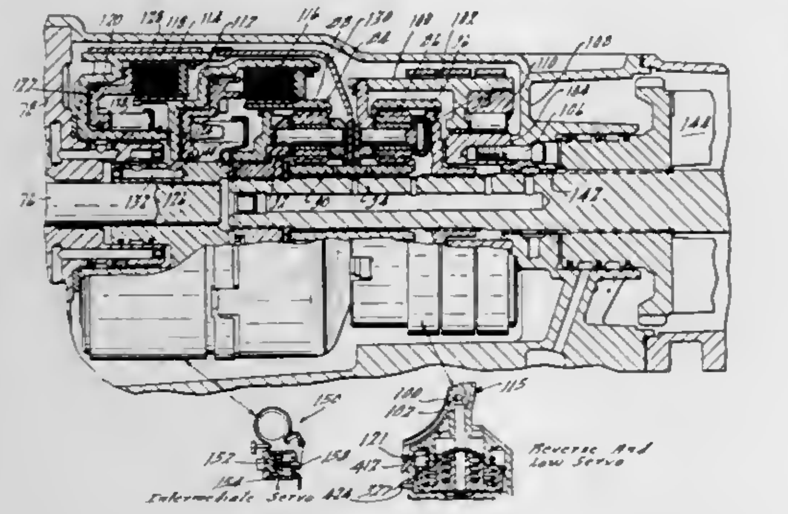


A positive drive differential mechanism for use in the driveline of an automotive vehicle comprising discrete pairs of differential pinions carried by a differential carrier and side gears having a common axis that is parallel to the axes of the pinions, the pinions of each pair being in meshing engagement, one pinion of each pair engaging one side gear and the other engaging a second side gear thereby establishing a double torque delivery path from a ring gear carried by the carrier and each of two axle shafts, each shaft being connected to a separate one of the side gears to the pinions being journaled rotatably in cooperating pinion recesses formed in the carrier, thus providing an outside diameter running fit between the pinions and the carrier and establishing an inherent friction bias torque.

3,706,240
FOUR-SPEED RATIO AUTOMATIC POWER TRANSMISSION MECHANISM

Karl J. Borneman, Detroit; Richard E. Byler; Paul G. Roberts, both of Livonia, and Stepas Smalinskas, Darmouth, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed June 17, 1971, Ser. No. 154,118
Int. Cl. B60k *21/00*; F16h *57/10*
U.S. Cl. 74—869 **4 Claims**



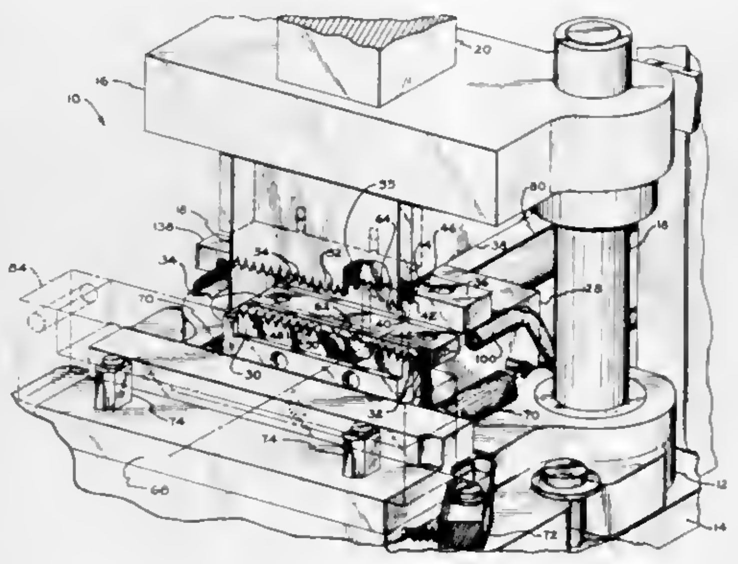


A planetary gear transmission mechanism for an automotive vehicle comprising two simple planetary gear units located in a first transmission housing portion, together with clutch and brake means for establishing three forward driving torque delivery paths with uniformly stepped ratios and a single reverse drive torque delivery path, a third simple planetary gear unit situated in a second transmission housing portion on the torque input side of the pair of gear units whereby each forward driving speed ratio established by the pair of gear units, as well as the reverse drive ratio, may be modified, and clutch and brake means in the second housing portion for controlling the motion of the elements of the third gear unit.

3,706,241
INSULATION STRIPPER FOR RIBBON CABLE

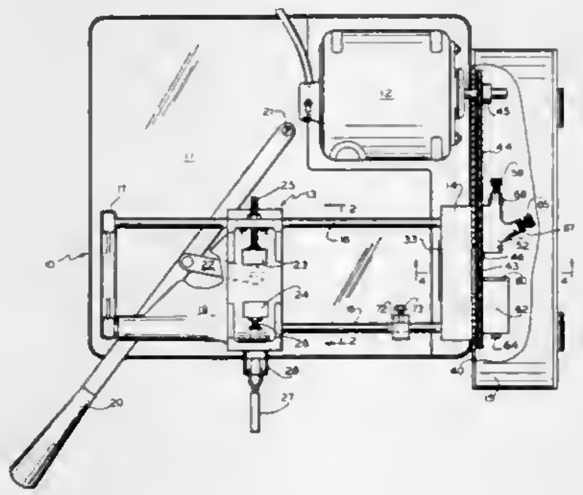
John D. Balmer, New Cumberland, Pa., and Jerry A. Kendall, Garland, Tex., assignors to Berg Electronics, Inc., New Cumberland, Pa.
Filed Oct. 21, 1970, Ser. No. 82,575
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.51 **8 Claims**

Disclosed is an apparatus for stripping the insulation from wires in a ribbon cable. The wires at the end of the cable are positioned between a pair of jaws. The jaws include orienting means for accurately locating the individual wire conductors so that upon closing of the jaws pairs of cutters sever the insulation on the wires without severing the metal conductors. An additional cutter trims the conductor ends. Following closing of the jaws, the cable is pulled from between the cutters to strip the insulation from the trimmed ends of the conductors. Subsequently terminals may be attached to the stripped and trimmed ribbon cable conductors.



3,706,242
ROTARY BLADE CABLE STRIPPER

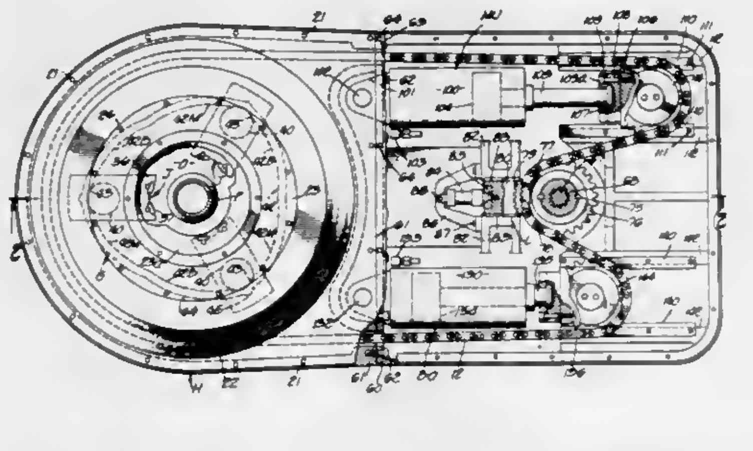
James R. Wright, Pompey, and Ralph E. BeVard, Fayetteville, both of N.Y., assignors to The Eraser Company, Inc., Syracuse, N.Y.
Filed June 7, 1971, Ser. No. 151,471
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.51 **3 Claims**



A machine for stripping the insulation from the ends of heavy wires and cables has a continuously rotating blade which is radially adjustable toward and away from an axially extending hole in the revolving blade carrying member. Means are provided for gripping a cable and advancing it axially through the hole and bushing means are provided in the hole for centering the cable therein. The blade is oscillatably secured on its carrying member so that it can swing away from the hole. Stop means are provided on the carrying member for limiting the swinging of the blade away from the hole so that the blade engages the cable insulation as the cable is fed through the hole and the blade then cuts the insulation when retracting the cable swings the blade inward against the blade carrying member.

3,706,243
REVERSE STOP FOR POWER TONGS

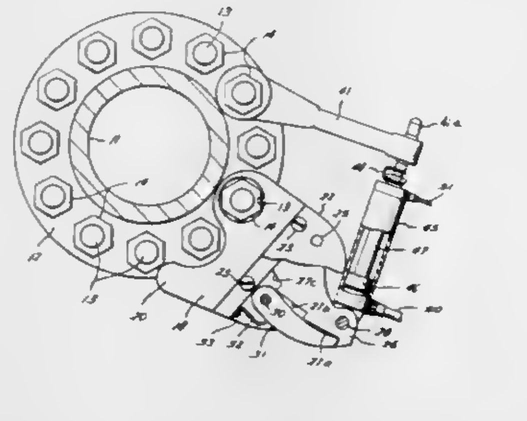
Carl Alfred Wilms, La Habra, Calif., assignor to Byron Jackson, Inc., Long Beach, Calif.
Filed April 16, 1971, Ser. No. 134,661
Int. Cl. B25b *17/00*
U.S. Cl. 81—57.18 **15 Claims**



A power tong for making up and breaking out pipe joints, in which pipe gripping jaws are actuated to pipe gripping positions from retracted positions responsive to relative rotation in either direction between a jaw carrying member and an actuator member, and the jaws are retracted upon reverse relative rotation in the opposite direction, and reverse stop means are provided to prevent reverse relative rotation of said members past the positions at which the jaws are retracted. The reverse stop means includes alternately positionable stops carried by one of the members engageable with alternately spaced stops on the other member to limit reverse relative rotation.

3,706,244
WRENCHING APPARATUS AND METHOD

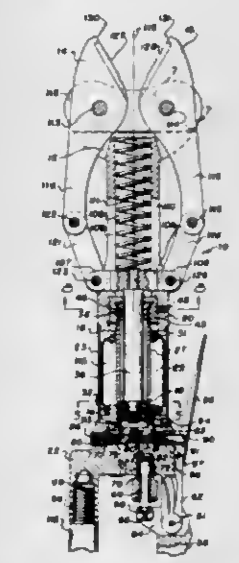
Claude H. Wilmeth, Lafayette, La., assignor to N-S-W Corporation, Houston, Tex.
Filed March 1, 1971, Ser. No. 119,754
Int. Cl. B25b *21/00, 13/00*
U.S. Cl. 81—57.32 **13 Claims**



A wrenching apparatus useful in tightening and loosening threaded connectors such as nuts or bolts which are closely adjacent, including one portion which is arranged for mounting over a nut which is to be rotated and another portion which is arranged for mounting over an adjacent nut and which is arranged to prevent rotation thereof. Means in the form of an hydraulic cylinder is interposed between the two portions which, upon actuation causes rotation of one portion relative to the other and thereby causes rotation of the nut which is being loosened or tightened. The method includes steps of placing a wrench over one of the nuts and an anchor and reaction plate over an adjacent nut and exerting a power force between the two portions, whereby the wrench is rotated thereby turning the first nut.

3,706,245
MANUAL HYDRAULICALLY-OPERATED TOOLS

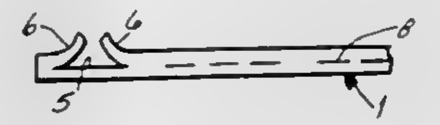
Gerard Van Schaik, Delta, British Columbia, Canada, assignor to Dynamic Tools Ltd., Vancouver, British Columbia, Canada
Filed Dec. 28, 1970, Ser. No. 101,830
Int. Cl. B25b *7/22*
U.S. Cl. 81—301 **13 Claims**



Hydraulically-operated tools for different purposes, and particularly for cutting bars, multi-strand cables, and the like, and including a pair of operating jaws which are operated through a linkage by a hydraulic system and cylinder unit. Handles for the tool are used to operate the piston and cylinder unit as a pump. The tool when made for cutting includes gripping means for firmly holding the article to be cut in correct relationship to the operating jaws. Said jaws are provided with cutting edges, and means is provided for keeping the cutting edges in correct alignment and for preventing the edges from coming together during a cutting action.

3,706,246
PROCESS FOR SLITTING SHEET METAL

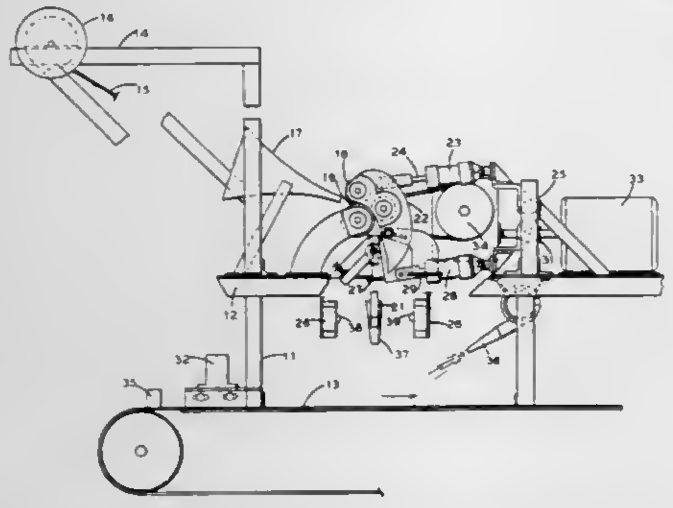
Norval A. Keith, East Alton, Ill., assignor to Olin Corporation, New Haven, Conn.
Division of Ser. No. 5,548, Jan. 26, 1970. This application July 26, 1971, Ser. No. 166,268
Int. Cl. B26d *3/08*
U.S. Cl. 83—7 **5 Claims**



A process and apparatus for slitting sheet metal having a plurality of inflatable fluid passageways therein into strips, each having at least one inflatable fluid passageway which comprises providing sheet metal having at least two sheets pressure welded together in some areas and having a plurality of unwelded areas corresponding to inflatable passageways. The sheet metal contains at least one unwelded area extending within it in a predetermined fixed relationship to the remaining unwelded area, this one unwelded area being a control tube for use in aligning the sheet metal for slitting. The aligning of the sheet metal is achieved by passing it about a locater mandrel which plows open the control tube and fixes the position of the sheet as it enters the slitting assembly. The sheet metal as thus aligned then proceeds into a conventional slitting assembly wherein it is cut into strips. The locater mandrel may be fixed or may be provided with means for adjusting its position relative to the slitting assembly. A second slitting assembly may be employed ahead of the locater mandrel whose purpose is to remove a portion of the strip containing part of the control tube.

3,706,247
INSERT DISPENSER

Frank Emmons Clark, Augusta, Ga., assignor to The Babcock & Wilcox Company, New York, N.Y.
Filed Dec. 4, 1970, Ser. No. 95,184
Int. Cl. B26d *5/34;* **B65h** *35/06*
U.S. Cl. 83—24 **3 Claims**

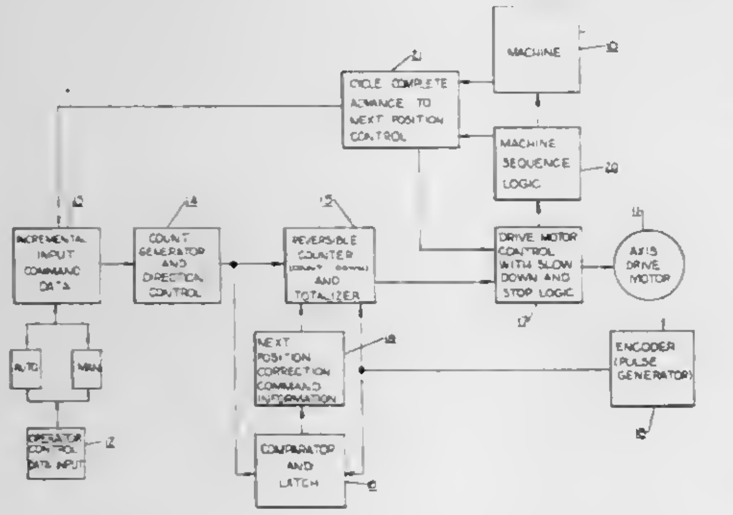


A method of automatically supplying a cushioning sheet to a shaped refractory as an overlay insert prior to packaging so that the sheet functions as a cushion between such items to retard the abrasion of the surfaces thereof during handling and shipment. The web of cushioning material is cut in a predetermined length in response to the presence of an item at a predetermined location relative to a cutting station. Also, the web of cushioning material is fed to the cutting station in response to the free-fall travel of a severed sheet in an intersecting course with that of a shaped refractory moving along a conveyor at a predetermined velocity.

An apparatus for the aforesaid function wherein the feed and cutting are sequentially responsive to a plurality of sensing means, one of which is mounted intermediate a drag means and the shaped refractory to actuate feed and the other of which is mounted at a specified location relative to the cutting station adjacent the conveyor in order to actuate cutting.

3,706,248
NUMERICAL CONTROL APPARATUS FOR A SHEAR

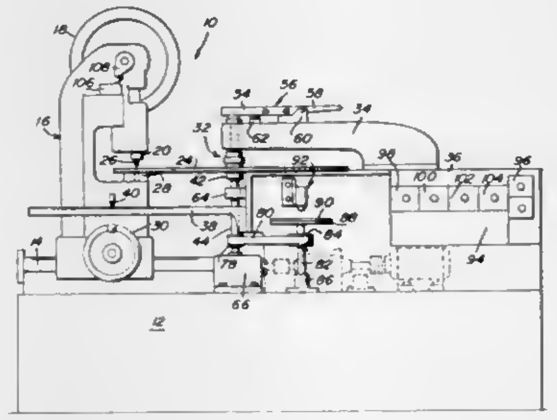
John J. Erhart, Cincinnati, Ohio, assignor to Cincinnati Incorporated, Cincinnati, Ohio
Filed Jan. 4, 1971, Ser. No. 103,640
Int. Cl. B26d *5/00*
U.S. Cl. 83—74 **3 Claims**


CYCLE COMPLETE ADVANCE TO NEXT POSITION CONTROL
MACHINE
MACHINE SEQUENCE LOGIC
INCREMENTAL INPUT COMMAND DATA
COUNT GENERATOR AND DIRECTIONAL CONTROL
REVERSIBLE COUNTER AND TOTALIZER
DRIVE MOTOR CONTROL WITH SLOW DOWN AND STOP LOGIC
AXIS DRIVE MOTOR
AUTO
MAN
OPERATOR CONTROL DATA INPUT
NEXT POSITION CORRECTION COMMAND INFORMATION
COMPARATOR AND LATCH
ENCODER (PULSE GENERATOR)

A numerical control for a shear, making it possible to perform accurately, and without cumulative error, a sequence of cuts on a work piece. Sequence data is entered into an electronic circuit which generates a series of order pulses representative of the data input, and transmits these pulses to a totalizer and to a comparator and to the drive for the gauge bar. Feed back data from the gauge bar, in terms of a series of pulses representative of actual movement of the gauge bar is sent back to the totalizer and to the comparator. Theoretically, when the number of feed back pulses equals the number of order pulses, the gauge bar drive stops. The excess or deficiency in pulses fed back to the comparator with respect to the number of order pulses, is imposed on said order pulses for the succeeding order, to decrease it if the preceding order was overshot, or reduce it if the previous order was undershot, thereby preventing accumulation of errors.

3,706,249
PROGRAMMED CONTROL SYSTEM FOR PUNCHING MACHINE

Samuel R. Bruckner, Washington, Pa., assignor to Xetca, Inc.
Filed March 30, 1970, Ser. No. 23,831
Int. Cl. B26d *5/34*
U.S. Cl. 83—69 **8 Claims**

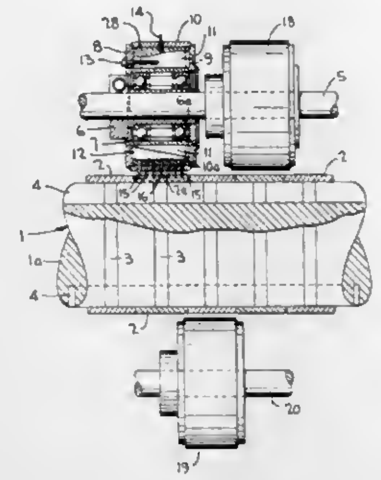


A workpiece is continuously indexed relative to a cyclically operable punch, programmed by a pattern control system to automatically control punch operations. A code pattern wheel is intermittently advanced while operation of the punch is interrupted, to generate pulse signals that space the locations on the workpiece at which punch operations are performed.

3,706,250
PERFORATING MECHANISM

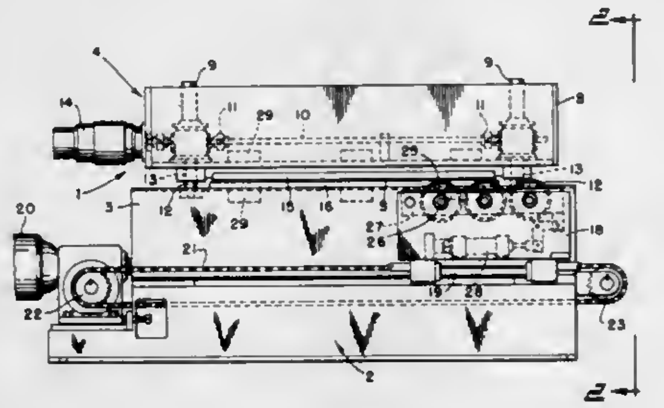
Joseph Herd, Munster near Dieburg, Germany, assignor to Maschinenfabrik Goebel GmbH, Darmstadt, Germany
Filed June 18, 1971, Ser. No. 154,444
Claims priority, application Germany, June 18, 1970, P 20 29 863.9
Int. Cl. B26f *1/00*
U.S. Cl. 83—345 **10 Claims**

A perforating mechanism for simultaneously perforating a web of material both longitudinally and transversely includes a revolving matrix roller and a plurality of discs carrying perforation pins which cooperate with holes in the matrix roller for the purpose of perforating a web of material therebetween. After the pins have worn down, they can be reground and adjusted.



3,706,251
SHEARING APPARATUS

Donald J. Wheeler, Kent, and Victor Lohrenz, Bedford, both of Ohio, assignors to said Wheeler, by said Lohrenz
Filed April 17, 1970, Ser. No. 29,430
Int. Cl. B26d *7/02, 1/20*
U.S. Cl. 83—456 **13 Claims**

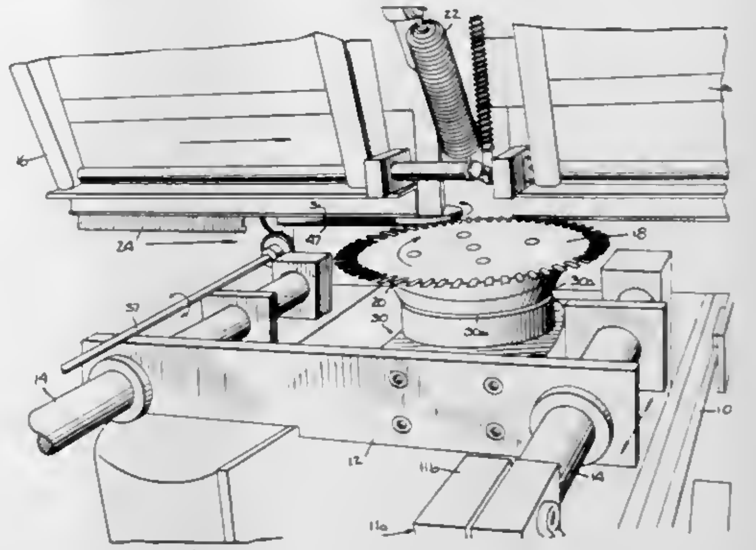


Shearing apparatus includes a tranversely movable shear assembly having a plurality of shear blades mounted thereon which shear strip material during traversal thereof with very little or no bending of the strip material. The relative vertical positions and depth of cut of the shear blades may be controlled to vary the amount of force and number of passes required to shear the strip material. Where plural passes are required, the transversely movable shear assembly is progressively advanced toward the strip material during each pass to progressively shear the material.

3,706,252
BOOK CUT-OFF SAW

Thomas B. Hawkes, and Richard B. Hawkes, both of Easton, Pa., assignors to Harris-Intertype Corp., Cleveland, Ohio
Filed July 17, 1970, Ser. No. 55,703
Int. Cl. B26d *1/14*
U.S. Cl. 83—470 **7 Claims**

A cut-off saw for cutting through the signatures of a book transversely to the plane of the signatures when the book is clamped firmly together. The cutting element of the saw is a thick rotatable disc having a number of blades mounted on the periphery thereof and extending outwardly therefrom in the plane of the disc. Each of the blades has a relief in its leading edge, a side rake extending toward its trailing edge, and a bevelled end portion extending radially inwardly toward its trailing edge. There is provided a slidably supported plate which can be positioned adjacent to the path of travel of the blades in order to serve as an anvil against which the blades can shear the paper.

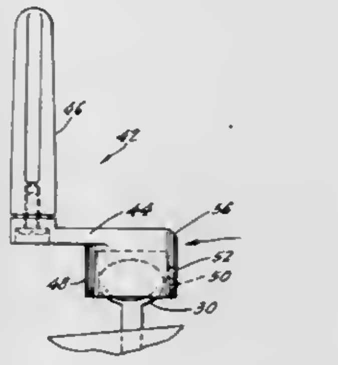


3,706,253

Patent Not Issued For This Number

3,706,254
GUITAR SERVICING TOOL

Van Morin, Hollywood, Calif., assignor to Astro Music Company, Inc., North Hollywood, Calif.
Filed April 25, 1972, Ser. No. 247,484
Int. Cl. G10g *7/00*
U.S. Cl. 84—458 **3 Claims**

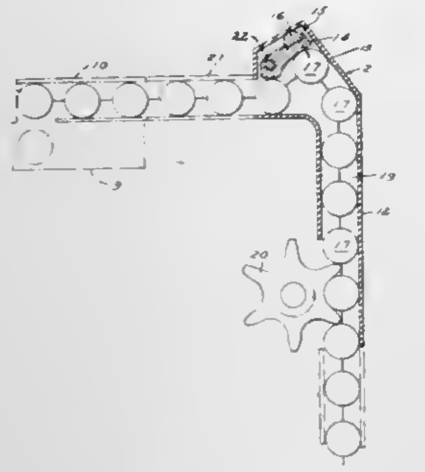


A plastic guitar servicing tool in the form of a crank with a rotatable handle, the remote end of the arm of which is configured to provide a receptacle for the key by which each guitar string may be tightened or loosened, the wall of one end of the receptacle being notched to enable such end also to be used to pry out the pegs adjacent the bridge of the guitar, by slipping such notched end under the head of each peg and employing the tool as a lever to effect such prying.

3,706,255
AMMUNITION BOOSTER

Roland A. Magnuson, Seattle, Wash., assignor to The United States of America as represented by the Secretary of the Army
Filed Aug. 20, 1970, Ser. No. 65,558
Int. Cl. C06b *21/02;* **F42b** *33/10*
U.S. Cl. 86—1 **7 Claims**

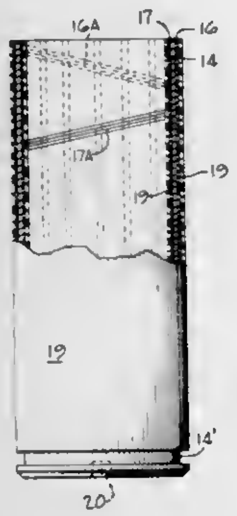
A feed mechanism which comprises a rigid booster chute having an angular bend, a stop plate, having an upper side, inserted in the angular bend so as to form a 90° corner around



which ammunition rounds cannot be pushed by a booster mechanism alone; and a bumper attached to the side whereby the bumper and stop plate are inserted into the angular bend of the rigid booster chute to absorb impact energy of ammunition rounds which strike the stop plate during passage through the angular bend without damaging a weapon by feeding directly into it.

3,706,256
METHOD OF MAKING AMMUNITION

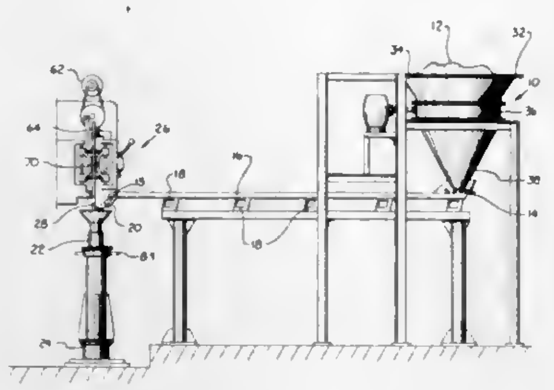
Andrew J. Grandy, 2707 Grant Avenue, North Hills, Pa.
Division of Ser. No. 740,141, June 26, 1968, Pat. No. 3,566,792. This application Oct. 15, 1970, Ser. No. 80,850
Int. Cl. C06b *21/02;* **F42b** *33/10*
U.S. Cl. 86—1 **3 Claims**



The method of making ammunition in which a steel metal skeleton is blanked or stamped to provide a central hub and radially extending fingers. The fingers are then formed to extend in a direction normal to the hub and in a peripherally spaced relationship with each other. The blanked and formed skeleton is laminated with a reinforced plastic material and the ends of the laminated fingers are necked. A primer is seated in the hub, a projectile is secured and sealed to the laminated fingers, and the laminated skeleton is loaded with propellants.

3,706,257
APPARATUS FOR PACKING A NONFLUENT COMPOSITION

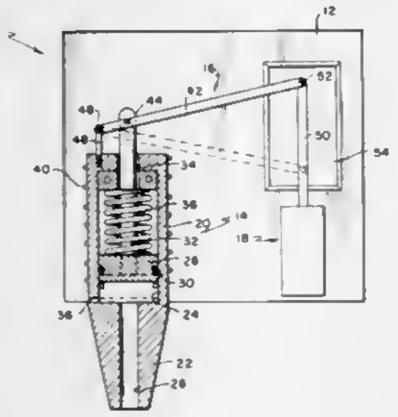
Joel Collman, Roy, Utah, assignor to Thiokol Chemical Corproation, Bristol, Pa.
Filed May 11, 1970, Ser. No. 36,295
Int. Cl. C06d *1/08;* **F42b** *3/00*
U.S. Cl. 86—20 R **6 Claims**



A crumbly, tacky, nonfluent mass is first separated into small segments by a shredding plate operating against the mass; these segments are then formed into firm, rounded, fluent pellets by a vibrating conveyor and dispensed into a tubular case, where they are tamped into a solid mass by a reciprocating, self-adjusting tamping rod, the case being supported on a rotating table.

3,706,258
ENVIRONMENTAL SAFE AND ARM DEVICE FOR IGNITER FOR ROCKETS AND MISSILES

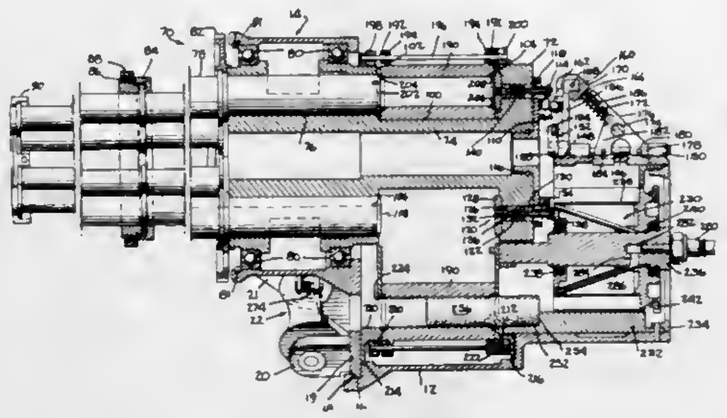
Emanuel Edward Katcher, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Navy
Filed Jan. 25, 1971, Ser. No. 112,491
Int. Cl. F41l *3/04*
U.S. Cl. 89—1.812 **1 Claim**



A safety switch and arming device used on the igniters of aircraft carried rockets and missiles. The device utilizes a pitot tube to sense when the launching ship has reached a minimum safe launch speed. At that point the switch in the igniter circuit is closed and the ordnance can be launched.

3,706,259
MULTIBARREL AUTOMATIC WEAPON

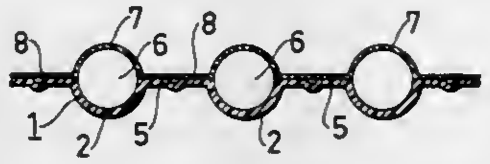
Eugene Ashley, Burlington; Douglas P. Tassie, Williston, and James M. Seemann, Burlington, all of Vt., assignors to General Electric Company
Filed March 10, 1970, Ser. No. 18,099
Int. Cl. F41d *7/02*
U.S. Cl. 89—12 **9 Claims**



A Gatling type gun having a plurality of barrels fixed in a rotor, and an endless chain of separable chambers passing along a path around said rotor into and out of alignment with said barrels, and means for rigidly controlling the movement of said chambers along said path.

3,706,260
CARTRIDGE BELT

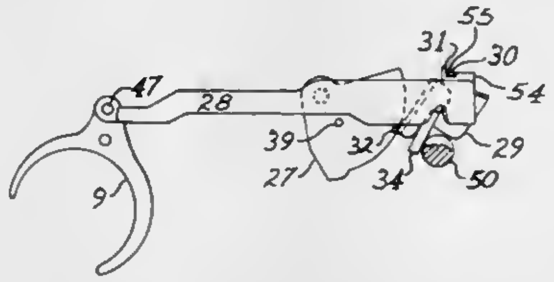
Gad Anders Rausing, Lund, Sweden, assignor to Ladco Enterprises Limited, Hamilton, Bermuda
Filed March 12, 1970, Ser. No. 19,045
Claims priority, application Sweden, March 17, 1969, 3623/69
Int. Cl. F42b *39/08*
U.S. Cl. 89—35 R **3 Claims**



A cartridge belt for automatic firearms includes a plastic strip having transverse, spaced grooves for receiving the cartridges, the central transverse portions of the areas of the belt between the grooves being molecularly oriented to permit hinging of the belt without deformation of adjacent portions of the belt so as to improve flexibility of the belt.

3,706,261
FIREARM

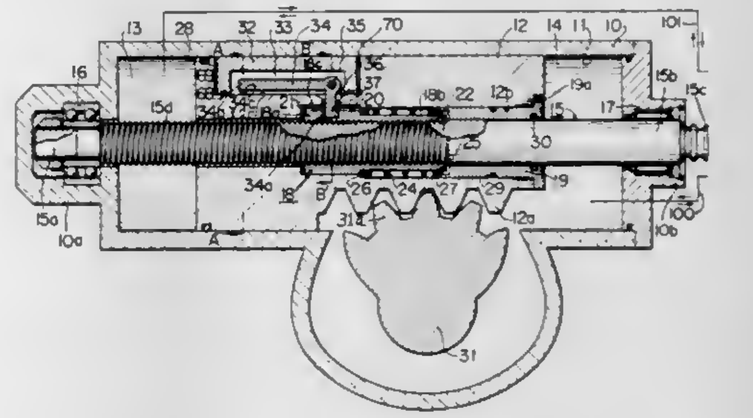
Gary Wilhelm, 55 Kelly Road, Hamden, Conn.
Division of Ser. No. 766,380, Oct. 7, 1968, Pat. No. 3,614,908. This application April 5, 1971, Ser. No. 90,223
Int. Cl. F41c *19/00*
U.S. Cl. 89—154 **2 Claims**



Shown in a toggle action recoil operated semiautomatic pistol is a sear bar mounted on the side of the removable unitary action assembly, connecting the channel shaped sear of the assembly with the trigger mounted in the frame. The front end of the sear bar encircles a stud pin projecting laterally from the trigger and when the action assembly is encased in the pistol frame it is prevented from slipping off the pin by a set screw threaded through the outer wall of the frame. At its rear end the sear bar is U shaped at right angles to its length with a stud projecting therefrom parallel with the sear supporting pin. A double torsion spring acting on the sear and the sear bar stud operably connects the sear bar to the sear.

3,706,262
POWER STEERING MECHANISM

Hideo Inose, Kariya, Japan, assignor to Aisio Seiki Kabushiki Kaisha, Aichi Pref., Japan
Filed Nov. 25, 1970, Ser. No. 92,752
Claims priority, application Japan, Nov. 27, 1969, 44/95572; Nov. 27, 1969, 44/95573
Int. Cl. F15b *9/10*
U.S. Cl. 91—378 **7 Claims**

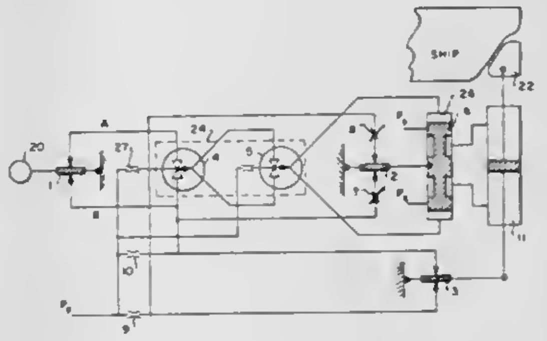


This invention relates to a vehicle wheel power steering mechanism, especially to one having a reciprocal piston member of the type in which a control spool valve means is fitted within the body of the piston member.

The improvement comprises an arrangement in which the valve means is connected hydraulically with a liquid supply and discharge means arranged outside of the mechanism proper, and with hydraulic operating chambers formed at both ends of a main operating piston contained within a cylinder bore of the mechanism proper for slidably receiving said piston. The valve means is fitted within the body of said piston, and a motion multiplier for magnifying the transmitting movement of a threaded member movable in response to a spindle upon manual actuation of a vehicle steering wheel to said valve means is also fitted in a space formed within said piston.

3,706,263
FLUIDIC STEERING CONTROL

Guy L. Johnson, Annapolis, Md., assignor to The United States of America as represented by the Secretary of the Navy
Filed Sept. 25, 1970, Ser. No. 75,594
Int. Cl. F15b *13/16*
U.S. Cl. 91—388 **2 Claims**



A fluidic control apparatus for controlling the displacement and speed of a ship's rudder (or diving planes) from a remotely located control wherein the amount and the speed of the displacement of the rudder is proportional to the input control.

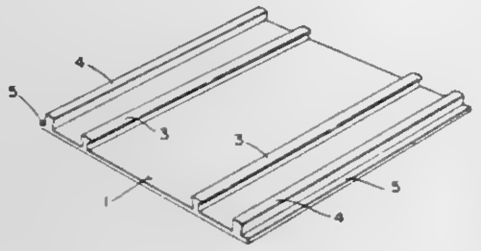
3,706,264
JOINTED CONCRETE STRUCTURES

Joho Hurst, Westminster, London S.W.1, England, assignor to W. R. Grace & Co., New York, N.Y.

Division of Ser. No. 731,374, May 23, 1968, Pat. No. 3,578,733. This application Nov. 14, 1969, Ser. No. 58,752

Int. Cl. E01c *11/02*

U.S. Cl. 94—17 **4 Claims**



Concrete is cast with a dummy joint sealed by a flexible waterstop embedded by keying formations into the concrete, by a method in which a crack is formed as the dummy joint, a crack-inducing body, e.g., a piece of wood being fixed in position, e.g., by spring clips, opposite the center line of each waterstop. The invention also includes a novel assembly of a waterstop and a spring clip for holding the crack-inducing body.

3,706,265
PHOTOGRAPHIC APPARATUS FOR FIRING A PLURALITY OF FLASH LAMPS

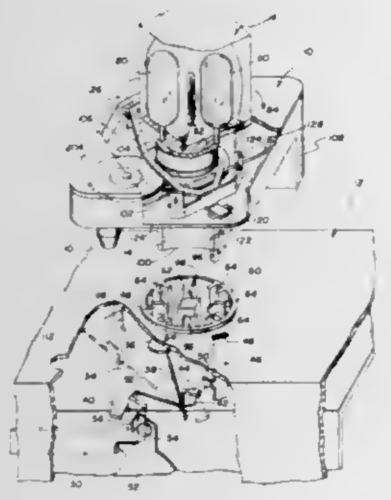
Horst Simon, 7012 Fellbach near Stuttgart, Schorndorf, and Franz Kirpal, 7060 Schorndorf, both of Germany, assignors to Eastman Kodak Company

Filed June 1, 1971, Ser. No. 148,674

Claims priority, application Germany, June 4, 1970, G 70 20 952.8

Int. Cl. G03b *17/48*

U.S. Cl. 95—11 L **7 Claims**



Photographic apparatus for simultaneously firing more than one flash lamp. The apparatus is preferably an adapter receivable by a camera of the type adapted to fire a single mechanically fireable lamp. The adapter has a rotatable socket for receiving a multilamp unit and an actuating mechanism which actuates more than one flash lamp at substantially the same time in response to receipt of mechanical force from the camera flash actuating device. For use with cameras having a rotatable socket, the adapter includes a rotatable socket and a coupling mechanism for rotating the adapter socket 180° in response to rotation of the camera socket through 90°.

3,706,266
CAMERA OPERATING WITH PREPARATORY AND SYNCHRONOUS LIGHT

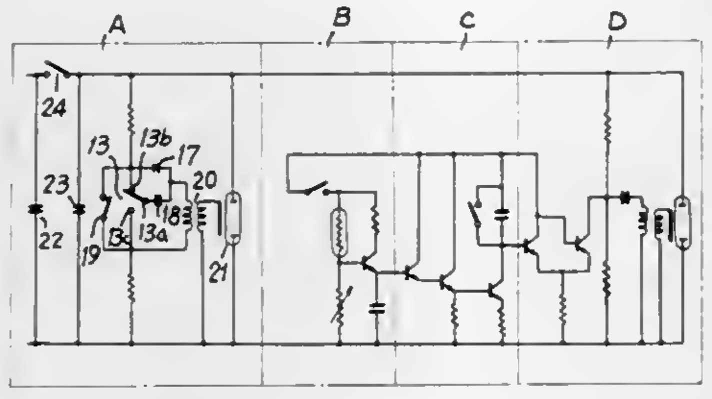
Naoyuki Uno, Saitama-ken, and Seijiro Tokutoml, Fujisawa, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Continuation-in-part of Ser. No. 42,387, June 1, 1970. This application May 26, 1971, Ser. No. 146,917

Claims priority, application Japan, June 8, 1970, 45/49278

Int. Cl. G03b *19/00*

U.S. Cl. 95—11 L **11 Claims**



A single lens reflex camera having a light source energized first by preparatory controls to provide preparatory light and then by synchronous controls to provide synchronous light. The synchronous light is used during actual exposure while the preparatory light is used in the determination of the extent of actual exposure. Just prior to actual exposure a reflector is moved from a viewing position where it directs an image of the object to the viewfinder to an exposure position in which it is located during actual exposure. The preparatory controls for energizing the light source to provide preparatory light are actuated just prior to displacement of the mirror from its viewing to its exposure position, so that the determination of actual exposure with the preparatory light takes place immediately prior to the actual exposure.

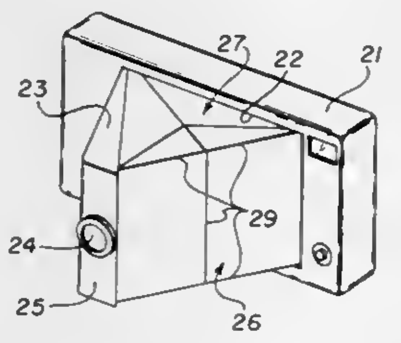
3,706,267
CAMERA BELLOWS

Donald M. Harvey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 18, 1971, Ser. No. 154,533

Int. Cl. G03b *17/04*

U.S. Cl. 95—39 **11 Claims**



A bellows structure for use in a photographic camera of the type having a lens supporting door hinged at one end to a main housing. The bellows preferably is molded as a single piece of plastic including integrally formed end frames for attaching the bellows to the housing and door. Stiffening panels are provided at selected locations for controlling fold lines, increasing the thickness of light barriers, and adding structural rigidity.

3,706,268
PHOTOGRAPHIC APPARATUS

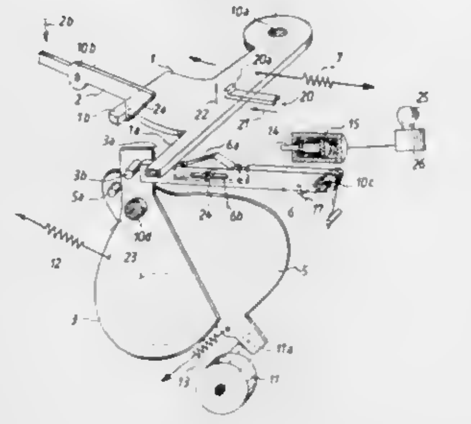
Dieter Eogelsmann, 8025 Unterhaching; Hubert Hackenberg, 8 Munich 21, and Karl Deeg, 8025 Unterhaching, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed July 28, 1971, Ser. No. 166,911

Claims priority, application Germany, July 30, 1970, P 20 37 966.2

Int. Cl. G03b *9/10, 15/05*

U.S. Cl. 95—53 R **10 Claims**



The shutter of a still camera is normally held in a closed and cocked position by a lever which is biased by a torsion spring to bear against a pivotable impeller. The latter can be cocked by the film transporting mechanism and is normally held in the cocked position by the camera release member. When the release member permits the impeller to move to its uncocked position, the latter strikes against the pin of a piezoelectric device to thereby fire a flash lamp or an electronic flash for artificial illumination of the subject. The lever is provided with an adjustable cam which is located in the path of movement of the impeller to its uncocked position so that the impeller engages the cam and disengages the lever from the shutter. The shutter opens a preselected interval of time ahead of the generation of artificial light, and the length of such interval is determined by the distance between the uncocked position of the impeller and that intermediate position in which the impeller engages the cam to disengage the lever from the shutter.

3,706,269
AUTOMATIC DIAPHRAGM DEVICE FOR INTERCHANGEABLE LENS FOR SINGLE LENS REFLEX CAMERA

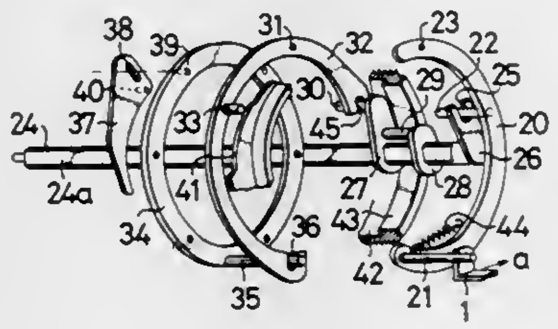
Kyozo Uesugi, Osaka Prefecture, Japan, assignor to Minolta Camera Kabushiki Kaisha, Minamiku, Osaka, Japan

Filed March 15, 1971, Ser. No. 124,131

Claims priority, application Japan, April 2, 1970, 45/32443

Int. Cl. G03b *9/07*

U.S. Cl. 95—64 B **3 Claims**



A rod **24** pivots inside a lens barrel. Movement of level **1** by depressing the shutter release allows link **20** to pivot. Pin **22**, fixed on the link drives lever **26** to pivot rod **24**. Lever **27** slides along rod **24** as the lens is extended but is fixed to move pivotably with the rod. to drive a second link **32**. The diaphragm blades are mounted on ring **34** which is rotated by the second link **32** through pin **35**. Cam **41** limits the travel of link **32** in accordance with the pre-set f-stop.

3,706,270
PRESSURE CONTROL SYSTEMS

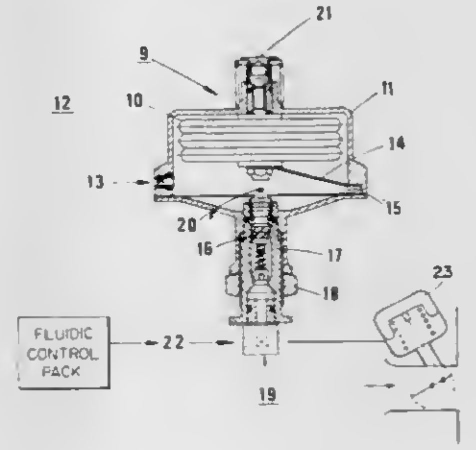
Owen Desmond Furlong, East Coker, England, assignor to Westland Aircraft Limited, Yeouil, Somerset, England

Filed Nov. 10, 1970, Ser. No. 88,377

Claims priority, application Great Britain, Dec. 9, 1969, 59,982/69

Int. Cl. B64d *13/04*

U.S. Cl. 98—1.5 **11 Claims**



In or for an enclosure pressure control system of the type wherein enclosure pressure varying means are operated by fluid pressure signals from a fluidic control pack, a fluid pressure controller or emergency pressure controller comprises an aneroid type capsule operating a valve at a preselected enclosure pressure to bleed away excess fluid pressure signals which would normally operate the pressure varying means, thereby maintaining a controlled pressure within the enclosure should malfunction of the normal fluidic control system occur. The capsule is in a closed chamber which communicates with the enclosure atmosphere through a resistive orifice, and the path of the bled pressure fluid passes through the chamber, whereby the resistive orifice introduces a negative feedback signal. The capsule is supported in the chamber by a spring loaded plunger which is manually actuatable from the exterior of the chamber to provide for ground tests of the device.

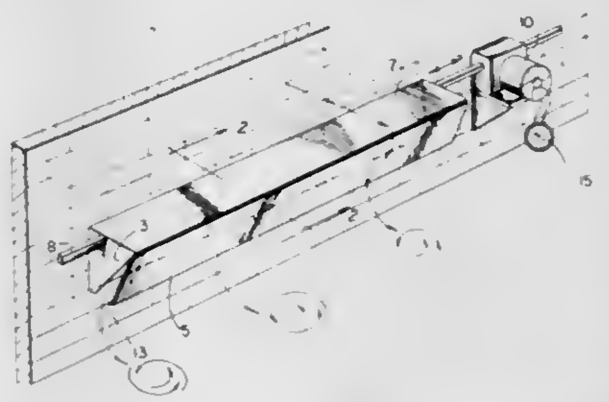
3,706,271
INLET CONTROL

Robert W. Mieczkowski, Tunkhannock, Pa.

Filed Feb. 12, 1971, Ser. No. 114,944

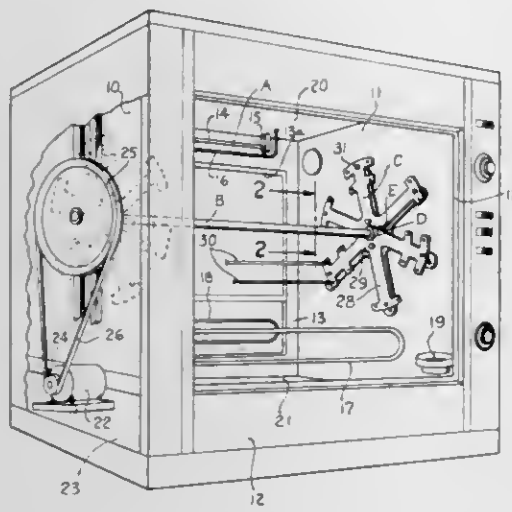
Int. Cl. F24f *7/00*

U.S. Cl. 98—41 **9 Claims**



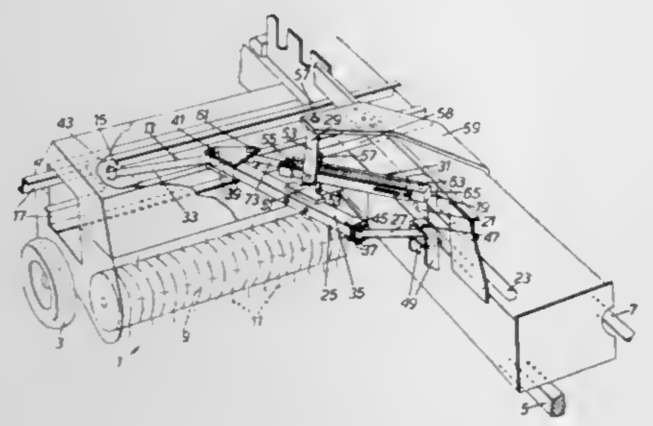
As auxiliary in a ventilating system, a control unit mountable against an air inlet contains a sloping face and means to adjust the face to control a throat for air flow at given pressure differentials of inside and outside air.

3,706,272
BARBECUE MACHINE EDIBLE CARRIER ASSEMBLY
Robert G. Wilson, 165 Faris Circle, Greenville, S.C.
Filed April 26, 1971, Ser. No. 137,224
Int. Cl. A47j *37/04*
U.S. Cl. 99—340 2 Claims



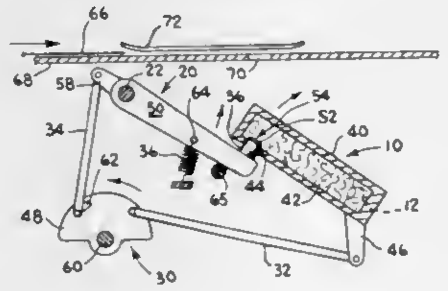
An improved edible carrier assembly for barbecue machines and the like, includes a central driven shaft having a support positioned upon the shaft adjacent each end thereof for positioning edible supporting means therebetween, and a channel within each of said supports extending radially from the shaft so that the supports may be removed therefrom allowing free access for cleaning the supports and adjacent surfaces.

3,706,273
FEED MECHANISM FOR HAY BALERS
Alexander Crawford, Warwick, England, assignor to Massey-Ferguson Services N.V., Curacao, Netherlands Antilles
Filed May 20, 1971, Ser. No. 145,361
Claims priority, application Great Britain, June 18, 1970, 29,574/70
Int. Cl. B30b *1/00*
U.S. Cl. 100—189 9 Claims



A hay baler with a bale chamber, a feed opening in one side wall of the chamber, a plunger in the bale chamber for compacting hay, a hay receiving platform extending laterally to one side of the bale chamber, a track mounted above the platform, a feeder carriage mounted on the track for movement along the track to convey hay from the platform and through the opening in one side wall of the chamber, and a drive transmission mechanism to reciprocate the feeder carriage. The drive transmission mechanism includes a resiliently extensible link pivotally connected at one end to the plunger, a floating link pivotally connected to the other end of the drive link, a connecting link pivotally interconnecting the floating link and the feeder carriage, and first and second swinging arms each pivotally connected at one end to the floating link at spaced apart positions along the length thereof and pivotally mounted on spaced apart pivot members on the bale chamber.

3,706,274
OSCILLATABLE INK PAD AND PRINT MEMBER
William W. Coville, Stamford, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.
Filed Feb. 24, 1971, Ser. No. 117,919
Int. Cl. B41k *1/42*
U.S. Cl. 101—333 3 Claims

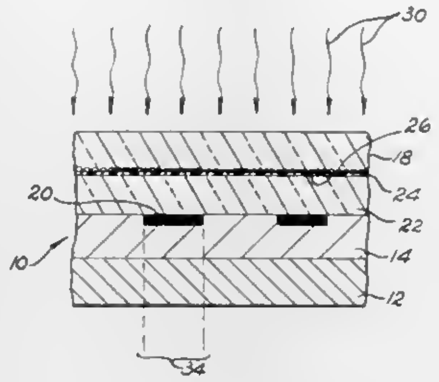


A printing apparatus for use in printing with inks having a relatively highly volatile vehicle onto selected areas of a record sheet includes an ink storing means mounted for movement between a normal position and a remote position and comprises a porous absorbent material substantially enclosed in a body portion having a limited access opening disposed therein for admitting a printing means in ink contacting engagement.

The printing means is mounted for movement between a normal position and a printing position. An actuating means is operatively associated with the ink storing means and the printing means for producing a coordinated cyclical movement of the printing means and the ink storing means from their normal positions to the respective printing position and the remote position non-interferingly through interfering paths such that the ink storing means moves out of the path of the printing means before the printing means moves from the normal position to the printing position and the printing means returns to the normal position before the ink storing means returns to its normal position.

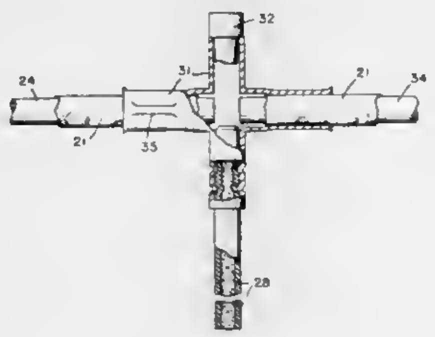
3,706,275
Patent Not Issued For This Number

3,706,276
THERMAL TRANSFER SHEET
Yoshikazu Yamada, Sierra Madre; Joseph Tat-Hin Sund, Los Angeles, and Daniel R. Logue, San Gabriel, all of Calif., assignors to Bell & Howell Company
Filed Sept. 18, 1970, Ser. No. 73,522
Int. Cl. B41m *5/18*
U.S. Cl. 101—453 7 Claims



A sheet for receiving a thermally formed design of material from a transfer sheet or the like of thermally transferable heat-sensitive material. The surface of the receiving sheet is defined by material which has been formed under conditions yielding a reticulated, stippled or particulated texture thereby providing a plurality of spaced contacts for receiving the transferred material with a resolution of at least 5.0 line pairs per millimeter.

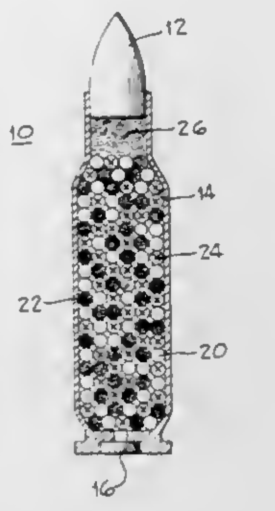
3,706,277
DESTRUCT SYSTEM IMPROVEMENT
Robert C. Willard; Jimme M. Craig, and Lloyd J. Jackson, all of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy
Filed Oct. 28, 1970, Ser. No. 84,680
Int. Cl. F42b *19/08*
U.S. Cl. 102—27 R 2 Claims



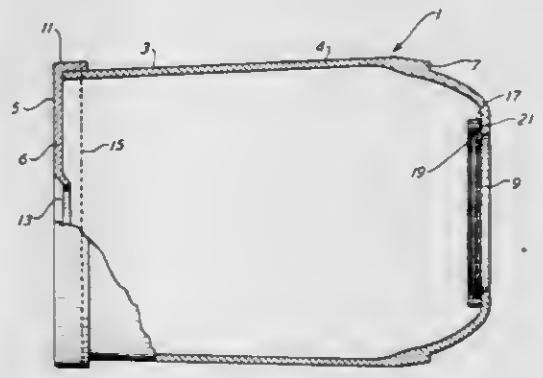
A pyrotechnic cord assembly is provided with voids for safety in handling and storage. The voids are filled with bridging pyrotechnic material at the time of final assembly.

3,706,278
DISTRIBUTED PROPULSION FOR GUNS
Ludwig Stiefel, Philadelphia, Pa.; Martin S. Silverstein, West Mount, N.J., and James F. Kowalick, Southampton, Pa., assignors to The United States of America as represented by the Secretary of the Army
Continuation-in-part of Ser. No. 818,140, April 21, 1969, abandoned. This application Feb. 25, 1971, Ser. No. 118,739
Int. Cl. F42b *5/16*
U.S. Cl. 102—38 5 Claims

Propellant charges for weapons, especially for the small caliber type, made of grains consisting of two layers, an outer slow burning composition and an inner or core composition for the control of interior ballistics. The charges consist of a plurality of increments of such type grains which differ in the thickness and composition of the outer layer and the thickness and composition of the core resulting in better control of interior ballistics, such, for example, as the obtention of higher velocities at lower peak pressure.



3,706,279
COMBUSTIBLE CARTRIDGE CASE
Theodore Zimmerman, West Caldwell, N.J., assignor to The United States of America as represented by the Secretary of the Army
Filed Jan. 20, 1971, Ser. No. 107,910
Int. Cl. F42b *9/16, 9/24*
U.S. Cl. 102—43 R 5 Claims



Two or more fully combustible components assembled to form a cartridge case by a fully combustible thread stitching adjoining portions of the components.

3,706,280
NOVEL COMBUSTIBLE CARTRIDGE CASE AND PROCESS THEREFOR
Jack Bobinski, Mountain Lakes, N.J., and Jean P. Picard, Morristown, both of N.J., assignors to The United States of America as represented by the Secretary of the Army
Filed Dec. 29, 1970, Ser. No. 102,540
Int. Cl. F42b *5/02*
U.S. Cl. 102—43 16 Claims

Novel combustible cartridge cases of superior properties are obtained by impregnating a dry felted preform, produced from a mixture consisting essentially of a fibrous cellulosic material containing free hydroxyl groups and a highly combustible organic nitro compound in finely divided form, with an organic polyisocyanate or other water insoluble resin precursor capable of reacting with the cellulosic hydroxyl groups, and thereafter forming the water-insoluble resin in situ.

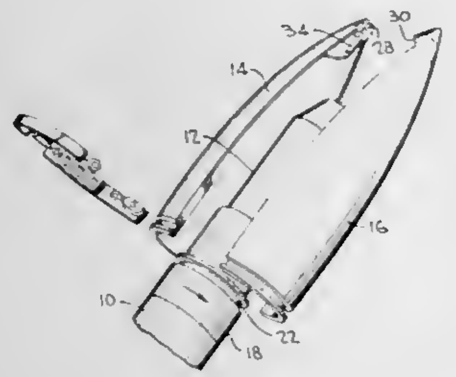
3,706,281
METHOD AND SYSTEM FOR EJECTING FAIRING SECTIONS FROM A ROCKET VEHICLE

Lawrence F. Hatakeyama, Brookmont, Md., assignor to The United States of America as represented by the Administrator of National Aeronautics and Space Administration

Filed April 1, 1971, Ser. No. 130,353

Int. Cl. F42b *15/00*

U.S. Cl. 102—49.5 **11 Claims**



A method and system for deploying releasable clamshell fairing sections from a spinning rocket vehicle body, in which each fairing section is retained at its lower trailing edge portion, relative to the spin direction of the rocket, until it has been substantially despun and rotated outwardly from the rocket through a predetermined angle to thereby substantially eliminate the possibility of the fairing sections striking the vehicle payload. In a preferred constructional embodiment, a separable hinge unit is utilized connecting the lower trailing corner portion of each fairing section to the rocket vehicle body, whereby this portion will be the last to separate from the vehicle body and will be retained until the fairing section has rotated outwardly through the predetermined angle.

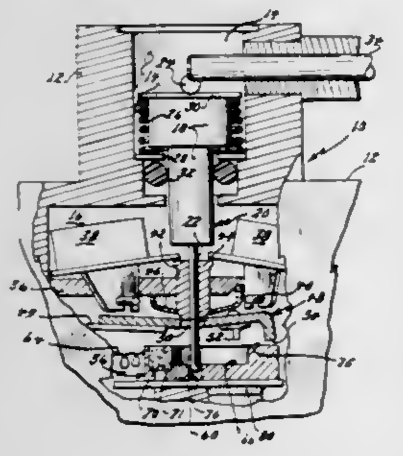
3,706,282
ABORT MECHANISM

Arthur M. Lohmann, Hopkins; King Spurbeck, Golden Valley, and Raymond H. Burg, Minnetonka, all of Minn., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Jan. 21, 1970, Ser. No. 4,643

Int. Cl. F42c *15/00*

U.S. Cl. 102—76 R **9 Claims**



A fuze having an arming means, an actuating means, a firing mechanism, an abort catch, and a detonating means. The abort catch of this fuze is capable of preventing the detonation of the fuze under any premature impact. This abort action can take place at any time subsequent to removal of the safety pin and prior to the time the fuze is fully armed.

3,706,283
TRACER DEVICE FOR A ROCKET

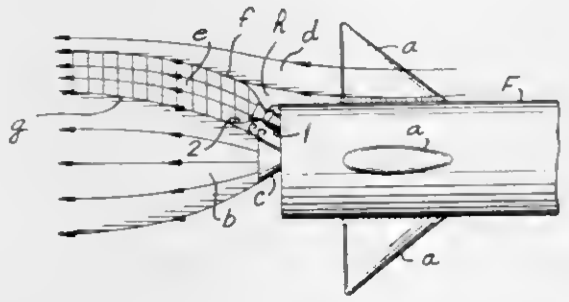
Jean Marie Germain Bouisse, Cite Boisgelin; Charles Etienne Georges Martel, and Franck Pierre Antoine Villey-Desmeserets, both of 295-Pont de Bois, all of France, assignors to Etat Francais

Filed June 23, 1970, Ser. No. 49,054

Claims priority, application France, June 23, 1969, 6920265

Int. Cl. F42b *11/16*

U.S. Cl. 102—87 **10 Claims**



A tracer device is provided for a rocket and comprises at least one sheath arranged at the rear of the rocket and containing a pyrotechnical charge whose combustion produces a flame enabling the rocket to be followed along its trajectory. The sheath terminates in a convergent-divergent nozzle and the axis of the sheath is inclined with respect to the longitudinal axis of the rocket so as to direct the flame into the region comprised between the inside boundary of the air stream flowing behind the rocket and the outer boundary of the propellent gas jet.

3,706,284
TRACK WORKING APPARATUS WITH LASER BEAM REFERENCE

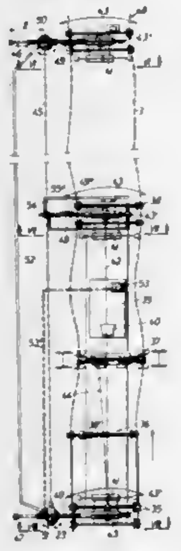
Franz Plasser, and Josef Theurer, both of Johannesgasse 3, 1010 Vienna, Austria

Filed Jan. 19, 1970, Ser. No. 3,762

Claims priority, application Austria, Jan. 22, 1969, A 646/69

Int. Cl. E01b *33/00*

U.S. Cl. 104—7 B **56 Claims**



A laser beam reference or datum in a track surfacer, liner or surveying apparatus is intercepted by a mask or sensor which is held in a measurably fixed relationship to the grade rail. This sensor is connected with the track lining or leveling tool, or a track position recorder or signaling instrument, and control signals from the sensor in response to laser beam impingement thereon operate the respective tool or recording or signaling instrument.

3,706,285
HOISTING CRANE

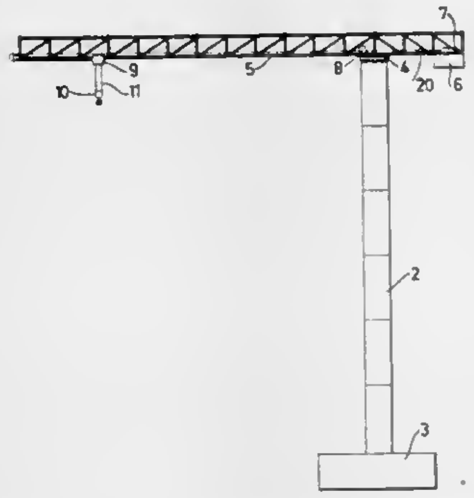
Lars Gynt, and Lennart Holm, both of Vasteras, Sweden, assignors to Linden-Alimok AB, Vasteras, Sweden

Filed Jan. 18, 1971, Ser. No. 107,076

Claims priority, application Sweden, Jan. 27, 1970, 978/70

Int. Cl. B66c *23/62*

U.S. Cl. 104—124 **6 Claims**



A hoisting crane of the type having a horizontal jib which is pivotally mounted on a vertical tower and supports thereon a movable carriage having a lifting means. The jib is formed of a plurality of detachably couplable modules each of which is formed of at least one upper and at least one lower member extending parallel to each other in the direction of the longitudinal axis of the jib. The longitudinal members of the respective modules all have the same spacing relative to each other so that all of the modules may be constructed with the same overall dimensions on a common jig. The modules which form a jib may have varying strengths to permit the modules which are closer to the pivotal mount on the tower to have a greater load-carrying capacity than those which are disposed toward the free end of the jib, and this is accomplished by having the associated members of some of the modules formed with a greater material cross-section than that of the corresponding members of other of the modules.

3,706,286
CONVEYOR SYSTEMS

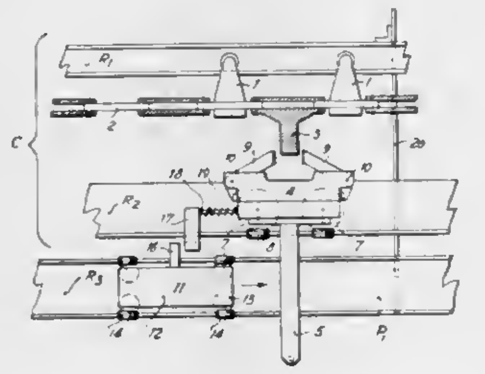
Pierre Ricaud, 78 Chatou, and Simon Cynober, 75 Paris 11e, both of France, assignors to Jeumont-Schneider, Paris, France

Filed Dec. 31, 1970, Ser. No. 103,195

Claims priority, application France, Dec. 30, 1969, 6945392

Int. Cl. B65g *17/42*

U.S. Cl. 104—172 S **10 Claims**



The invention is a conveying system formed of a first track having several load-bearing trucks movably mounted thereon, a second track which supports a driving chain continuously movable thereon and having several first dogs depending from the chain. The load-bearing trucks have a first abutment device which is engaged by the first dogs of the driving chain to be driven by it. There is a mechanism, on the trucks for disengaging the first abutment device from the first dogs so as to free the load-bearing trucks. The system also comprises a third track that carries at least one driving vehicle movable thereon at a speed greater than that of the load-bearing trucks and that has a second dog. The load-bearing trucks carry a second abutment device which can be hit by the second dog to actuate the disengaging mechanism and thus free the first abutment device from the dogs of the driving chain and allow the load-bearing trucks to be moved at a greater speed by the driving vehicle of the third track. The first abutment device of each load-bearing truck also has a provision whereby it may again be engaged by the first dogs of the driving chain if the speed of the load-bearing truck falls below that of the driving chain.

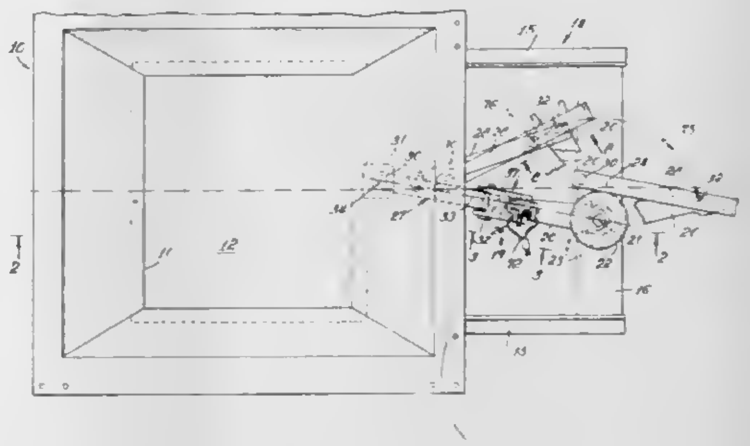
3,706,287
HOPPER OUTLET GATE ACTUATION MECHANISM AND AUTOMATICALLY ACTUATED LOCK

William E. Fritz, Hinsdale, Ill., and Clarence J. Koranda, Western Springs, both of Ill., assignors to The Youngstown Steel Door Company, Cleveland, Ohio

Filed July 30, 1971, Ser. No. 167,788

Int. Cl. B61d *7/20, 7/26;* **E05b** *65/18*

U.S. Cl. 105—282 R **18 Claims**



The sliding gate for a railway car hopper is operated between closed and open positions by a pivoted operating arm pivotally connected to a link pivoted to the gate. A lock pivoted to the link in locked position prevents pivotal movement of the link and operating arm until a sealing pin is moved to unsealing position and the lock is swung to an upright over center position. A nose portion on the lock is engaged by the operating arm and is moved upon opening the gate to pivot the lock to a reset position from which it gravitates to locking position when the gate is closed. Impact force applied to the hopper tends to close the gate accompanied by automatic movement of the lock to closed position and the sealing pin to sealing position.

3,706,288
GENERATING SYSTEMS AND METHODS

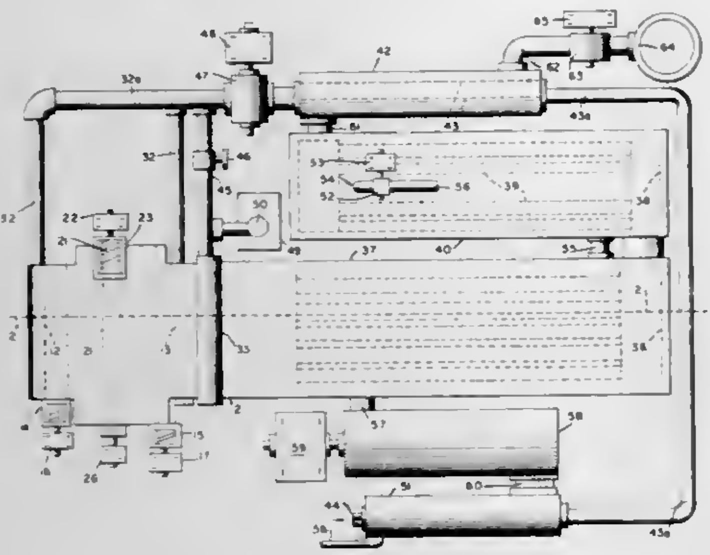
Peterson, Adolphe C., Minneapolis, Minn., assignor to Garbalizer Corporation of America, Salt Lake City, Utah

Filed June 22, 1970, Ser. No. 48,189

Int. Cl. F23g *5/12*

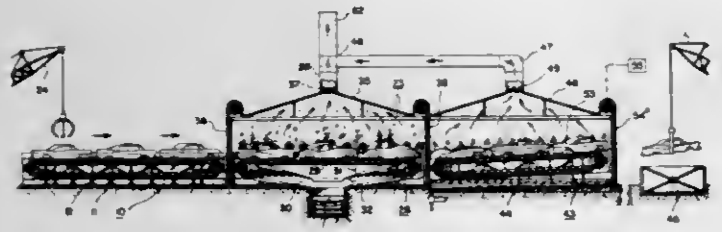
U.S. Cl. 110—10 **16 Claims**

The method and apparatus for the conversion of pollution contributing materials into non-pollution contributing substance and the utilization of the heat generated thereby for the generation of useful energy.



3,706,289
VEHICLE BODY-SHELL PROCESSING PLANT

John C. Brewer, Salt Lake City, Utah, assignur to Garbalizer Corporation of America, Salt Lake City, Utah
Continuation-in-part of Ser. No. 35,035, May 6, 1970, Pat. No. 3,613,562. This application June 25, 1971, Ser. No. 156,831
Int. Cl. F23g *7/00*
U.S. Cl. 110—18 R **4 Claims**

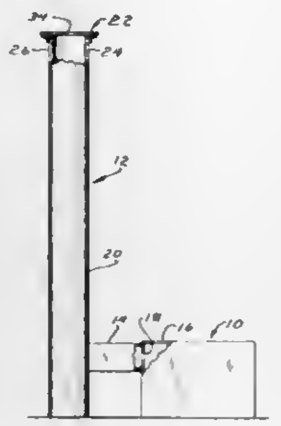


A vehicle body-shell processing plant is provided wherein vehicle shells are fired and quenched prior to baling in a manner such as to avoid air pollution difficulties. Exhaust gases from the furnace and quencher stages of the system are routed through an air cleaning system such that only clean gases are exhausted from the system. Quenching is done in the system such that steam, entrained particulate matter, and residual exhaust gases are conveyed to a gas scrubbing system for cleansing purposes. Independent conveyors are utilized at feed-in, furnace, and quencher points. The quencher conveyor is designed to have a sloping construction such that there can be an automatic and continuous process to shell bodies for each intermittent group processed.

3,706,290
SYSTEM FOR EXHAUSTING GASEOUS PRODUCTS OF COMBUSTION

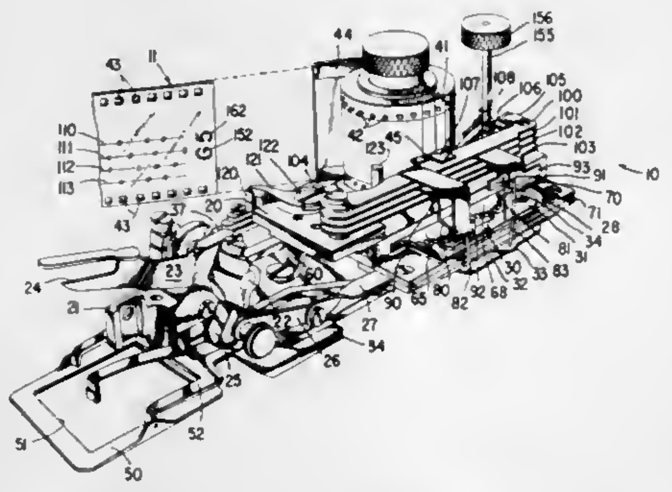
Frank J. Holland, 6513 North Le Mai Avenue, Lincolnwood, Ill.
Continuation-in-part of Ser. No. 804,527, March 5, 1969, abandoned. This application April 20, 1972, Ser. No. 245,808
Int. Cl. F23j *13/00*
U.S. Cl. 110—184 **7 Claims**

The instant system improves the efficiency of a combustion exhaust system and thereby improves the efficiency of a fuel combustion unit such as a boiler. A specific application of the invention includes a flat plate having an outer periphery sufficiently great to cover the entire opening at the top of a smokestack, which plate contains a sharp-edged circular orifice having an area less than the area of the opening at the top of the smokestack. The size of the orifice is such that it is substantially equal to the effective size of an exhaust port of a boiler connected to the smokestack. The orifice in the plate has its center aligned with the center line of the smokestack to create a thermal chimney within the smokestack, so that gaseous products of combustion travel through the central portion of the thermal chimney to eliminate eddying of substantially all of the gaseous products of combustion within the smokestack.



3,706,291
INCREMENTAL PATTERN CONTROL SYSTEM FOR SEWING MACHINES

Roger J. Ross, Roselle, N.J., assignor to The Singer Company, New York, N.Y.
Filed Aug. 26, 1971, Ser. No. 175,111
Int. Cl. D05b *3/24*
U.S. Cl. 112—77 **6 Claims**



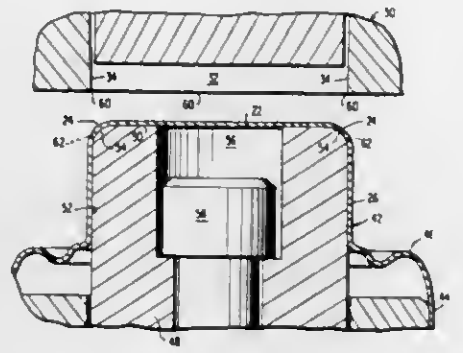
A sewing machine work shifting mechanism is disclosed having a work holding frame which is shiftable in response to an incremental pattern control system. A manually influenced shifting means for the work holding frame is provided in order to locate the work holding frame in a selected starting position to provide a basis of reference for the pattern dictated by the incremental pattern control system.

3,706,292
MANUFACTURE OF METAL CONTAINERS WITH RIMMED OPENING

William T. Saunders, Weirton, W. Va., assignor to National Steel Corporation
Filed Aug. 5, 1970, Ser. No. 61,312
Int. Cl. B21d *51/00*
U.S. Cl. 113—1 G **6 Claims**

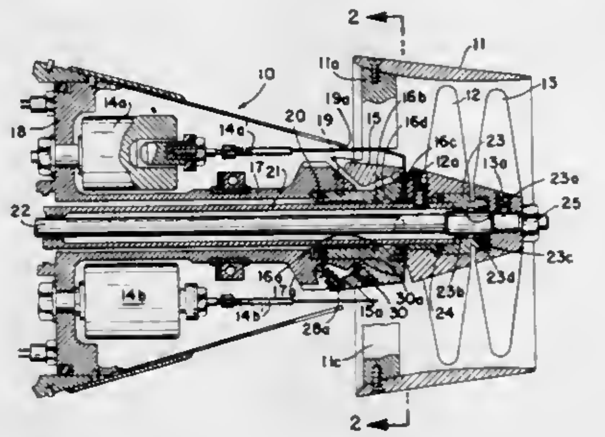
An open-ended container is produced utilizing as a starting material a unitary drawn sheet metal container body which has a substantially circular endwall, a sidewall and a curved portion joining the two. This is achieved by full diameter blanking of the endwall. The blanking is carried out by the use

of cooperating support and cutting dies. The support die is contoured to the interior of the container body. The cutting die contains a uni-diameter recess bounded by a cutting edge aligned with the sidewall of the support die. The resulting cut has a tapered configuration which facilitates curling of the sidewall in two steps to provide a rimmed opening.



3,706,293
STEERABLE SELF-PROPELLED SUBMERSIBLE

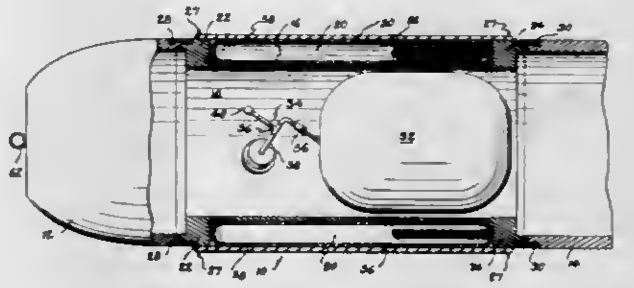
Dorothy B. Hancks, and Stephen F. Moran, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy
Continuation-in-part of Ser. No. 745,633, July 17, 1968, Pat. No. 3,565,028. This application Aug. 27, 1970, Ser. No. 67,461
Int. Cl. F42b *19/01, 19/12*
U.S. Cl. 114—20 **3 Claims**



In a torpedo having a pair of counterrotating propellers mounted on coaxially-disposed shafts, a new sealing arrangement is provided that overcomes limitations encountered when combination carbon seals are used to shut out ambient water from a watertight compartment. Contemporary carbon seals exhibit two limitations; first, they require a critical axial pressure between adjacent carbon surfaces and polished wear surfaces, and second, they cannot tolerate slight axial displacement of the seals with respect to their wear surfaces since both conditions allow water to bypass them. A pair of shaft sealing assemblies is included which seal off the juncture between the inner shaft and the outer shaft, and a fitting reaches into the watertight compartment rendering the assemblies independent of axial pressures and slight axial excursions. An angularly displaceable shroud, used to change the direction of the torpedo, is carried on the socket portion of a ball-and-socket joint and is biased to a neutral position by a plurality of bolts carrying biasing springs, spaced in quadrature, to minimize frictional drag between the bolt faces and the socket.

3,706,294
TORPEDO RECOVERY SYSTEM

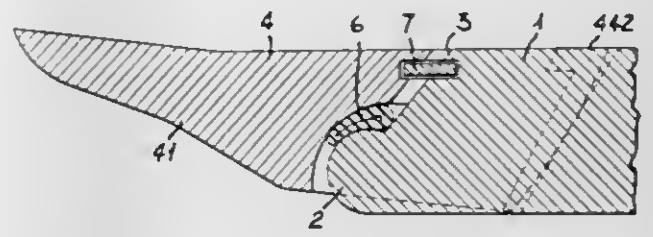
James E. Radford, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy
Filed Feb. 1, 1971, Ser. No. 111,391
Int. Cl. B63c *7/10;* **F42b** *19/36*
U.S. Cl. 114—20 R **1 Claim**



A recovery section for a test torpedo having a shape which conforms to the outer contour of the torpedo. An inflatable member is provided which when deflated extends circumferentially about the torpedo recovery section within the contour of the torpedo body and upon inflation assumes a toroidal shape and renders the torpedo positively buoyant causing it to rise to the surface. The inflatable member is formed of a material which tends to assume the original deflated configuration within the torpedo body upon actuation of a deflation device provided within the recovery section.

3,706,295
ICE BREAKING PASSIVE BOW

Emanuele Iozza, 30, Via Orsini, Genoa, Italy
Filed Jan. 11, 1971, Ser. No. 105,378
Claims priority, application Italy, March 18, 1970, 12554; April 2, 1970, 12592
Int. Cl. B63b *35/08*
U.S. Cl. 114—41 **6 Claims**

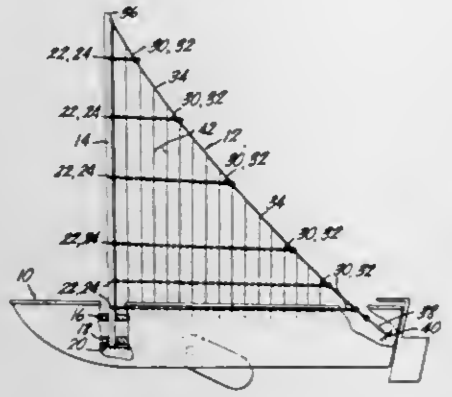


An ice breaking ship comprising a metallic ice breaking bow structure independent from the true ship bow structure, the ice breaking bow structure being connected to the ship bow in such a manner as to be free to slide and to rotate into a vertical plane within a certain angle with respect to the ship bow, means being provided for rigidly securing the said ice breaking bow to the ship bow structure during the inefficiency periods of the said ice breaking bow.

3,706,296
SAILBOAT

Karl F. Milde, Jr., 198 Baltic Street, Brooklyn, N.Y.
Filed July 28, 1970, Ser. No. 58,774
Int. Cl. B63h *9/04*
U.S. Cl. 114—102 **11 Claims**

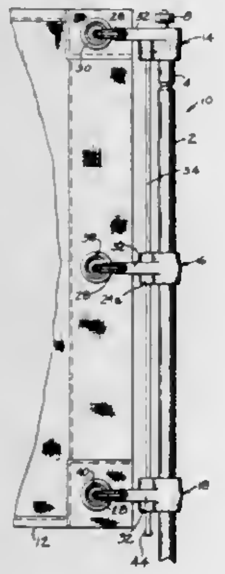
A sail, suitable for use on a sailboat, iceboat or the like, comprising a number of vertically arranged, parallel, rigid strips. The cross-section of each strip has at least one curved side and is designed to produce the maximum lateral force



when placed in the path of moving air. Mechanical means are provided to control the azimuthal orientation of all the strips with respect to the direction of air movement.

3,706,297
FLAGSTAFF SWIVEL

Robert W. Voorhees, Cedar Falls, Iowa, assignor to Standard Manufacturing Company, Cedar Falls, Iowa
Filed June 28, 1971, Ser. No. 157,470
Int. Cl. G09f *17/00*
U.S. Cl. 116—174 **5 Claims**

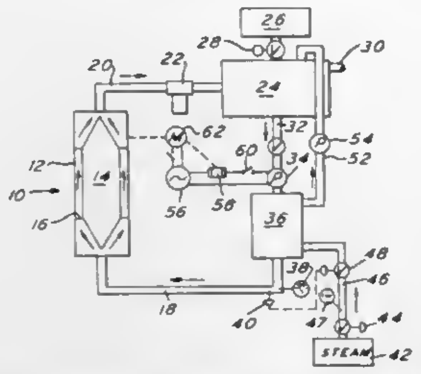


A device for swivelly mounting a flag on a flagstaff comprises a rod that supports a plurality of one piece plastic members. Each member has a first bore and a second bore for receiving the rod. The rod positions the several members so that the aforesaid first bores are in alignment for swivel engagement with the flagstaff. Each member also integrally includes a hook with a spring tongue for opening and closing the hook. The hooks are engageable with eyelets on a flag, and a number of the members are relatively adjustable along the lengths of the rod to accommodate varying eyelet spacings of different flags.

3,706,298
HEATED ADHESIVE APPLICATOR ROLL SYSTEM

Charles R. Norman, Willingboro, N.J., assignor to Harris-Intertype Corporation, Cleveland, Ohio
Filed May 20, 1970, Ser. No. 38,950
Int. Cl. B05c *11/00;* **F28f** *5/02*
U.S. Cl. 118—5 **7 Claims**

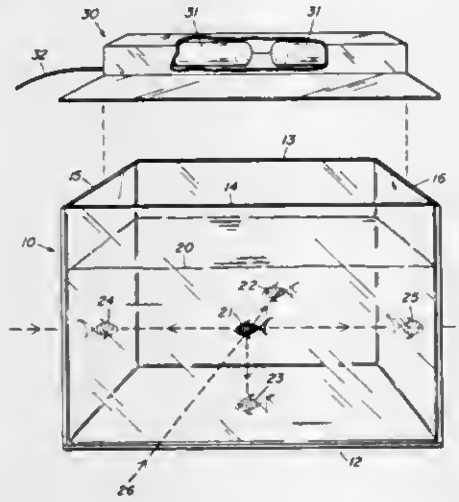
The adhesive roll of a single facer machine and/or the adhesive rolls of a glue machine at a double facer are heated to a surface temperature of between 130°F and 150°F by circulating water to heat the starch adhesive to a temperature just



below its gelatinization temperature so long as the rolls are rotating.

3,706,299
MIRRORED MARINE AQUARIUM

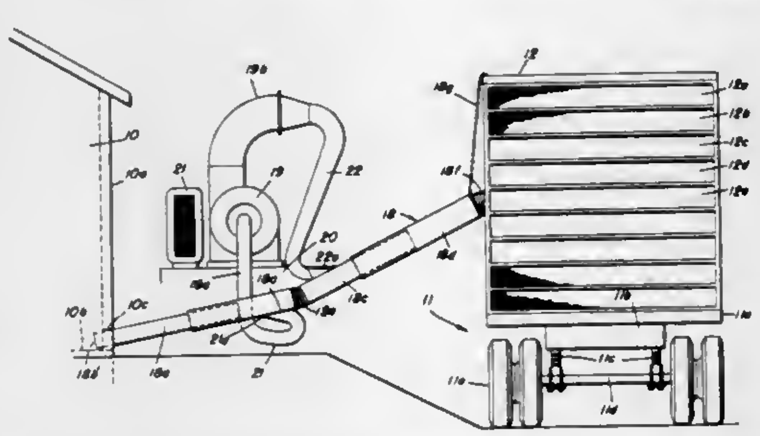
Louis W. Hendges, Rt. 3, Box 291, Old Emmorton Road, Belair, Md.
Filed July 22, 1971, Ser. No. 165,287
Int. Cl. B65d *13/02;* **A01k** *63/00*
U.S. Cl. 119—5 **2 Claims**



This invention is directed to an aquarium which is illuminated by one-way and two-way glass mirrors to enhance the marine life therein. The mirrors are used to construct a watertight aquarium. A concealed light is positioned in the top of the aquarium and its light is reflected downwardly therein to illuminate the marine life.

3,706,300
POULTRY-HANDLING SYSTEM

Lon H. Wessinger, 439 Longview Street, Carrollton, Ga.
Division of Ser. No. 801,507, Feb. 24, 1969, Pat. No. 3,568,643. This application Feb. 1, 1971, Ser. No. 111,350
Int. Cl. A01k *1/00*
U.S. Cl. 119—15 **4 Claims**

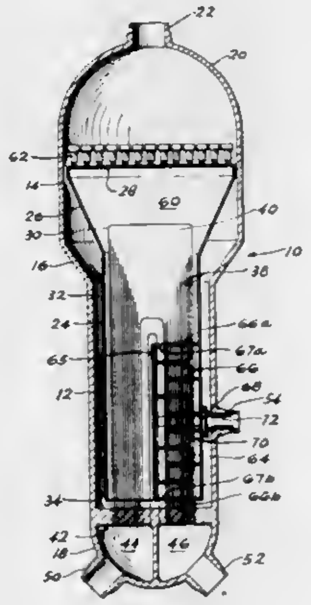


Method and apparatus for handling poultry by transferring the same from poultry house to processor by way of bins into

which the poultry is urged for transport by a combination of suction and then air under pressure, from which bins the poultry is unloaded by air pressure at the processor.

3,706,301
INTEGRAL ECONOMIZER FOR U-TUBE GENERATOR

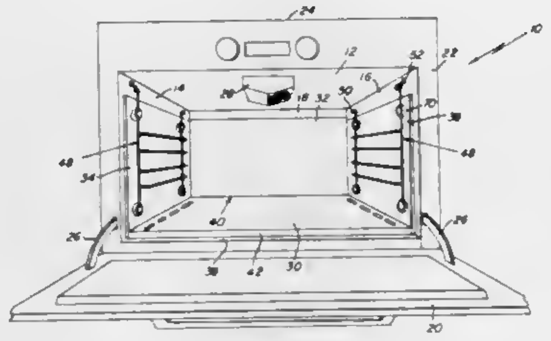
Scott R. Penfield, Jr., Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed July 13, 1971, Ser. No. 162,093
Int. Cl. F22b *1/16*
U.S. Cl. 122—32 **16 Claims**



An economizer compartment for a shell and tube vapor generator is disclosed in which the cold feedwater to be heated enters the compartment at an intermediate point along its length and is divided into two oppositely directed flow paths that exit the compartment at opposite ends. The compartment is disposed in spaced-apart relation from the adjacent interior surfaces of the vapor generator shell in order to protect the same against thermal shocking as a result of contact by unheated feedwater.

3,706,302
CONTINUOUS CLEAN OVEN CONVERSION

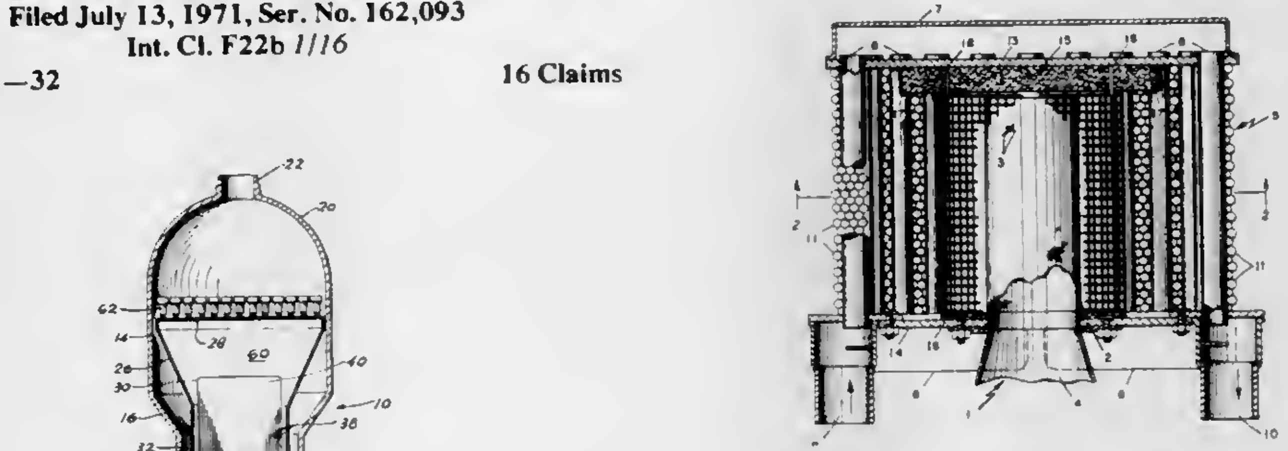
Peter L. Helgeson, Macungie, and Tibor I. Egervary, Allentown, both of Pa., assignors to Raytheon Company
Filed Feb. 11, 1971, Ser. No. 114,442
Int. Cl. F24c *15/16*
U.S. Cl. 126—19 R **11 Claims**



A continuous clean oven embodying a conventional oven liner having as accessories superimposed removable back, bottom and side panels coated with material which provides continuous clean characteristics, and means for retaining the panels in place.

3,706,303
COMPACT HEAT EXCHANGER WITH HIGH INTENSITY BURNER

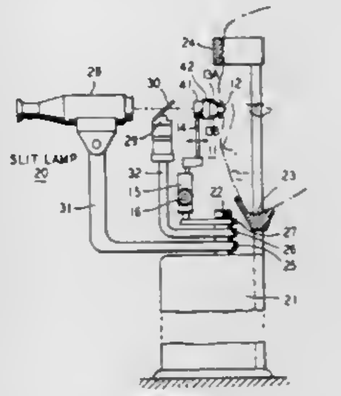
William H. Hapgood, Brookline, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Feb. 17, 1970, Ser. No. 12,000
Int. Cl. F24c *3/04*
U.S. Cl. 126—116 R **6 Claims**



A high intensity burner for burning a carbonaceous fuel in an oxygen containing atmosphere has one or more ports through which the fuel emerges and adjacent which complete combustion of the fuel occurs within a limited combustion region at a temperature above the dissociation temperature of CO_2. A heat exchanger, which is maintained at a temperature below the recombination temperature of CO and O_2, is located outside the limits of said combustion region but sufficiently close to the burner ports so that, at the normal operating velocity of the burned gases these gases would reach the heat exchanger before the temperature of the gases had dropped below the dissociation temperature and into the recombination temperature range, except for the fact that a screen is located between the limits of the combustion region and the heat exchanger, and is heated by the gases, thereby extracting heat from the gases, to a temperature at which it radiates energy, thus reducing the temperature of such gases into the recombination temperature range before they reach the heat exchanger.

3,706,304
OPTICAL OPHTHALMODYNAMOMETER

Hampson A. Sisler, 77 7th Ave., Penthouse H, New York, N.Y.
Filed Feb. 19, 1970, Ser. No. 12,604
Int. Cl. A61b *3/00, 5/02*
U.S. Cl. 128—2 T **5 Claims**



The disclosed ophthalmodynamometer, an instrument for measuring the dynamic opthalmic artery blood pressure, is herein called an optical ophthalmodynamometer because it provides coincident axes of pressure application and visual observation of the characteristic arterial pulsations at measurement of systole and diastole. This instrument is advantageously and readily adapted as an additional attachment for the versatile slit lamp, which is a basic instrument used for eye examination and does not require an assistant for the examiner. The pressure is applied through a fundus lens mounted in a hollow cylindrical member, the axis of which is the axis of observation and through which illumination can be supplied and received paraxially without interferring with the observation. The diameter of the fundus lens is selected to be in the range from about 6 millimeters to about 10 millimeters.

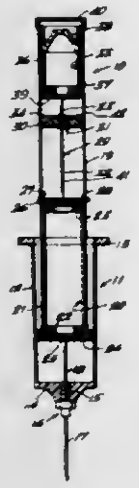
3,706,305
COMBINATION BLOOD SAMPLING VACUUM SYRINGE CENTRIFUGE CONTAINER AND SPECIMEN CUP

Harold J. Berger, 8867 Froude Ave., Surfside, Fla., and Jerry G. Goldsmith, 5225 N. Bay Road, Miami Beach, Fla.

Filed March 3, 1971, Ser. No. 120,474

Int. Cl. A61b *10/00*

U.S. Cl. 128—2 F **15 Claims**



An elongated, unitary, blood sampling vacuum syringe, centrifuge container and specimen cup, for use with an ordinary tubular needle holder is described. The device includes an evacuated blood sample centrifuge container within one end and an evacuated specimen cup within the other end of a common tubular housing member. A transfer needle coaxially arranged within the housing member between the centrifuge container and the specimen cup effects transfer of the blood serum, after centrifuging, from the centrifuge container to the specimen cup through piercable diaphragm closure caps at the inner or facing ends thereof. Means is provided for breaking away of the specimen cup end of the common housing member for ready removal of the serum-filled specimen cup for use in analysis.

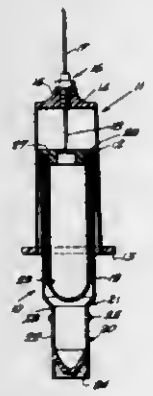
3,706,306
COMBINATION BLOOD SAMPLING VACUUM SYRINGE CENTRIFUGE CONTAINER AND SPECIMEN CUP

Harold J. Berger, Surfside, and Jerry G. Goldsmith, Miami Beach, both of Fla.

Filed March 3, 1971, Ser. No. 120,475

Int. Cl. A61b *10/00*

U.S. Cl. 128—2 F **7 Claims**



An elongated, unitary, blood sampling vacuum syringe, centrifuge container and specimen cup, for use with an ordinary tubular needle holder is described. The device includes an evacuated blood sample centrifuge container having a piercable diaphragm cap and being supported in spaced relation within one end of a housing member, the opposite end of which housing member is in the form of a separable specimen cup. After obtaining a blood sample in the usual fashion with use of an ordinary tubular needle holder, the device is centrifuged as a unit to separate the blood serum into the upper end of the centrifuge container. Vertically spaced openings provided in an upper side wall portion the centrifuge container and normally sealed off by means of a pressure-sensitive tear strip, are thereafter sequentially opened by manual removal of the tear strip to permit gravitation of the centrifuged blood serum down into the specimen cup, after which said serum-filled specimen cup can be separated for use in analysis.

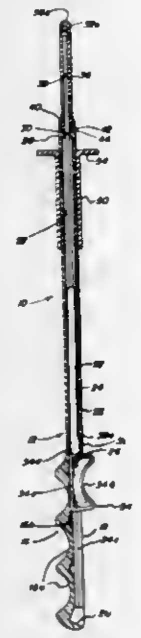
3,706,307
GYNECOLOGICAL INSTRUMENT

Harrith M. Hasson, Chicago, Ill., assignor to Hollister Incorporated

Filed July 8, 1970, Ser. No. 53,084

Int. Cl. A61b *5/00*

U.S. Cl. 128—2 S **14 Claims**



A gynecological measuring instrument for use in measuring anatomical features of the cervical canal, isthmus and uterus characterized by a shaft telescoped within a tube and connected to the distal end of the tube, with the tube being preferably formed of a pliable material and provided with spaced slits adjacent the free end thereof so that relative retraction of the tube relative to the shaft forms laterally extending wings in the area of the slits. Numerical indicia are provided along the length of a body for the shaft. When the device is inserted through the cervical canal to the top of the uterus the entire depth of the cervical canal and endometrial cavity can be measured. When the tube is retracted relative to the shaft and then the entire assembly is retracted until the isthmus is located, the difference between the two dimensions may be measured, indicating the individual length of each of the cervical canal and the endometrial cavity. Anatomic features of the cervical isthmic junction, including competence, also may be assessed.

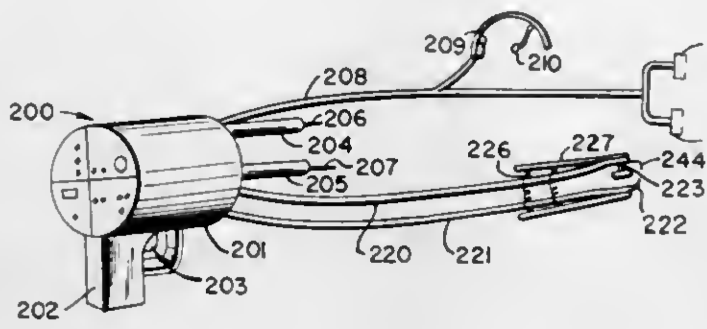
3,706,308
LIFE DETECTING MEDICAL INSTRUMENT

Erwin Roy John, Riverdale, and Robert Laupheimer, Westbury, both of N.Y., assignors to Neuro-Data, Inc., Cliffside Park, N.Y.

Continuation-in-part of Ser. No. 782,863, Dec. 11, 1968, abandoned. This application Oct. 19, 1970, Ser. No. 81,653

Int. Cl. A61b *5/04*

U.S. Cl. 128—2.06 R **4 Claims**



An electronic medical instrument to detect the presence or absence of life includes an electroencephalograph (EEG) and an electrocardiogram (EKG), connected to one or more data scanners, a stimulator, an analog or digital data analysis device such as an average response computer, a graphic recorder, and a time stamp. A portable version of this instrument is hand-carried and gives a visual display indicating the presence or absence of life.

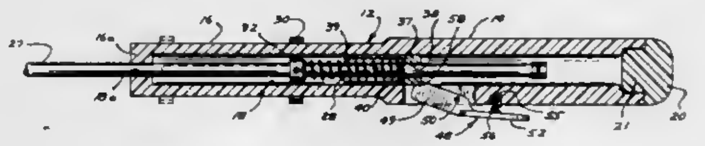
3,706,309
DEVICE FOR APPLYING AND RELEASING PRESSURE

Irwing N. Toftness, 1425 Second Ave., Cumberland, Wis.

Filed April 29, 1971, Ser. No. 138,711

Int. Cl. A61f *5/00*

U.S. Cl. 128—69 **1 Claim**



A pressure applying and pressure releasing device consisting of a spring pressed rod in connection with a gauge to apply a measured degree of pressure by means of said rod against a given area and said rod has in connection therewith a stop member to hold said rod in its pressure applying position and means to actuate said stop member to release said rod from its pressure applying position.

3,706,310
HANGING SLING FOR ARM CAST

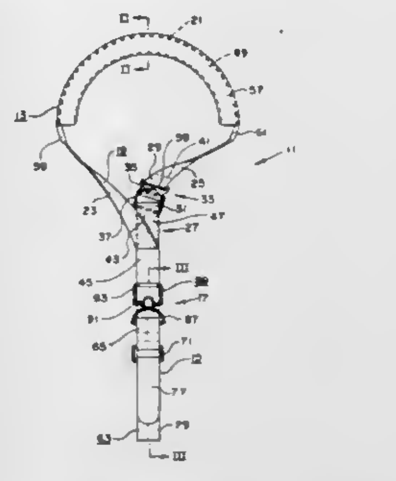
Robert E. Garnett, Memphis, Tenn., assignor to Richards Manufacturing Company, Memphis, Tenn.

Filed June 24, 1970, Ser. No. 49,336

Int. Cl. A61f *5/40*

U.S. Cl. 128—94 **9 Claims**

A hanging sling for arm casts. The sling has a neck portion including polyurethane open cell foam material padding attached to a flexible web that extends around the patient's neck. An arm portion of the sling is detachably connected to



the neck portion and includes a loop which is adjustable in size to fit either imbeddedly in the cast or around the outside thereof.

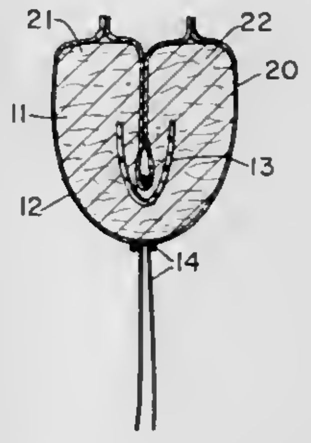
3,706,311
SELF-SPREADING CATAMENIAL TAMPON

Darrel D. Kokx, Greenhills, and Robert S. Moore, Wyoming, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Nov. 27, 1970, Ser. No. 93,306

Int. Cl. A61f *13/20*

U.S. Cl. 128—285 **12 Claims**



A self-spreading catamenial tampon made from a bundle of uncompressed absorbent material and a mechanical spreader inside the bundle which immediately spreads the folded legs of the tampon when the tampon is ejected from an inserter. The tampon is oriented within the vagina so that its spreading will be in a lateral direction and it is inserted just above the introital region. The immediate spreading allows the tampon to immediately contact the lateral walls of the vagina thereby spanning the vaginal passageway and minimizing bypass failures.

3,706,312
SURGICAL INSTRUMENT

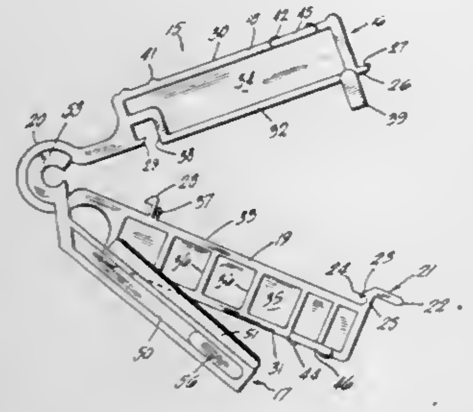
Frederick J. Melges, Battle Creek, Mich., assignor to Rymel Corporation, Sierra Madre, Calif.

Continuation-in-part of Ser. No. 780,463, Dec. 2, 1968, Pat. No. 3,566,873. This application March 13, 1970, Ser. No. 19,329

Int. Cl. A61b *17/326, 17/08*

U.S. Cl. 128—305 **7 Claims**

A surgical instrument is provided which is particularly suited for use in circumcision operations, comprising a clamping and holding member adapted to be readily formed of molded plastic material and especially constructed for use in the place of circumcision operations normally involving the use of conventional hospital instruments such as a probe, scalpel, and hemostat. In a preferred form the instrument includes in combination with the clamping and holding member, a cutting member, the two members being pivotally connected together and guided in cooperative operation position, and which instrument is sufficiently inexpensive so that it can be discarded after the end of the operation thereby obviating the need of sterilization for reuse.



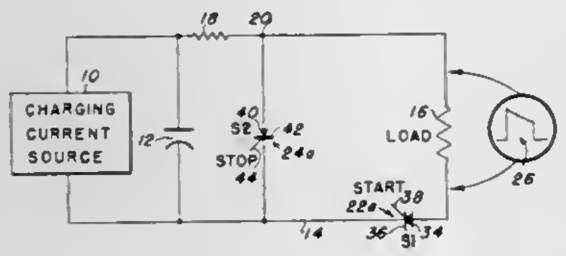
3,706,313
TRAPEZOIDAL WAVESHAPE DEFIBRILLATOR

Dean L. Milani, Highland Park, and Richard G. Kerwin, Prospect Heights, both of Ill., assignors to Medical Research Laboratories, Park Ridge, Ill.

Filed Feb. 4, 1971, Ser. No. 112,587

Int. Cl. A61m *1/36*

U.S. Cl. 128—419 D **10 Claims**



A trapezoidal waveshape, which is known to be the best waveshape for defibrillating the heart, is produced by charging a capacitor, and by starting to discharge it through a silicon controlled rectifier to the load, namely, the body of the patient. Subsequently, a second SCR is used to short circuit the first SCR and load circuit to effect termination of the trapezoidal waveshape rapidly, i.e., effectively dumping the remainder of the charge.

3,706,314
TOBACCO THRESHING APPARATUS AND METHOD

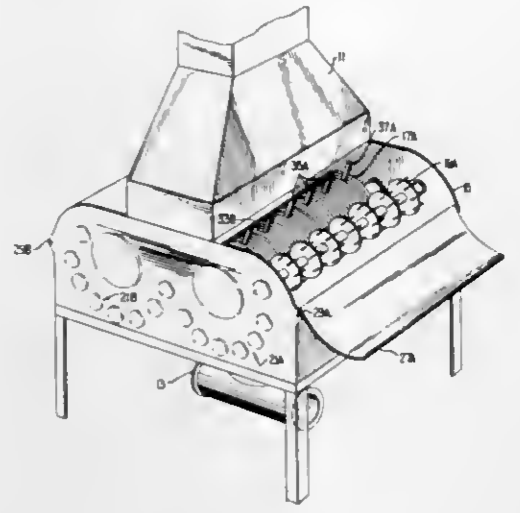
Robert A. Smith, Jr., Richmond, Va., assignor to Superior Tobacco Machinery & Sheet Metal, Inc., Richmond, Va.

Filed July 2, 1970, Ser. No. 51,881

Int. Cl. A24b *05/10*

U.S. Cl. 131—145 **20 Claims**

A tobacco thresher includes two systems of rotating teeth each of which intermeshes with a separate rotating disc system. The disc systems comprise separated coaxial rotating discs which have pins mounted on the sides thereof. The teeth rotate at a greater angular velocity than their associated rotating disc systems; and the angular velocities of the two rotating disc systems can be independently varied.



The teeth are elongated to drive the tobacco along a path while the tobacco is simultaneously restrained by the movable pins which are disposed in a cross-wise attitude with respect to the teeth.

3,706,315
HAIRWINDER

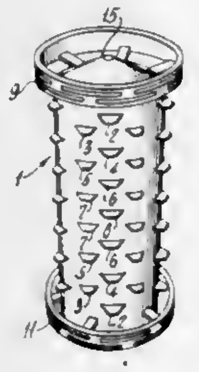
Bent Georg Johansen, Kalundborg, Denmark, assignor to Bristol-Myers Company, New York, N.Y.

Filed June 25, 1971, Ser. No. 156,743

Claims priority, application Denmark, June 29, 1970, 3361/70

Int. Cl. A45d *2/14*

U.S. Cl. 132—33 R **4 Claims**



A hairwinder having radially flanges at the end adapted for ease of handling and for minimizing tangling when the hair is unwound. The hairwinder is provided with fin or tongue-like projections which are of varying height and which lie in planes transverse to the longitudinal axis with end edges forming an angle of 90° or more with the tangential plane of the curved outer surface through the base point of the end edge.

3,706,316
NAIL BUFFER

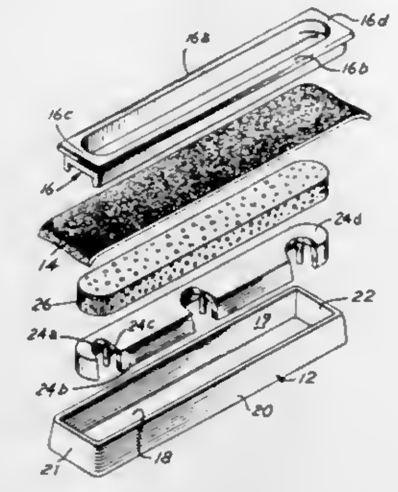
Shogo Ishii, Tokyo, Japan assignor to Syntak Company, Ltd., Tokyo, Japan.

Filed Nov. 1, 1971 Ser. No. 194,715

Int Cl. A45d *29/20*

U.S. Cl. 132—76.5 9 Claims

A buffer comprised of an open-topped housing, a support adapted to be retained in the housing, a buffing member made from fabric, a resilient backer between the buffing member and support, and a retaining member for securing the buffing member tightly drawn over the support and holding the elements in assembled relationship, with the top of the buffing member extending above the retaining member and housing.



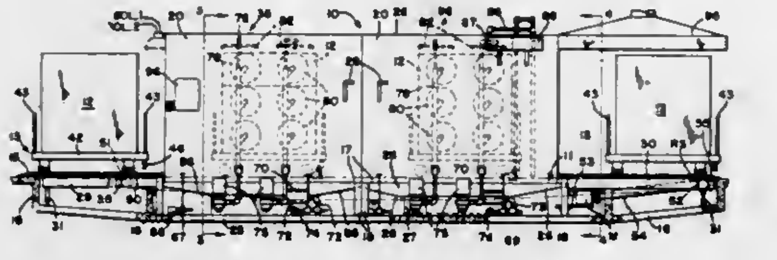
3,706,317
MODULE TREATING APPARATUS

Gerald B. Fox; Wray E. Dudley, and Stuart E. Athey, all of Troy, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio

Filed Aug. 3, 1970, Ser. No. 60,237

Int. Cl. B08b *3/02*

U.S. Cl. 134—57 DL **11 Claims**



Food storage modules, tray carts, and other large food handling equipment are sequentially subjected to timed washing and rinsing treatments as they are intermittently conveyed on dollies through a wash chamber and a rinse chamber. Each chamber has a treatment station which includes horizontally and vertically directed power spray apparatus, and the modules are intermittently stopped for relatively short periods of time in which their interiors and exteriors are washed and rinsed with recirculating wash and rinse solutions. Communication between the chambers is controlled by pivotal doors at the inlets and outlets of each chamber which operate in timed sequence with the washing and rinsing operations. The pivotal doors substantially seal the chambers during the power spray operations and minimize intermixing of the wash and rinse solutions. After the simultaneous power sprays in each chamber are completed, the modules are subjected to a hot rinse by separate horizontal and vertical spray apparatus as they are conveyed out of the rinse chamber. Sequencing of the conveyor is controlled from positioning of a dolly at a discharge station.

3,706,318
FLUID COUPLING

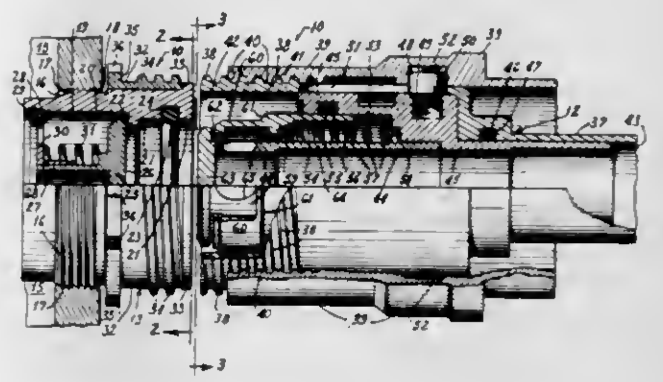
Mahmood Banladam, Manhattan Beach, and Jorge A. Morando, Burbank, both of Calif., assignors to Fairchild Industries, Inc., Germantown, Md.

Filed March 2, 1971, Ser. No. 120,286

Int. Cl. F16l *37/28*

U.S. Cl. 137—614.03 **7 Claims**

A fluid coupling with separable male and female coupling members including a threaded connecting member on the male member which advances when rotated to engage a threaded collar on the female member. The axial movement of the advancing connecting member is translated through rollers or studs to a probe which carries a mating sleeve into engagement with a bore in the female coupling member engaging a mating seal and establishing a sealed interface between the male and female coupling members. Continued advancement of the connecting member and the probe results in movement of the sleeve establishing a path of fluid communication between the interior of the mating sleeve and the bore of the female coupling. Further advancement of the connecting member brings the probe into contact with a poppet valve within the female coupling unseating the popped valve and establishing an uninterrupted fluid communication path between the male and female coupling members. Rotation of the actuating sleeve in the opposite direction reverses the action of the components in sequence, first interrupting the fluid flow and entrapping it, then uncoupling the male and female members. The construction of the fluid coupling permits coupling and uncoupling of the members within a fixed space which corresponds to the axial dimension of the coupling.



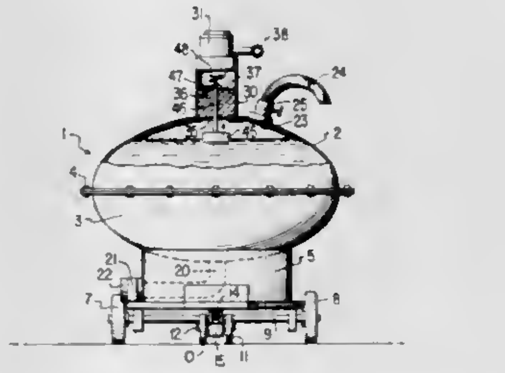
3,706,319
APPARATUS FOR EVACUATING SEPTIC TANKS OR THE LIKE

John W. Neese, 1350 E. Benson Hwy., Tucson, Ariz., and James E. Gaylor, 5613 E. Mabel St., Tucson, Ariz.

Filed Jan. 27, 1971, Ser. No. 110,016

Int. Cl. B67c *3/16*

U.S. Cl. 137—205 **11 Claims**



A portable apparatus for evacuating the liquid sewage from holding tanks, septic tanks and the like having a sewage tank which is mounted on a support frame which includes a transport arrangement, e.g., A WHEELED VEHICLE. The sewage tank is provided with a discharge opening, which is normally closed by means of a valve, at the lower end thereof and a sewage inlet at the upper end thereof to which is removably connected a length of flexible hose. A vertically oriented cylindrical housing is mounted on the upper surface of the sewage tank and an electrically powered vacuum or suction pump is removably mounted on the upper end of the housing so that upon actuation of the pump the air in the sewage tank can be withdrawn via the housing. To protect the pump from the sewage and to trap the fumes, a filter is removably mounted in the cylindrical housing. The sewage tank is also provided with a sewage level detecting device, e.g., a float and a switch responsive thereto, for de-energizing the pump when the level of sewage in the tank has reached a predetermined level indicating the tank is essentially full. Preferably, a gasoline engine driven electrical generator is provided on the frame in order to supply power to the pump.

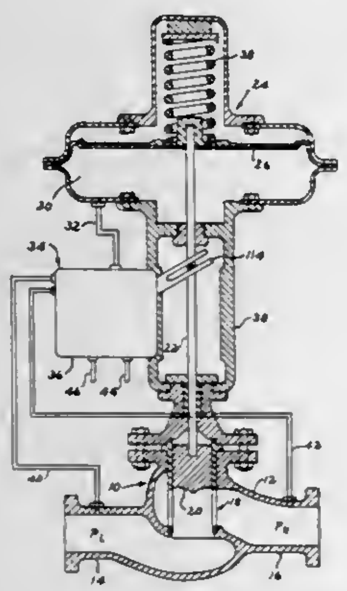
3,706,320
PRESSURE DROP VARIATION COMPENSATING AND VALVE POSITIONING MECHANISM

Manmohan S. Kalsi, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Sept. 21, 1971, Ser. No. 182,344

Int. Cl. G05d *7/03*

U.S. Cl. 137—487 **8 Claims**



A valve having a pneumatic operator and a linear port opening rate is provided with mechanism for compensating variations in the pressure drop across the valve, in order to make the flow a linear function of a control signal. A pressure sensitive device produces a rotation of a square root cam proportional to the pressure drop across the valve. The displacement produced by the cam is multiplied by the control signal and the product is added to a displacement proportional to the control signal. The resulting quantity is compared with the position of the valve stem, and the difference is used to adjust a pilot valve which controls the operator and resets it so as to compensate the variation in the pressure drop across the valve.

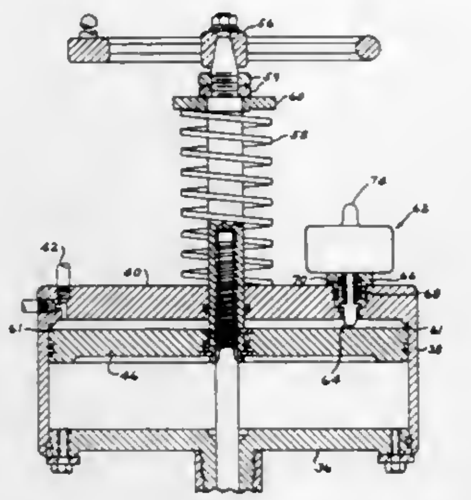
3,706,321
MANUAL OVERRIDE INDICATOR FOR GATE VALVE

Felix J. Vicari, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Sept. 21, 1971, Ser. No. 182,343

Int. Cl. F16k *37/00, 3/02*

U.S. Cl. 137—554 **6 Claims**



A visual indicator or signal for indicating when the manual override is being employed in a fluid operated gate valve. The manual override is employed to open the gate valve upon a malfunctioning of the fluid system and the indicator shows when the manual override is being employed. The signal is energized upon the initial actuation of the manual override and remains energized until the gate has returned to its full closed position under the manual override in which position the gate valve may return to its fluid operation.

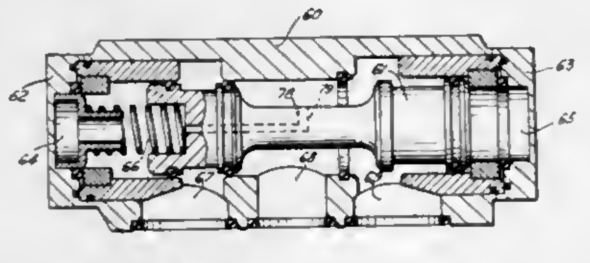
3,706,322
VALVE

Carl M. Carlson, 344 12th St., Cresskill, N.J.

Filed March 22, 1971, Ser. No. 126,669

Int. Cl. F16k *11/00*

U.S. Cl. 137—625.66 **6 Claims**



A pressure actuated spool-type fluid valve in which the spool is shifted by the pressurized fluid with or without the assistance of mechanical spring means.

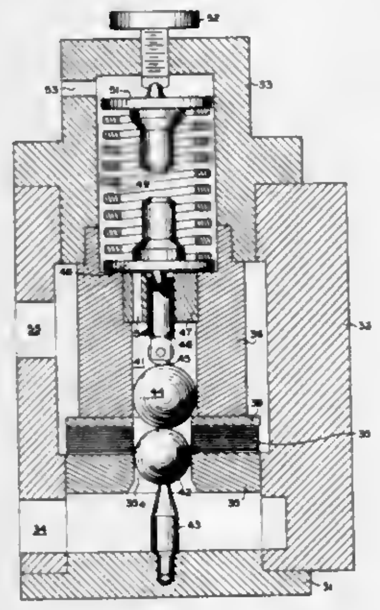
3,706,323
BALL FLOW CONTROL VALVE

Paul F. Hayner, Lexington, Mass., and David G. Eldridge, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Nov. 27, 1970, Ser. No. 93,309

Int. Cl. F16k *31/143, 1/14*

U.S. Cl. 137—625.3 **14 Claims**



A fluid flow control valve in which the element which variably impedes the flow of fluid therethrough is a ball, the position of which is controlled by a second ball in rolling engagement therewith.

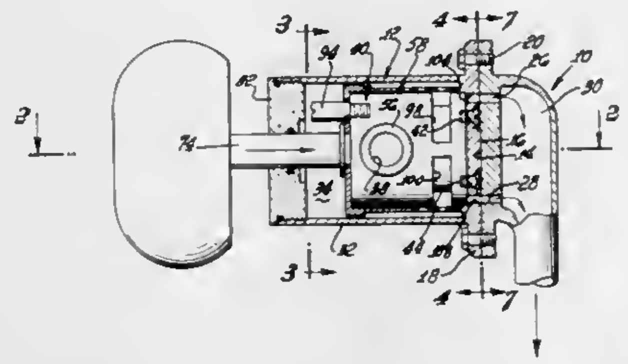
3,706,324
SINGLE-HANDLE HIGH VOLUME TUB FILLER

John K. Lyon, Pasadena, Calif., assignor to Price-Pfister Brass Mfg. Co., Pacoima, Calif.

Filed June 29, 1970, Ser. No. 50,776

Int. Cl. F16k *11/00*

U.S. Cl. 137—625.41 **3 Claims**



A cup-shaped recess has four circularly arrayed ports, hot and cold inlet ports on opposite sides and two outlet ports in quadrature relationship. A valve post projects from and registers with the four ports. The post provides laterally opening hot and cold water openings at its outer end controlled by a cylindrical valve member, and at its outer end a pair of slots. The post has large passages establishing the requisite communication between the four ports, the hot and cold water valve-controlled openings and the slots.

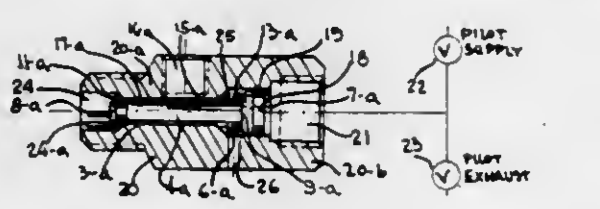
3,706,325
SIMPLE CONTROL VALVES

Richard S. Pauliukonis, 6660 Greenbriar Dr., Cleveland, Parma Heights, Ohio

Filed May 21, 1971, Ser. No. 145,751

Int. Cl. F16k *11/02*

U.S. Cl. 137—625.66 **11 Claims**



Simple fluid power control valves for use with pneumatic and/or hydraulic pressurized working fluids, of springless valve construction whose central longitudinal bore slidably receives a pin which is permanently secured with appropriate seals to allow it to float axially inside the bore, from a one closed position when the pin end with seal is subjected to the fluid pressure of the working fluid at the infeed valve end, to another open position when the opposing pin end is subjected to an external force which is greater than the fluid pressure end thrust at the infeed pin end, said external force being caused by pin actuation manually, by toggle, hand or foot lever, by a timer cam or by pilot pressure, said pin floating with seals, allowing for fast valve response as a result of short travel designed therein.

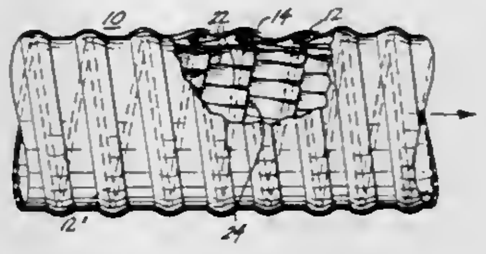
3,706,326
FLEXIBLE CONDUIT

Richard G. Bringolf, 550 S. Monroe Street, Seattle, Wash.

Filed July 9, 1971, Ser. No. 161,080

Int. Cl. F16l *11/10*

U.S. Cl. 138—129 **9 Claims**



Enhanced flexibility of a wear-resistantly lined conduit, reinforced by a spiroid incorporated in the structure, is accomplished by employing internally a continuous spirally-configured, partially unattached, supple liner serving to shield the internal peak portions of the conduit related to the spiroid from wear caused by the passage through the conduit of abrasive-particle-laden air and other gaseous streams. Suppleness of the liner is further enhanced by dividing a trailing portion of the liner into separate leaf-like portions.

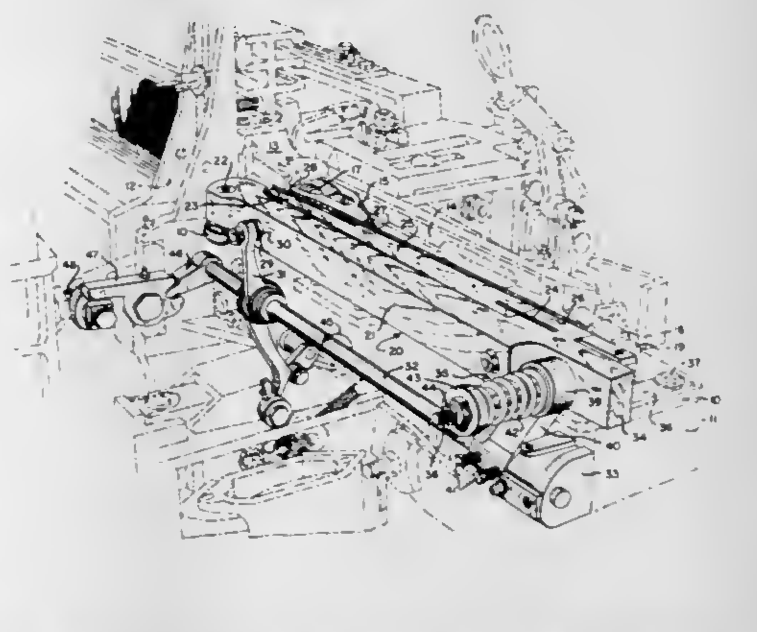
3,706,327
SHUTTLE BINDER

Joseph M. Budzyna, East Douglas, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed June 21, 1971, Ser. No. 154,921

Int. Cl. D03d *49/56*

U.S. Cl. 139—187 **3 Claims**



An improved binder for the shuttle checking mechanism of a loom having first and second body portions with a first biasing means effective upon one of the body portions to receive the impact of a shuttle as it enters a shuttle box. A second controllable biasing means for arresting the shuttle within the box and releasing it for picking from the box.

3,706,328
DEVICE FOR THE CONTINUOUS AND AUTOMATICALLY CONTROLLED DRIVING OF WARP BEAMS AND SIMILAR DEVICES BEARING A YARN SUPPLY

Pravomil Dostal, Rychnov nad Kneznou, Czechoslovakia, assignor to Elitex Zavody textilniho strojirenstvi generalni reditelstvi, Liberec, Czechoslovakia

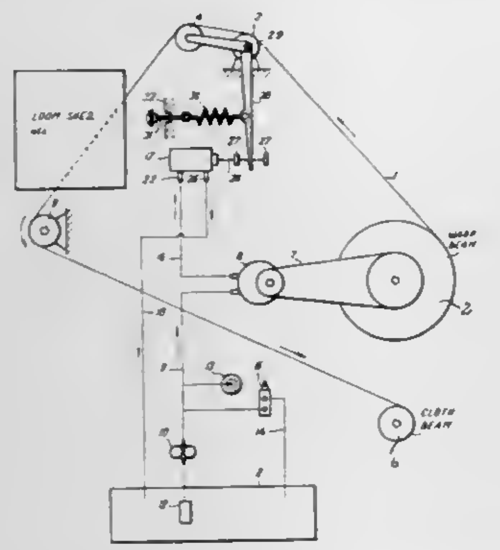
Filed Aug. 19, 1970, Ser. No. 65,114

Claims priority, application Czechoslovakia, Sept. 5, 1969, 6090/69

Int. Cl. D03d *49/06*

U.S. Cl. 139—110 **7 Claims**

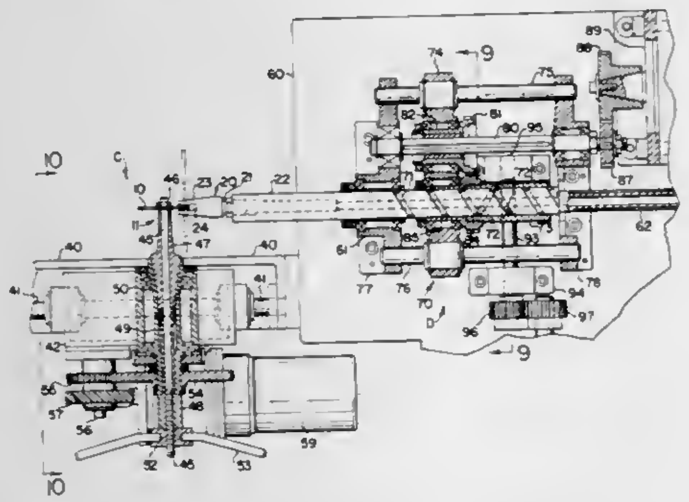
Device for continuously and automatically controlling the drive of warp beams and like. A hydraulic motor is provided for driving the warp beam, the motor being under the control of a valve which is operated by a tension sensitive device which detects the tension in the threads being paid off the beam.



3,706,329

METHOD AND APPARATUS FOR INTERTWISTING LENGTHS OF FILAMENTARY MATERIAL

Arthur T. Schofield, Brecksville, Ohio, assignor to The Manufacturers Brush Company, Cuyahoga, Ohio
Filed Jan. 28, 1971, Ser. No. 110,531
Int. Cl. B21f *7/00*
U.S. Cl. 140—149 **12 Claims**

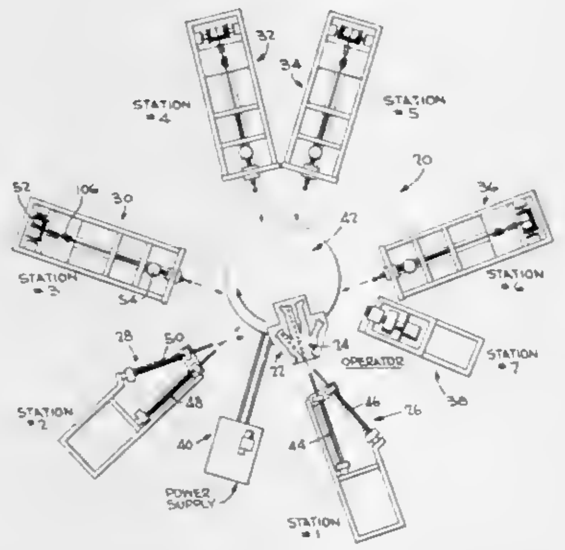


A method and apparatus for intertwisting lengths of relatively stiff, deformable monofilament or multifilament material to form a stranded segment, such as to form the intertwisted ends or legs of a wire bundle comprising a portion of the bristles of a wire brush. The twisting is accomplished by gripping each length to be twisted at one end in a stationary gripping mechanism and slidably holding the lengths in a rotatable twisting head that locates the respective portions of the lengths that are held thereby in fixed relation to one another and symmetrically spaced about the axis of rotation of the twisting head. The twisting head is initially moved axially to a predetermined axial spacing from the gripping mechanism and when the desired spacing is achieved the twisting head is rotated through a predetermined angle to intertwist the lengths. When the rotation is stopped the steps are then repeated sequentially until the lengths are intertwisted a desired number of helical convolutions.

3,706,330

METHOD AND MEANS FOR PROVIDING SUBSTANTIALLY CONTINUOUS RESILIENT ARTICLE WITH BENDABLE SKELETON AND RESULTANT ARTICLE

Glenn K. Rightmire; Alfred T. Bossler, both of Closter; Arthur E. Burnell, Demarest, and August R. Helms, Irvington, all of N.J., assignors to Jacob J. Rosen, New York, N.Y.
Filed Feb. 26, 1971, Ser. No. 119,253
Int. Cl. B21f *17/00*
U.S. Cl. 140—1 **26 Claims**



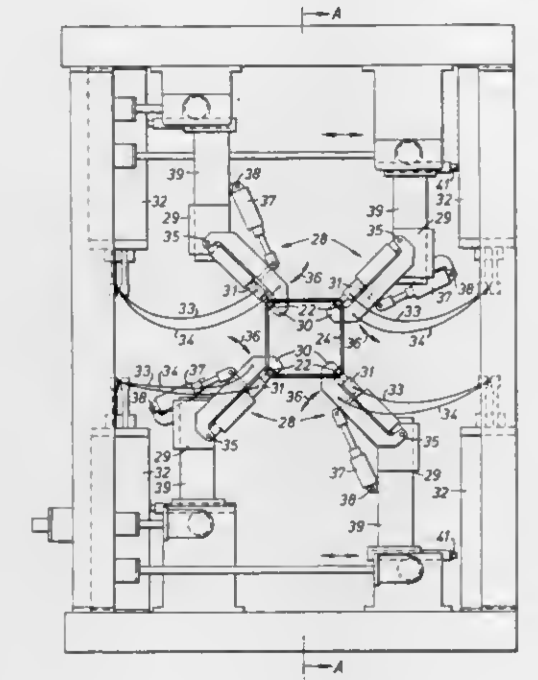
A method and means for providing a substantially continuous resilient article such as a foamed plastic doll body or the like with a bendable wire skeleton, particularly useful when the article in question is substantially seamless in nature and must be removed from a mold through a limited opening so that the wire skeleton could not be incorporated in the article during the molding operation. Means are provided for initially forming channels in the article with wire elements being inserted into the channels in a manner so that they generally overlap at a point where they are consolidated, for example, by twisting the trailing end portions of the wire elements upon each other. The leading end portions of the wire elements may be blunted by forming a loop thereon so as to minimize the possibility of piercing the surfaces of the article with relatively sharp wire tips which could cause injury in use of the article. Additionally, the twisted trailing end portions of the article may be looped and if a doll body or the like is being provided with the bendable wire skeleton a hollow head portion may be attached to the doll body in a conventional manner thereby covering the consolidated trailing end portions of the elements so that the wire skeleton is completely internal of the final article.

3,706,331

METALLIC CAGE STRUCTURE AND APPARATUS FOR MANUFACTURING SAME

John Stanley Pennington, Retford, England, assignor to British Steel Corporation, London, England
Filed Jan. 5, 1971, Ser. No. 104,076
Claims priority, application Great Britain, Jan. 9, 1970, 1,144/70
Int. Cl. B21f *27/10*
U.S. Cl. 140—112 **7 Claims**

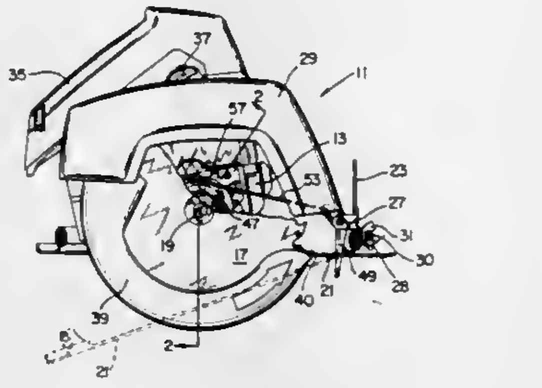
A metallic cage for use in reinforcing concrete comprises a number of straight parallel bars and a wire helically wound around the bars and welded to the bars at the points of contact. The cage is made on an apparatus comprising a drive unit for propelling forward the parallel bars, a wiring unit for wrapping the bars with wire, and a welding unit for welding the wire to the bars where they cross. The wiring unit suitably comprises a circular frame surrounding the bars and carrying a spool, which is braked to keep the wire taut. The welding unit can include resistance weld guns movable with the cage.



3,706,332

CIRCULAR SAW GUARD AND LINKAGE

William Alan George, Cockeysville, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed Jan. 13, 1971, Ser. No. 106,125
Int. Cl. B27g *19/04*
U.S. Cl. 143—159 **4 Claims**

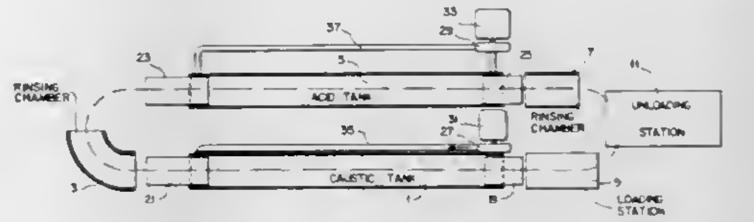


A portable electric circular saw comprising a housing having a motor supported thereon. A shaft driven by the motor has a circular saw blade fixed thereto. A shoe plate is fixed to the housing and is adapted to support the saw for movement along a workpiece. An upper guard is fixed to the housing and encompasses the cutting edge along substantially the upper half of the circular saw blade. A lower guard is pivotally supported upon the housing and normally encompasses the cutting edge along substantially the lower half of the circular saw blade. Novel means is provided whereby the lower guard is moved from its normal position, in response to positioning of the saw pursuant to cutting a workpiece, to expose that portion of the circular saw blade edge necessary to cut the workpiece.

3,706,333

FISH SKINNING PROCESS

Gale R. Ammerman, Starkville, Miss., assignor to Mississippi State University Development Foundation, Inc., State College, Miss.
Filed May 11, 1971, Ser. No. 142,239
Int. Cl. A22c *25/17*
U.S. Cl. 146—228 **10 Claims**

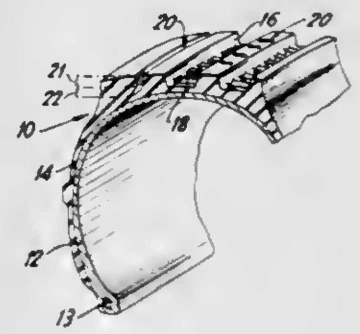


Catfish are skinned by immersing in a hot caustic bath for 1–3 minutes, rinsing, neutralizing in an acid bath, e.g., acetic or citric acid, and rinsing. The fish are preferably first deheaded, eviscerated and frozen and then refrozen after deskinning.

3,706,334

TIRE TREAD

Gilbert J. Hoke, Kenmore, N.Y., assignor to Dunlop Tire and Rubber Corporation, Buffalo, N.Y.
Division of Ser. No. 750,387, June 27, 1968, abandoned. This application Oct. 12, 1970, Ser. No. 80,139
Int. Cl. B60c *11/06*
U.S. Cl. 152—209 **4 Claims**



A pneumatic tire is provided with a tread having a traction pattern consisting of grooves and sipes. The tread pattern inhibits stone retention within the tread by suspending or cradling the stone spatially from the bottom of the groove or sipe. The grooves are provided with transverse crossbars or buttresses having a configuration and dimension relative to the groove to support or cradle a stone above the bottom of the groove.

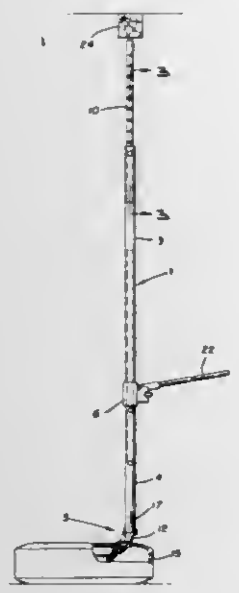
The sipe, or traction-slit, is arranged with parallel side walls wherein a first portion extends from the tread surface radially inwardly, and a second portion is formed from segments extending from the first portion but diverted or angled to alternate sides of the mid-plane extending from the first portion. The segmented sections are provided in several forms which are either twisted, angled, turned or crimped for misalignment relative to the upper or first portion of the sipe.

3,706,335

TIRE-REMOVAL DEVICE

Robert C. Long, R.D. 1, Box 26, Smithville, Ohio
Filed March 18, 1971, Ser. No. 125,540
Int. Cl. B60c *25/06*
U.S. Cl. 157—1.17 **5 Claims**

The tire is placed flat on a floor or other substantially horizontal surface. A jack provided with a tire-removing lip is placed on this with the lip adjacent the rim on which the tire is mounted. The top of the jack is placed under a rafter or other horizontal structural element. By expanding the jack the lip is forced down and disengages the tire from the rim.



3,706,336

DEVICE FOR HORIZONTAL CONTINUOUS CASTING OF PLATES

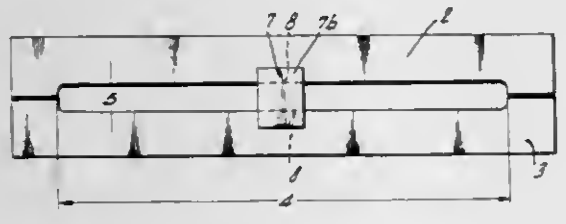
Heribert Krall, 8700 Wurzburg, and Hans Adalbert Koch, 8706 Hochberg, both of Germany, assignors to Technica-Guss GmbH, Wurzburg, Germany

Filed Jan. 22, 1971, Ser. No. 108,757

Claims priority, application Germany, Jan. 30, 1970, P 20 04 192.3

Int. Cl. B22d *11/10*

U.S. Cl. 164—281 **6 Claims**



A die for continuous casting of bar stock is adapted to be received in an outer cooler and made up of a lower part and an upper part having a rectangular in transverse cross section passageway therebetween which is of relatively greater width than height. To prevent the parts from coming towards each other when heated, a spacer or distance piece of refractory material is inserted therebetween at the casting material entrance end and at about the center widthwise location. This distance piece has a stem projecting into the passageway to hold the parts apart and a cap thereon abutting the adjacent entrance ends of the parts of the die to prevent the distance piece from moving on into the passageway as the casting material flows therepast.

3,706,337

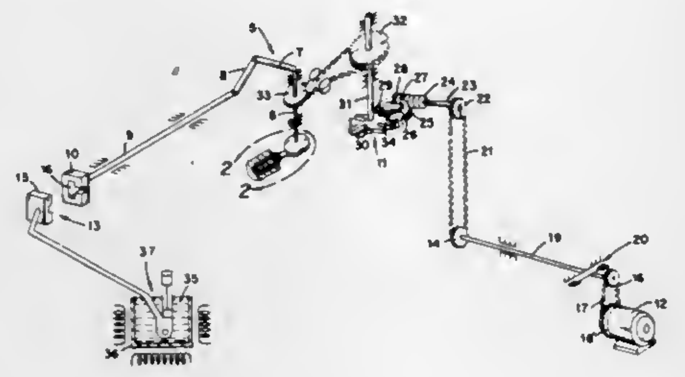
FORCE-BALANCED DIE CASTING APPARATUS

Franck M. Picker, Oak Ridge, Tenn., assignor to Pic-Air Inc., Oak Ridge, Tenn.

Division of Ser. No. 882,020, Dec. 4, 1969, Pat. No. 3,604,495. This application April 27, 1971, Ser. No. 137,879

Int. Cl. B22d *17/26*

U.S. Cl. 164—303 **7 Claims**



Die casting molten metal employing a split die, one platen of which is fixed and one platen of which is reciprocatable between open and closed positions, including maintaining the platen reciprocation apparatus in a force-balanced state during a major part of such reciprocation cycle.

3,706,338

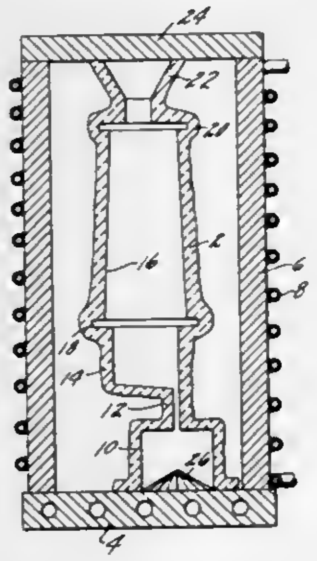
RADIATION SHIELD FOR INVESTMENT MOLDS

Robert B. Barrow, and Bruce E. Terkelsen, both of Cheshire, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Division of Ser. No. 31,637, April 24, 1970, Pat. No. 3,633,648. This application Sept. 20, 1971, Ser. No. 182,108

Int. Cl. B22d *15/00*

U.S. Cl. 164—357 **3 Claims**



In making columnar grained or single crystal castings, the mold is heated prior to pouring and a meltable metallic shield is placed on the chill plate to serve as a heat shield between the mold and the plate during heating of the mold and also to prevent condensation of impurities on the chill plate.

3,706,339

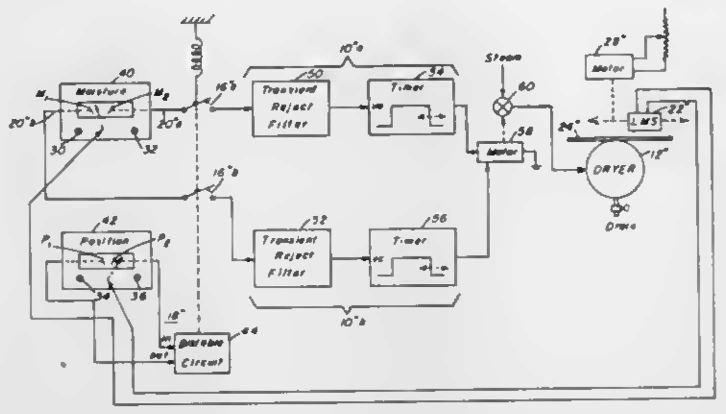
CONTROL SYSTEM

Edward C. Bartles, aod Raymond A. Fraim, both of Rochester, N.Y.

Continuation of Ser. No. 778,395, Nov. 25, 1968, Pat. No. 3,518,775. This application April 8, 1970, Ser. No. 26,606

Int. Cl. F25b *29/00*

U.S. Cl. 165—12 **2 Claims**



A moisture control system for use in paper making is disclosed as employing a traversing moisture sensor, the traversal time of which is made compatible with the thermal time constant of a dryer stage for such paper.

ERRATUM

For Class 165—70 see:
Patent No. 3,706,343

3,706,340

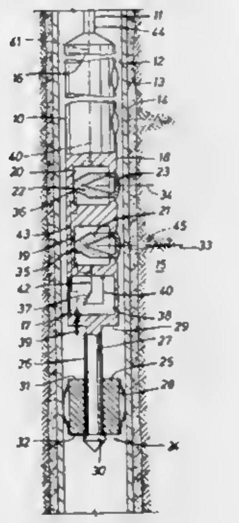
METHODS FOR PERFORATING AN EARTH FORMATION

Nick A. Schuster, Darieo, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed April 7, 1971, Ser. No. 132,014

Int. Cl. E21b *43/117*

U.S. Cl. 166—297 **11 Claims**



As a preferred mode for practicing the invention disclosed herein, one or more sets of selectively-fired perforating devices are positioned in a well bore and the first of two adjacent devices is actuated for producing a first perforation extending along a selected perforating axis into an adjacent earth formation. The second perforating device is then positioned immediately adjacent to the previous position of the first perforating device and directed along a second perforating axis closely paralleling that of the first perforation. Upon actuation of the second device, a second perforation is produced which is contiguous with the first perforation and effective for displacing compacted, crushed formation materials from around at least a portion of the second perforation to improve the productivity of at least this second perforation.

3,706,341

PROCESS FOR DEVELOPING INTERWELL COMMUNICATION IN A TAR SAND

David Arthur Redford, Fort Saskatchewan, Alberta, Canada, assignor to Canadian Fina Oil Limited, Alberta, Canada

Filed Oct. 8, 1970, Ser. No. 79,346

Int. Cl. E21b *43/22, 43/24*

U.S. Cl. 166—275 **4 Claims**

A hot, competent, permeable communications zone, connecting injection and production wells completed in a tar sand, is developed as follows: A cold, aqueous solution containing sodium hydroxide and a non-ionic surfactant is injected into a propped fracture system connecting the wells. The solution is circulated between the wells at a pressure below the fracture propping pressure. Bitumen is slowly emulsified in the solution and removed through the fracture system; a competent, bitumen — depleted zone contiguous to the fracture zone is thereby developed. The temperature of the solution is then slowly increased and the quantities of sodium hydroxide and surfactant gradually decreased until pure steam only is being circulated.

3,706,342

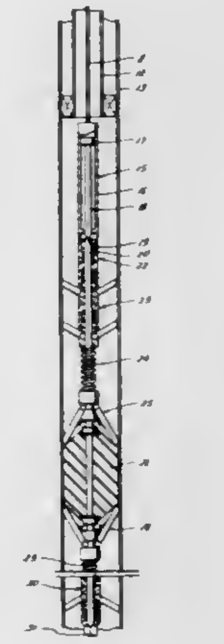
PACKER FOR WELLS

Brown J. Woolley, P.O. Box 1249, Kilgore, Tex.

Continuation-in-part of Ser. No. 692,203, Dec. 20, 1967, abandoned. This application Sept. 15, 1969, Ser. No. 858,010

Int. Cl. E21b *23/06, 33/128, 33/129*

U.S. Cl. 166—134 **22 Claims**



A well tool for controlling fluid flow through a well bore. It has particular application in the form of a packer or bridge plug for insertion down through a restriction such as tubing, collapsed casing or the like in a well and is adapted for expansion to a size sufficient to engage the casing at a point spaced below the restriction.

3,706,343

STAVE COOLING DEVICE EMPLOYING DOUBLE-TUBES

Yoshinori Saiga, Funabashi, and Kazunori Mohri, Yokahama, both of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan

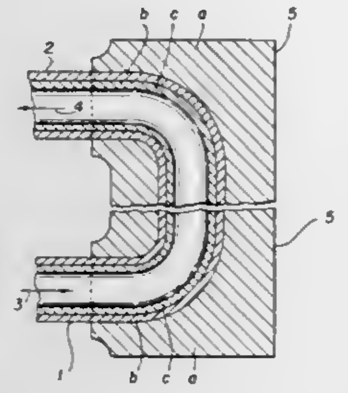
Filed June 4, 1971, Ser. No. 150,216

Claims priority, application Japan, June 4, 1970, 45/54403

Int. Cl. F28f *7/02;* **C21b** *7/10*

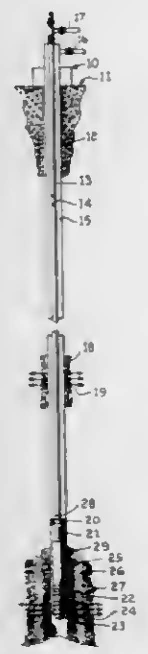
U.S. Cl. 165—70 **1 Claim**

A stave cooling device wherein a double-drawn-steel-tube is cast into a main-body of castable metal, the outer surface of the outer tube of said double-tube being closely welded to said main body and the inner tube of said double-tube serving as the passage of the coolant.



3,706,344
TUBING CONVEYED PERMANENT COMPLETION METHOD AND DEVICE

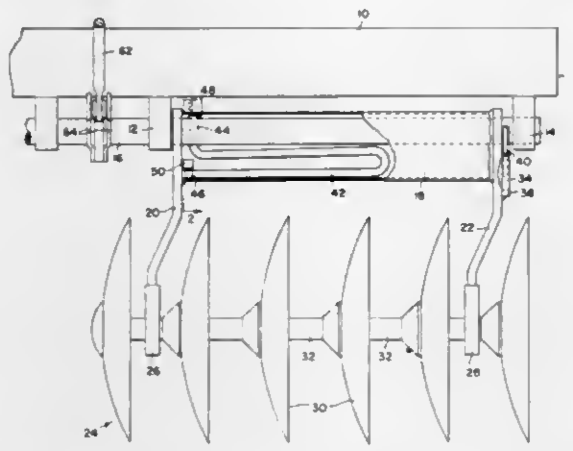
Roy R. Vann, 3302 Providence Drive, Midland, Tex.
Filed Oct. 15, 1970, Ser. No. 80,991
Int. Cl. E21b *43/116, 43/12*
U.S. Cl. 166—297 **26 Claims**



Method and apparatus for effecting a dual completed well wherein the lower zone is packed off or isolated from the upper zone prior to perforating either zone; the upper zone is then completed, whereafter the lower zone is perforated. In perforating the lower zone a casing perforating gun, gun firing mechanism, and packer are run into the hole with the gun being suspended below the packer and properly positioned with respect to the borehole. The lower zone is then isolated and the tubing to the packer is removed. The upper zone is then completed, tested, and shut-in, if desired. The tubing is again flow connected to the packer, swabbed clean, and then the casing perforator is actuated, with the production from the lower zone being free to flow to the surface of the earth at the moment the lower perforations are made by the gun. The packer, gun and the firing mechanism are left in the hole.

3,706,345
TOOL MOUNTING MEANS FOR AGRICULTURAL IMPLEMENTS

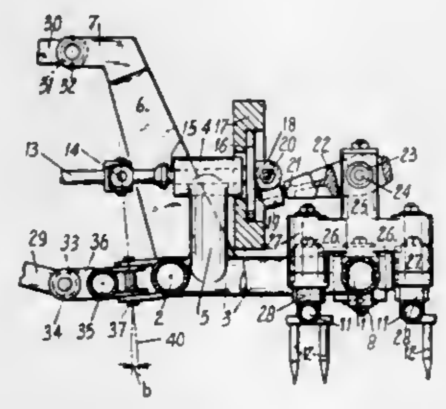
Roger Lee Patterson, Fonthill, and Henning Isachsen, Merritton, Ontario, both of Canada, assignors to Deere & Company, Moline, Ill.
Filed July 22, 1970, Ser. No. 57,115
Int. Cl. A01b *35/28, 39/20*
U.S. Cl. 172—572 **16 Claims**



An apparatus for resiliently mounting an elongated gang of disks on the frame of an agricultural implement, including an elongated tubular member having a pair of arms fixed to its ends and extending outwardly therefrom, the gang of disks being supported on the outer ends of the arms; a shaft rotatably mounted on the frame and extending axially through the tubular member; a U-shaped torsion bar contained within the tubular member and acting between the tubular member and shaft for biasing the former, and thereby the gang of disks, downwardly about the latter; and a pair of upper and lower stops defining the range of movement of the tubular member about the shaft. A hydraulic ram is operable to rotate the shaft and thereby raise and lower the gang of disks relative to the frame.

3,706,346
MOVEMENT ABSORBING LOWER LINKS HITCH FRAME PIVOTALLY CONNECTED ABOUT AN UPWARDLY FORWARDLY INCLINED AXIS TO A RECIPROCATING HARROW

Herbert Vissers, Nieuw-Vennep, Netherlands, assignor to H. Vissers N.V., Nieuw-Vennep, Netherlands
Filed Sept. 8, 1970, Ser. No. 70,054
Claims priority, application Netherlands, Sept. 17, 1969, 69/14073
Int. Cl. A01b *35/10, 59/06, 61/02*
U.S. Cl. 172—102 **8 Claims**

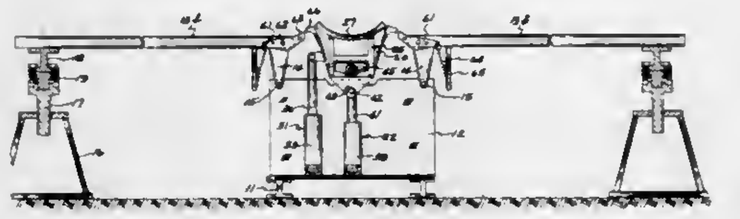


An agricultural implement is provided comprising a frame, to be connected to a tractor and a reciprocating tool cultivating the soil.

For preventing the reciprocating tool to force the tractor to make an oscillatory movement the tractor is connected to the frame of the implement through an auxiliary frame which is connected swingably to the frame for a swinging movement around an axis inclining forwardly.

3,706,347
PIPE HANDLING SYSTEM FOR USE IN WELL DRILLING

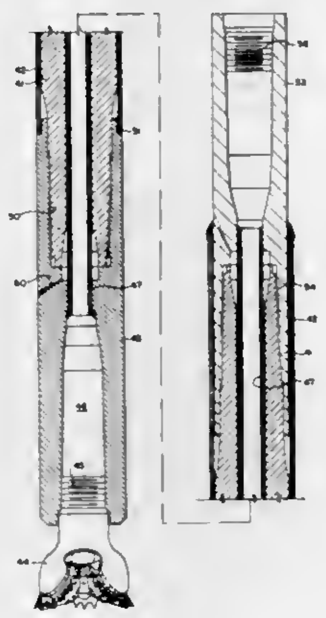
Cicero C. Brown, c/o Brown Oil Tools, Inc., P. O. Box 19236, Houston, Tex.
Filed March 18, 1971, Ser. No. 125,740
Int. Cl. E21b *19/14*
U.S. Cl. 175—85 **16 Claims**



A pipe handling system for use in well drilling. The system includes pipe storage racks, power-operated conveyor means for advancing the pipe sections to a drilling derrick and for transferring the pipe sections from the storage racks to the conveyor means; power swivel means supported by the derrick hoist adapted for connection to the pipe sections, and power-actuated pivoting means connecting the power swivel means to the hoist to enable angular movement of the swivel means as required to effect alignment thereof with the forward ends of the pipe sections entering the derrick from the conveyor means.

3,706,348
WELL DEVIATION CONTROL SYSTEM

Carey E. Murphey, Jr., Zurich, Netherlands, assignor to Shell Oil Company, Houston, Tex.
Continuation-in-part of Ser. No. 2,763, Jan. 14, 1970, abandoned. This application Dec. 6, 1971, Ser. No. 205,222
Int. Cl. E21b *17/00*
U.S. Cl. 175—320 **7 Claims**



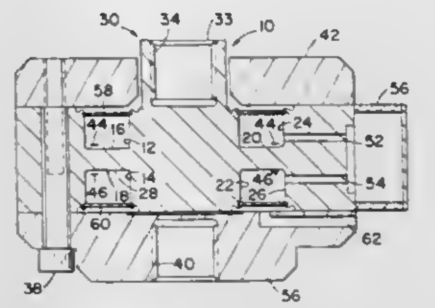
A system for controlling hole deviation through the use of a bit and a composite drill string comprising a heavy drill collar disposed above the bit and conventional steel collars above the heavy metal collar.

ERRATUM

For Class 177—1 see:
Patent No. 3,706,587

3,706,349
LOAD CELL

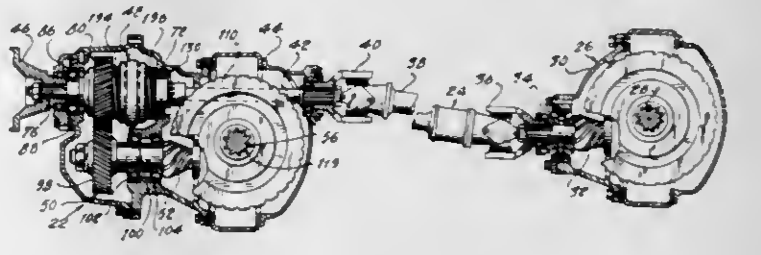
Owen Paelian; Donald R. Rister, and Richard L. Kellar, all of Huntsville, Ala., assignors to Toroid Corporation, Huntsville, Ala.
Filed Oct. 2, 1970, Ser. No. 77,634
Int. Cl. G01g *3/14*
U.S. Cl. 177—211 **11 Claims**



A load cell consisting basically of three structural regions concentrically arranged, a central or hub region adapted to receive loading from a first direction, an outer tubular region adapted to receive opposite and equal loading and a web or diaphragm region interconnecting the central and outer regions, and wherein strain gauges are placed on the surface of the web region and respond to bending strain produced in the web region by load so applied.

3,706,350
FULLY AUTOMATIC LOCKING INTERAXLE DIFFERENTIAL FOR TANDEM VEHICLES

Ronald D. Bokovoy, Detroit, Mich., assignor to Boise Cascade Corporation, Boise, Idaho
Continuation-in-part of Ser. No. 30,851, April 22, 1970, abandoned. This application Dec. 9, 1970, Ser. No. 96,569
Int. Cl. B62d *61/04*
U.S. Cl. 180—24.09 **8 Claims**

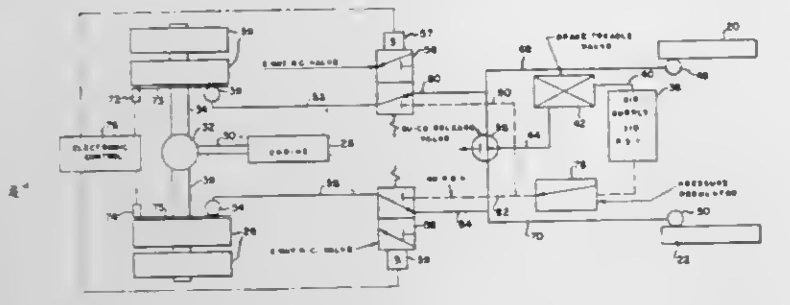


An interaxle differential mechanism adapted to deliver torque from a driving shaft to the rear axles and the rear-rear axles of a tandem drive vehicle wherein provision is made for distributing the torque to the rear-rear axles and the rear axles without incurring individual rear-rear axle spin-out or forward-rear axle spin-out, and wherein provision is made also for automatically disconnecting from the driveline either the rear axles or the rear-rear axles when a tendency exists for one or both rear axles or one or both rear-rear axles to overrun due to turning maneuvers.

3,706,351
DIFFERENTIAL CONTROL

James C. Neisch, Orchard Lake, Mich., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Continuation of Ser. No. 807,060, March 13, 1969, abandoned. This application Jan. 25, 1971, Ser. No. 109,538
Int. Cl. B60k *23/04*
U.S. Cl. 180—75 **14 Claims**

An electromechanical system for limiting the speed differential between a pair of vehicle axle shafts driven through the differential unit. The system effectively compares the axle shaft speeds and, upon detection of a predetermined speed difference, controls the brakes to thereby reduce or eliminate the speed differential. In one form the control function is exercised when the speed differential exceeds a predetermined fixed value. In another form the control function is exercised whenever the speed of the slower axle shaft is less than a predetermined percent of the speed of the faster axle shaft.



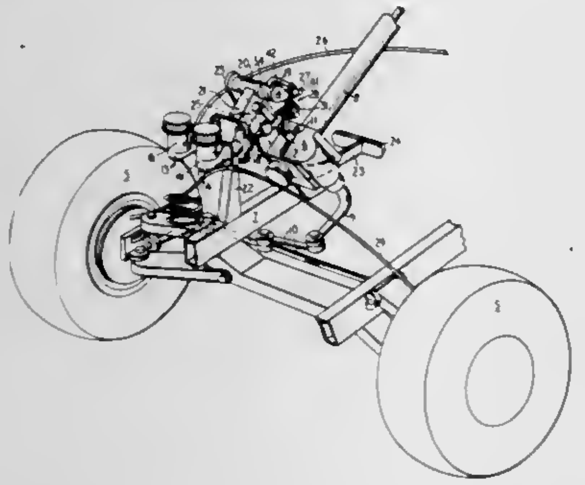
3,706,352
AUTOMATIC BRAKE-SAFETY CONTROL

Colin Campbell Ferguson, 8 Russell Street, and William Robert Fossey Bolton, 1 Cox Street, P.O. Box 279, both of Toowoomba, Queensland 4350, Australia

Filed Jan. 20, 1971, Ser. No. 107,890

Int. Cl. B60k *33/02*

U.S. Cl. 180—103 **2 Claims**



A braking system for motor vehicles includes first means for applying substantially the same braking effect to the front and rear wheels at substantially the same time when the vehicle is moving in a straight line and second means for reducing the braking effect on the front wheels compared with that on the rear wheels when the front wheels are turned, the reduction being approximately in proportion to the degree of turn of the front wheels.

3,706,353
NOISE SUPPRESSOR FOR JET ENGINES

John Eirwyn Ffowces-Williams, Surrey; Roy Hawkins, Bristol; Hylton Dawson, Bristol, and William Smith, Bristol, all of England, assignors to Secretary of State for Defense in Her Brittanic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

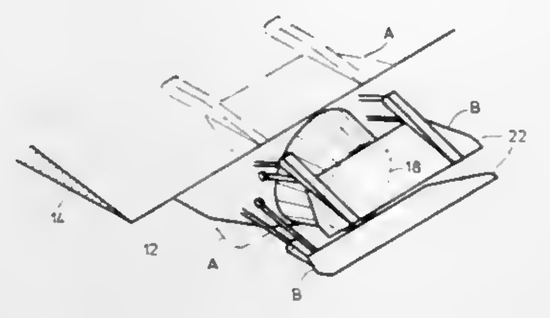
Filed Nov. 23, 1971, Ser. No. 201,511

Claims priority, application Great Britain, Nov. 30, 1970, 56,887/70; Dec. 19, 1970, 60,404/70

Int. Cl. F01n *1/14, 1/16;* **B64d** *33/06*

U.S. Cl. 181—33 HC **3 Claims**

The disclosure of this invention pertains to noise suppression apparatus for jet engines wherein two convergent but otherwise relatively flat plates are arranged in a position downstream of the exhaust nozzle of an engine and at opposite sides of the nozzle axis so that a generally axisymmetric jet is flattened when passing through between the plates and is thereby caused to spread in a direction transverse to said axis with consequent noise suppression in said direction.



3,706,354
CASE FOR LIPSTICKS AND OTHER PASTY PRODUCTS

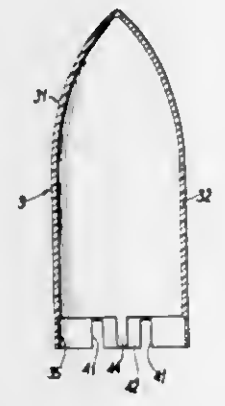
Ralph Gruska, Val-de-Marne, France, assignor to SEBEC Societe d'Exploitation de Brevets d'Emballage Cosmetique SA, Fribourg, Switzerland

Filed April 7, 1970, Ser. No. 26,226

Claims priority, application France, April 11, 1969, 6911210

Int. Cl. A45d *40/02*

U.S. Cl. 401—78 **10 Claims**



In a container for lipstick or similar materials of the usual kind comprising a stick carrier axially movable within the inner one of two coaxial sleeves and the lipstick being provided with a protective dome, usually transparent, that fits onto the carrier, there are special provisions for ensuring smooth and reliable ejection of the dome on first operation of the container. The open end of the dome has a counterbore to fit over the upper end of the carrier and is also provided with longitudinal slits that define between them flexible tongues of which at least part of the inside faces project inwards from the remainder of the counterbore but only to an extent not greater than the depth of the counterbore.

3,706,355
RESERVOIR FOR LUBRICATING PNEUMATIC COMPONENTS

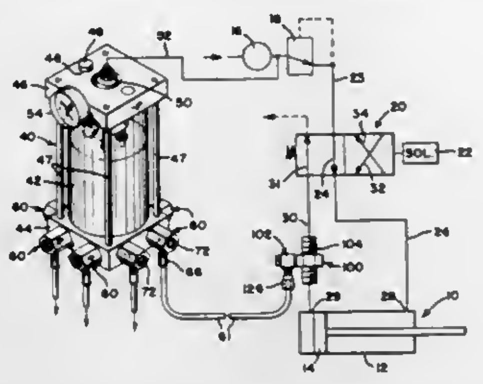
Edgar C. Oglesbee, 1819 Harvard Boulevard, Dayton, Ohio

Division of Ser. No. 836,408, June 25, 1969, Pat. No. 3,595,341. This application June 21, 1971, Ser. No. 155,106

Int. Cl. F16n *7/32*

U.S. Cl. 184—7 R **1 Claim**

The reservoir includes an inlet for admitting lubricating fluid and at least one outlet adapted to be connected to a lubricating device used to supply fluid to at least one pneumatic component. The same pressurized air which drives the pneumatic component at a driving pressure is connected to the reservoir, and the reservoir includes an air pressure regulator for reducing the pressure of the pressurized air to a pressure less than the driving pressure enabling the reservoir to be positionable remote from the component and at the same time to deliver fluid to the lubricating device at a pressure less than the driving pressure.



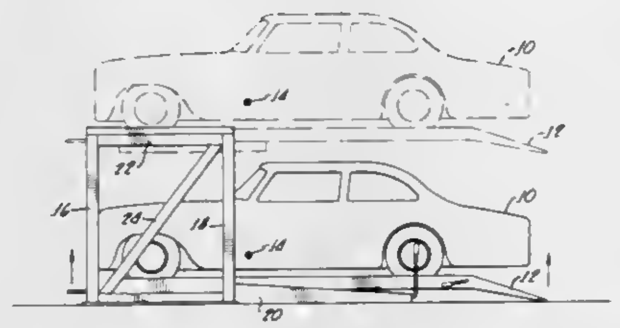
3,706,356
VEHICLE HOIST

Lewis R. Herbst, 1036 Liberty Lane, Anaheim, Calif.; Burton C. Herbst, 221 Martha Place, Fullerton, Calif., and Wayne K. Herbst, 5082 Siesta Lane, Yorba Linda, Calif.

Filed April 22, 1970, Ser. No. 30,672

Int. Cl. B60s *13/00*

U.S. Cl. 187—8.59 **1 Claim**



A vehicle hoist for vertically reciprocating vehicles while supporting the vehicle in cantilever fashion. The vehicle is maintained essentially horizontal during the reciprocation and may be selectively elevated to a variety of heights.

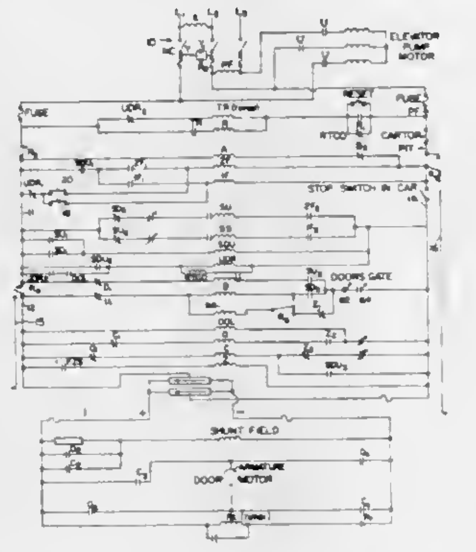
3,706,357
ELEVATOR EMERGENCY ACTUATOR AND RESCUE UNIT

Joseph Elmer Simpson, 1407 N.E. 60th St., Fort Lauderdale, Fla.

Filed March 30, 1970, Ser. No. 23,925

Int. Cl. B66b *5/02*

U.S. Cl. 187—29 R **6 Claims**



An auxiliary power unit is mounted in the power room and is connected to the operating system in such a way as to take over the operation of the elevator automatically in case of (a) loss of power to the elevator at the elevator disconnect switch, (b) loss of one or more phases of a three-phase power supply, (c) reversal of a phase, (d) if a call has not been answered within a predetermined time. When an auxiliary power unit goes into action it does a number of things including moving the car to the nearest floor level and opening the car and hoistway doors for passenger exit. The auxiliary power unit does not go into action if the safety circuit is open.

A solid state device is provided which (a) converts a 12-volt DC current to a 220-volt AC current, (b) automatically starts the recharge of the auxiliary power unit battery upon resumption of the regular power supply, (c) maintains the battery fully charged, and (d) prevents over-charging of the battery.

3,706,358

Patent Not Issued For This Number

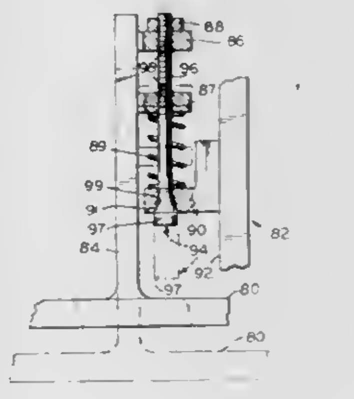
3,706,359
ENERGY ABSORBING STRUCTURES

Edward P. Skralskis, Lake Oswego, Oreg., assignor to Omark Industries, Inc., Portland, Oreg.

Filed Sept. 25, 1970, Ser. No. 75,426

Int. Cl. F16f *7/12*

U.S. Cl. 188—1 C **5 Claims**



An automobile frame includes telescoping front and rear sections normally extended by energy absorbing devices each including pairs of drawable rods secured together by turnbuckle nuts and engaging pairs of drawing dies in bars fixed to the sections. Energy absorbing devices include ears on bumpers and frames held together by drawable or extrudable rods with long threaded shanks on the rods to permit takeup after partial drawing or extruding.

3,706,360
AUTOMATIC BRAKE ADJUSTER

Mizuo Nyunoya, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi pref., Japan

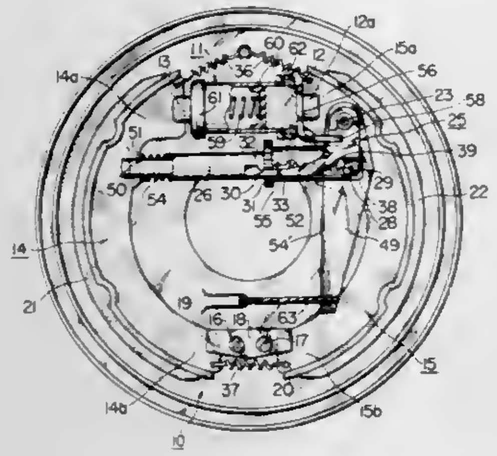
Filed Dec. 28, 1970, Ser. No. 101,666

Claims priority, application Japan, Dec. 25, 1969, 45/306

Int. Cl. F16d *51/50*

U.S. Cl. 188—79.5 P **10 Claims**

This invention relates generally to improvements in and relating to a hydraulic brake control apparatus in an automotive vehicle. More specifically, it relates to an apparatus for automatic brake gap control in a shoe-drum brake unit for an automotive hydraulic brake system comprising a hydraulic service brake system and a manual parking brake system.



The improvements resides in the provision of such means that during actuation of the hydraulically operated service brake, a ratchet type brake gap-adjuster is disabled from operation, and during actuation of the manually operated parking brake, the adjuster is released to its ready-for-operational position.

3,706,361

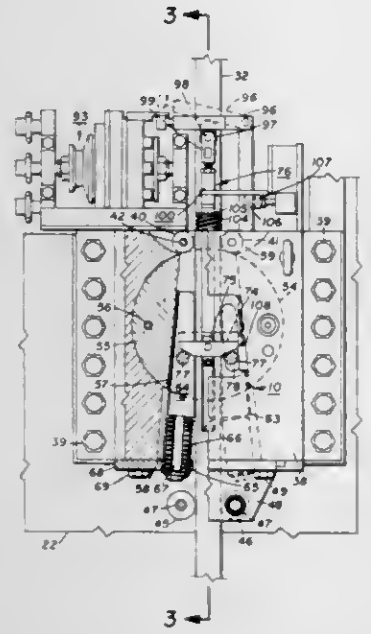
SAFETY BRAKE

Walter A. Paulssen, Spring Lake, and Robert R. Johnston, Muskegon, both of Mich., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed July 21, 1970, Ser. No. 56,793

Int. Cl. F16d *59/00;* **B60t** *8/12*

U.S. Cl. 188—189 **17 Claims**



A safety brake operable in the event of a support failure between contiguous load carrying component parts of elevating equipment such as the mast of a stacker crane in which the parts are normally supported one dependent on the other. Tapered brake shoes secured spaced apart on one of the component parts are normally held disengaged from a gripping bar vertically extending therebetween and secured to the other component part. In the event of failure in the normally connecting support structure, brake operation is triggered by an associated velocity-sensitive actuator enabling the shoes to be wedgedly forced into brake engagement with the gripping bar.

3,706,362

TELESCOPIC HYDRAULIC DAMPER

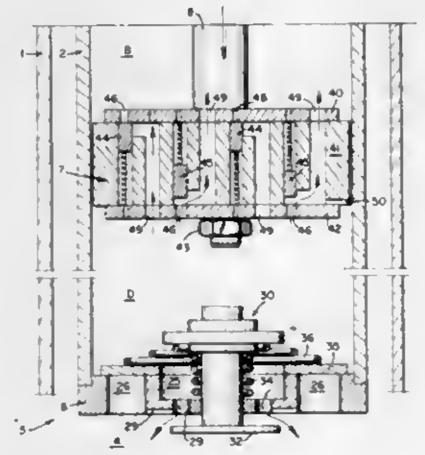
Denis Marie Faure, Saint Prix, France, assignor to Chrysler France, Paris, France

Filed May 5, 1970, Ser. No. 34,731

Claims priority, application France, May 8, 1969, 6914868; Sept. 26, 1969, 6933007

Int. Cl. F16f *9/34*

U.S. Cl. 188—282 **3 Claims**



A telescopic hydraulic shock-absorber comprises inner and outer cylinders provided at their head and foot ends with respective closure members formed with conical bearing surfaces for self-centering of said cylinders. The annular head closure member of the inner cylinder guides the rod of a piston through which are arranged, for each direction of motion, two valves opening at different pressures. The annular foot closure member of the inner cylinder carries coaxially arranged valve means, controlling selectively the flow of make-up liquid to and from said outer cylinder.

3,706,363

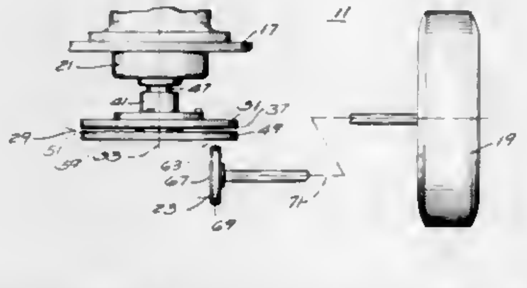
LAWN MOWER FRICTION DRIVE WITH SLIP CLUTCH

Donald E. Niles, Nashotah, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed June 15, 1971, Ser. No. 153,356

Int. Cl. F16h *15/08;* **B62d** *51/04*

U.S. Cl. 192—3.54 **7 Claims**



Disclosed herein is a lawn mower including a friction drive comprising a clutch disc connected to a driving engine, a clutch plate mounted in facing relation to the clutch disc and for clutch plate rotation co-axially with and independently of the clutch disc, as well as for axial movement relative to a position in engagement with the clutch disc, together with a roller which is drivingly connected to a mower drive wheel, which includes a circular periphery, and which is mounted for rotation about an axis transverse to the clutch disc and plate axis and for translation about another axis parallel to the roller axis into a position engaging the roller periphery with the clutch plate in such manner as to more or less also simultaneously engage the clutch plate with the clutch disc. In addition, there is disclosed means biasing the roller toward the clutch disc, whereby to engage the roller periphery with the clutch plate and to engage the clutch plate with the clutch disc, and means operable by a user for controlling movement of the roller relative to the position engaging the roller periphery with the clutch plate.

3,706,364

FORM-LOCKING CONNECTION OF TORQUE-TRANSMITTING STRUCTURAL PARTS, ESPECIALLY IN AUTOMATIC MOTOR VEHICLE TRANSMISSIONS

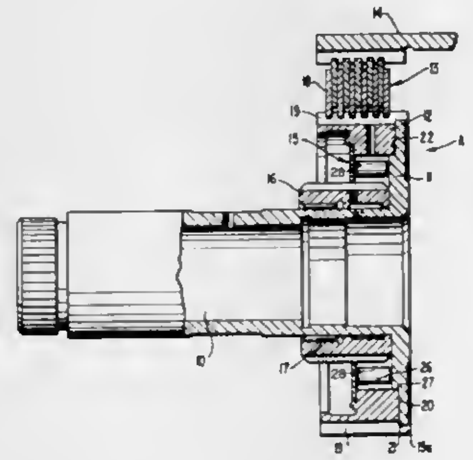
Josef Helmer, Aich Kreas Nurtingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Untertuerkheim, Germany

Division of Ser. No. 825,272, May 16, 1969, Pat. No. 3,606,412. This application May 28, 1971, Ser. No. 147,775

Claims priority, application Germany, May 16, 1968, P 17 50 586.1

Int. Cl. F16d *41/04;* **B23p** *11/00*

U.S. Cl. 192—48.92 **4 Claims**



A form-locking connection between a first structural part provided with external teeth and a second structural part; the external teeth of the first structural part are extended beyond its end face, and the second structural part is provided with external teeth engaging into the overhanging portion of the external teeth of the first structural part.

3,706,365

CLUTCH OPERATOR WITH HYDROSTATIC BEARINGS

Heinz-Dieter Bohm, 475 Unna; Wolfgang Muller, and Herbert Hobert, both of 475 Unna-Massen, all of Germany, assignors to Maschinenfabrik Stromag G.m.b.H., Unna, Germany

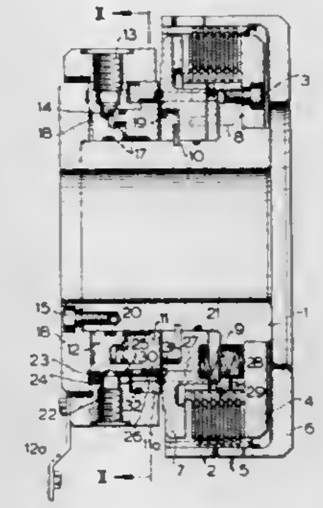
Filed May 17, 1971, Ser. No. 122,330

Claims priority, application Germany, May 21, 1970, P 20 24 639.3

Int. Cl. F16d *25/08*

U.S. Cl. 192—85 CA **11 Claims**

A coupling having a pair of coupling members and axially movable means for selectively establishing a torque-transmitting relation between said pair of coupling members and for disconnecting said pair of coupling members so that the driving coupling member does not any longer drive the driven coupling member. The aforementioned axially movable means are operated by a fluid motor. A hydrostatic bearing is interposed between the aforementioned axially movable means and the fluid motor. The coupling is provided with additional hydrostatic bearings for receiving and balancing axial forces and for receiving and balancing radial forces inherent in the operation of the coupling.



3,706,366

REPEAT TYPING MECHANISM FOR POWER OPERATED TYPEWRITERS

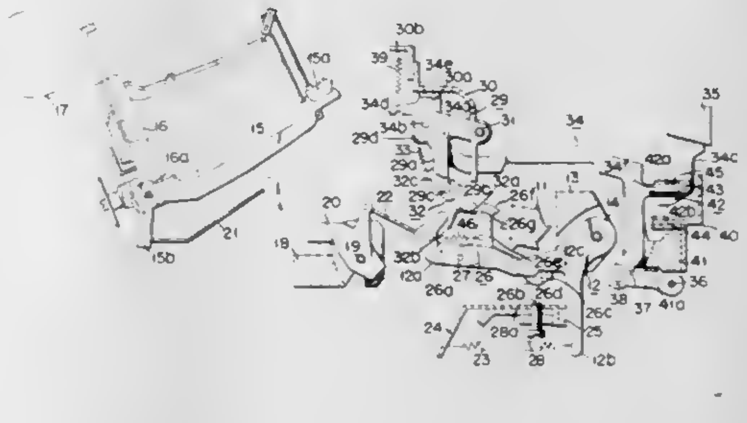
Yukio Hishida; Nakai Toshio, both of Nagoya, and Susumu Kuzuya, Gifu-ken, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya-shi, Japan

Filed Dec. 11, 1970, Ser. No. 97,076

Claims priority, application Japan, Dec. 16, 1969, 44/119848

Int. Cl. B41j *23/08*

U.S. Cl. 197—17 **4 Claims**



A repeat typing mechanism for power operated typewriters comprising a snatch roll, pawl members detachably engaged therewith, actuating members rockable about a fixed shaft so as to hold said pawl members in a rockable state, key levers, and control levers actuated by said levers and provided with first and second bent lugs disposed substantially at right angles to each other, wherein the key lever can be successively depressed in two steps, and at the time of the first step depression of the key lever by the first bent lug and at the time of the second step depression thereof by cooperation of the first and second bent lugs, the upwardly extending engaging arm of the pawl member is directly actuated to cause the pawl member to be engaged with or disengaged from the snatch roll with the resulting operation of the actuating member, said first step depression leading to a non-repeat typing action and said second step depression to a repeat typing action.

3,706,367
HIGH SPEED SERIAL PRINTING DEVICE FOR TYPEWRITERS, TELEPRINTERS, CALCULATING MACHINES, ACCOUNTING MACHINES AND THE LIKE

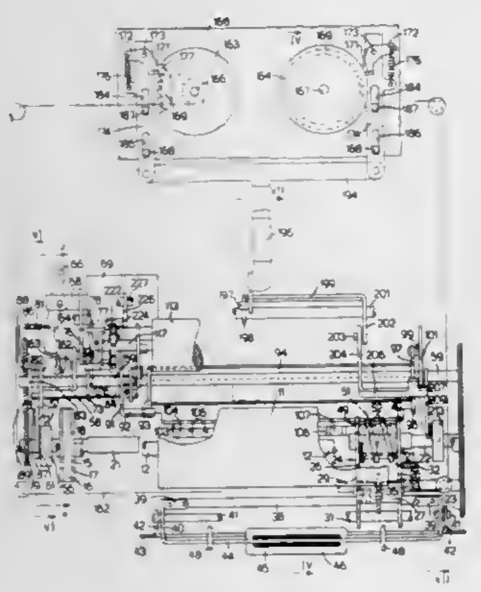
Franco Bretti, Are'Di Caluso, Italy, assignor to Ing. C. Olivetti & C.S.p.A., Ivrea (Turin), Italy

Filed June 2, 1970, Ser. No. 42,700

Claims priority, application Italy, June 3, 1969, 52093 A/69

Int. Cl. B41j *1/22*

U.S. Cl. 197—55 **5 Claims**



A high speed serial printing device comprises a continuously rotating drum circumferentially carrying a plurality of rows of characters which are to be struck by a hammer mounted on a carriage.

A continuously rotating screw is synchronized with the drum and is engaged with a rack in order to move the carriage transversely. Each spiral of the screw includes a first portion which moves the carriage at a first speed while the hammer scans each row of characters, and a second portion which moves the carriage at a second speed which is higher than the first, while the hammer moves from a scanned row to an adjacent row of characters which are to be scanned.

3,706,368
CLOSURE HANDLING AND ORIENTING APPARATUS

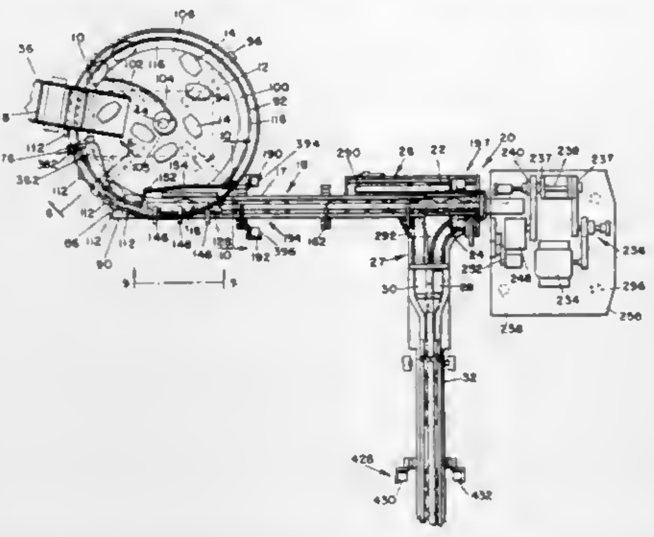
Walter S. Sterling, Quincy, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Filed Nov. 30, 1970, Ser. No. 93,554

Int. Cl. B65g *47/24*

U.S. Cl. 198—33 AA **17 Claims**

Apparatus particularly adapted for handling oblong closures having printing thereon wherein the closures are first aligned end to end in a row regardless of whether or not the printing on adjacent closures reads in the same direction, and thereafter the closures are oriented and realigned with the printing on all of the closures oriented to read in the same direction.



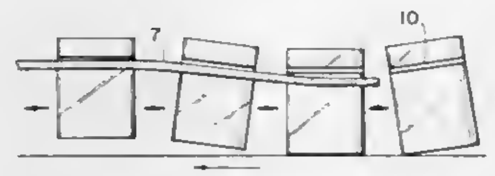
3,706,369
INCLINATION CORRECTING DEVICE FOR BAGS CARRYING FASTENERS

Hiroshi Ishida, and Minoru Mukai, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 830,030, June 3, 1969, abandoned. This application May 13, 1971, Ser. No. 143,181

Int. Cl. B65g *47/24*

U.S. Cl. 198—33 AD **1 Claim**



A plurality of pulleys and rollers are arranged in two groups in spaced parallel relation with each other. A moving belt is tensioned around each group of pulleys and rollers respectively and the bags are carried therebetween. While the bags are moving, the inclination is corrected since the fastener of each bag engages with the upper edge of the belts and is hung thereby.

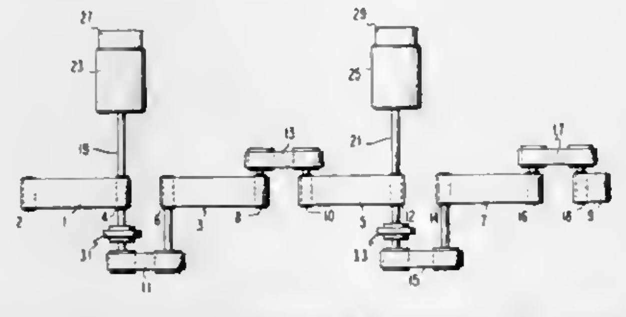
3,706,370
CONVEYOR SYSTEM

Edward J. Bonafino, Endwell; Frederick W. Doolittle, Binghamton; Charles U. Hayes, and James C. Yarrington, both of Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 21, 1970, Ser. No. 100,056

Int. Cl. B65g *23/26, 23/36*

U.S. Cl. 198—76 **7 Claims**



A conveyor system comprising a plurality of tandem conveyor sections, each having an associated driver or power means, adjacent sections being coupled to each other by overrunning clutches, so that downstream sections can operate as fast or faster than upstream sections.

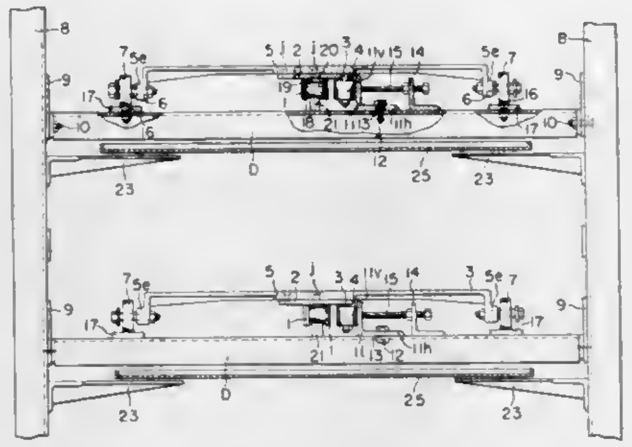
3,706,371
A FRICTION REDUCED CONVEYING APPARATUS OF HELICAL CHAIN CONVEYOR TYPE

Itaru Hirota, 8-15, Nakamachi, 3-chome, Hoya-shi, Tokyo-to, Japan

Filed Dec. 16, 1970, Ser. No. 98,583

Int. Cl. B65g *17/00*

U.S. Cl. 198—181 **5 Claims**



In an apparatus for conveying a product along a helical path, and well suited for the product to be dough, there is provided in combination, a chain and carrier plate means for being moved with the chain, a downward pin connected with the carrier plate means and having an axis disposed laterally of the chain outside the chain from an external side of the chain and the downwardly directed pin carrying an axially downwardly directed roller spaced laterally of the chain outside the chain from the aforementioned external side of the chain, and a support having thereon a facially laterally helical guide rail interposed between the axially downwardly directed roller and the axis of the helical path and laterally facially in contact with the axially downwardly directed roller for guiding the axially downwardly directed roller around the axis of the helical path during movement of the chain.

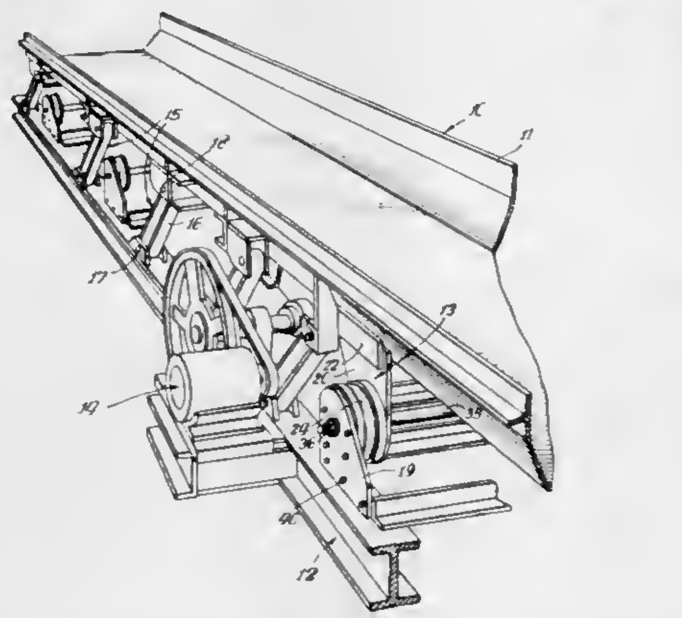
3,706,372
SUPPORT STRUCTURE FOR USE WITH VIBRATORY DEVICES

Albert Musschoot, Barrington, Ill., assignor to General Kinematics Corporation

Filed Jan. 4, 1971, Ser. No. 103,383

Int. Cl. B65g *25/04*

U.S. Cl. 198—218 **9 Claims**



A vibratory device such as for use in conveying pulverulent materials and the like. The device includes a material-carrying member which is reciprocated by a suitable drive. The material-carrying member is carried on resilient supports to support the member substantially solely by resistance thereof to shear.

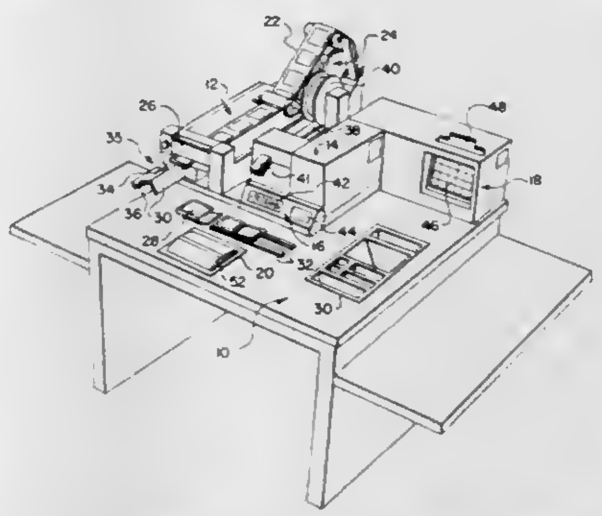
3,706,373
METHOD AND APPARATUS FOR CORRELATING REJECTED PHOTOGRAPHIC PRINTS WITH CORRESPONDING PHOTOGRAPHIC NEGATIVES

Gerald C. Smith, Honeoye, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed April 16, 1971, Ser. No. 134,791

Int. Cl. B07c *5/10*

U.S. Cl. 209—73 **16 Claims**



Method and apparatus for sorting "marked" unacceptable prints from acceptable prints as the prints are cut from a print roll, cutting customer order negative filmstrips into a plurality of negative filmstrips, stacking the filmstrips in a predetermined manner, and correlating the "marked" prints with the cut and stacked negative filmstrips containing the corresponding negative that, when printed, produced the unacceptable print. The above apparatus and method is embodied in a disclosed finishing operations workcenter that also includes apparatus for counting the total number of prints made from a customer order negative filmstrip and for displaying the price to be charged therefor. The operator of the finishing operations workcenter gathers the acceptable prints, inserts them into an envelope obtained from an envelope dispenser, removes the stacked negative filmstrips from the prints cutting apparatus, inserts the negative filmstrips into the envelope, notes the price displayed by the automatic print counting and price display apparatus and marks the envelope with the indicated price. When marked prints have been detected, the operator separates the marked prints and corresponding negative filmstrips, inserts the good prints and negative filmstrips into the envelope and attaches the marked prints and corresponding negative filmstrips to the envelope. These orders are set aside for reprinting. Upon the removal of the stack of negative filmstrips from the automatic film cutting and stacking apparatus, the print counter and the correlator display are reset and the print and film cutting apparatus are energized to cut the next customer of prints and negative filmstrips.

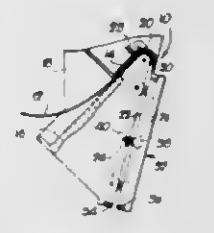
3,706,374
CURRENCY TESTING SYSTEM

James F. Ptacek, Kansas City, Mo., assignor to The Vendo Company, Kansas City, Mo.

Filed Oct. 9, 1970, Ser. No. 79,444

Int. Cl. B07c *3/12*

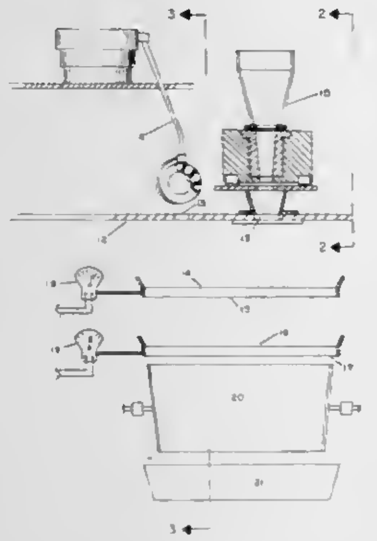
U.S. Cl. 209—75 **6 Claims**



In a currency acceptor, a transport having a reversible drive conveys a bill to be tested along a path of travel past a first photoelectric detector, a transducer head at a test station for sensing the physical properties of the bill, and then a second photoelectric detector. If the grid areas on opposite sides of the portrait on the bill have physical properties indicative of validity, testing circuitry responsive to the head produces an accept signal as each grid area passes the head. To be deemed valid, the first grid area must cause the production of an accept signal, the leading and trailing edges of the bill must be concurrently detected by the two photoelectric detectors as the portrait passes the head (determines that the bill is not too short), the second grid area must cause the production of a second accept signal by the time the bill reaches a predetermined position along the path, and thereafter the first photoelectric detector must not detect the bill or another, following bill until such time that the bill completely passes the second photoelectric detector and is accepted. If an invalid condition is encountered, the transport drive is reversed and the bill or counterfeit material is returned to the depositor and thereby rejected.

3,706,375
PRECISION AUTOMATIC WEIGHING SYSTEM

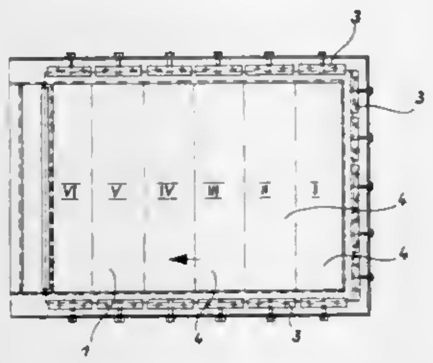
Emil J. Raue, Whippany, N.J., assignor to The United States of America as represented by the Secretary of the Army
Filed Feb. 16, 1971, Ser. No. 115,268
Int. Cl. B07b *13/08*
U.S. Cl. 209—121 **6 Claims**



Two complimentary feeds are provided, the first from an alternate shuttle hopper feed employing a pair of volumetric metering cups provides a weight slightly less than the desired metered weight. The difference between the required metered weight and the short weight is scaled, determined and converted into an electrical analog signal. The second feed consists essentially of a hollow cylinder provided with a plurality of outwardly directed apertures asymmetrically arranged in longitudinal rows. Within the cylinder there is disposed a closed elastomeric tube, which when filled with air at low pressure will bear against the inner surface of the cylinder for ejection of material in said apertures. The feed cylinder is supported for rotation and coupled to an electrically controlled drive for selectable angular displacement thereof. Also included in a sensor for indicating electrically the angular position of the cylinder and whose output, with the analog short weight signal, are applied to an electronic control device which thereupon provides an output signal to said controlled drive to displace the cylinder a sufficient amount to dispense material, previously deposited in said recesses, to accurately compensate for the short weight. A vibratory feed supply is associated with the cylinder so as to provide a pellet for each aperture as it passes the feed point and a receptacle for receiving the pellets as they are gravity ejected.

3,706,376
SCREEN WITH DIFFERENTLY TENSIONED SURFACE ZONES

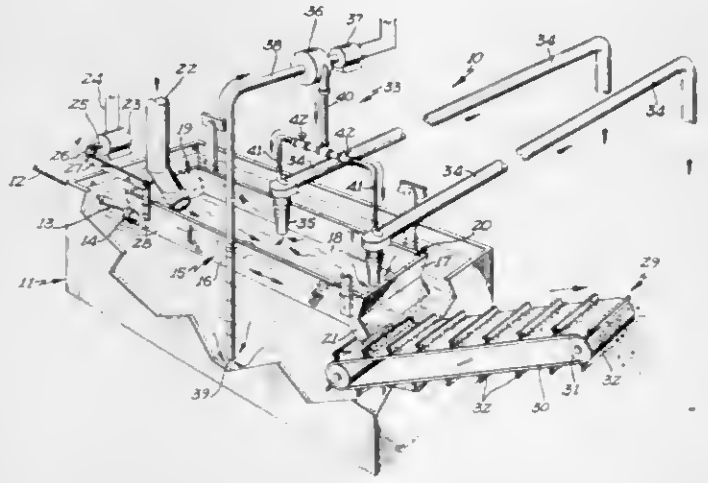
Rudolf J. Krause, Bad Homburg, Germany, assignor to Rhewum Rheinische Werkzeug-und Machinen fabrik G.m.b.H., RemscheldyLuttringhausen, Germany
Filed June 15, 1970, Ser. No. 46,197
Claims priority, application Germany, June 13, 1969, G 69 23 765.6
Int. Cl. B07b *1/34*
U.S. Cl. 209—347 **7 Claims**



A sifting machine has a strainer box defining feed-in and discharge points and a free sieve netting surface arranged and tensioned in the strainer box so that a material flow-path is defined across it from the feed-in point to the discharge point. A plurality of striker assemblies may also be arranged in the strainer box for exciting the netting surface. A plurality of fastening and tensioning devices such as clamps are provided along the edges of the netting which are parallel to the direction of the material flow-path for individually tensioning the netting, in a direction transverse to the flow-path, at different points spaced in the direction of the flow-path such that the netting is transversely tensioned to different tensions along the direction of the flow-path. Similar devices may be provided along at least one edge of the netting parallel to the material flow-path for individually tensioning the netting, in the direction of the flow-path, at different points spaced transversely to the direction of the flow-path. The striker assemblies may be operated synchronously or asynchronously.

3,706,377
PUMP OPERATED REMOVAL DEVICE FOR CLEANING APPARATUS

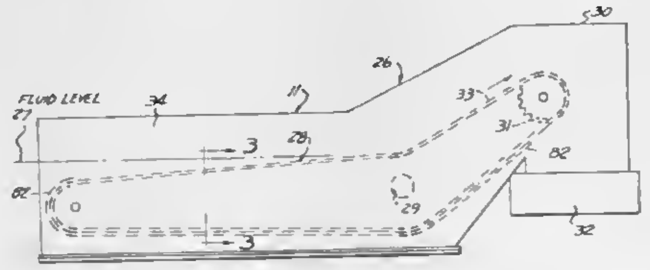
Steve R. Blanich, 1001 Birch Street, P.O. Box 96, Crosby, Minn.
Filed Feb. 1, 1971, Ser. No. 111,369
Int. Cl. B03b *3/00*
U.S. Cl. 209—446 **5 Claims**



A gravel or ore cleaning apparatus comprises a tank which contains water maintained at a predetermined level. A pan is positioned within the tank below the water level and receives material to be cleaned therein. The pan is oscillated by an oscillating mechanism to cause the material to be moved to the egress end of the pan and to cause the material to be stratified in a lower layer of sound heavy material and an upper layer of unsound lightweight material. A conveyor removes the sound heavy material from the tank as it is discharged from the egress end of the pan. A pair of removal conduits have their intake ends positioned over the material in the pan so that the water entrained unsound lightweight material is removed by suction through the removal conduits. Suction is created by a pump which pumps water from the tank through the removal conduit to create negative pressure and suction in the removal conduit, in addition to a "true" siphon assist.

3,706,378
AUTOMATIC ENDLESS BELT TYPE FILTER

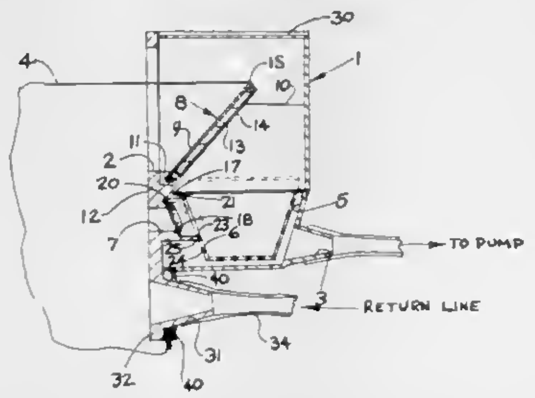
John P. Markwick, Detroit, Mich., assignor to H. R. Black Company, Detroit, Mich.
Filed Feb. 24, 1971, Ser. No. 117,932
Int. Cl. B01d *33/32*
U.S. Cl. 210—107 **4 Claims**



The filter of the present invention is of the automatic endless belt type and is contained in a housing; the filter housing is disposed in a tank filled with clean fluid and the filter housing has an inlet for dirty fluid and an outlet for clean fluid communicating with the fluid in the tank; an electromechanical automatic control system is provided to rotate the filter assemblies in predetermined increments in response to the degree of contamination along certain areas of the filter media. The filter media is supported on a screen adapted for travel in the fashion of an endless belt and improved sealing means are provided which cooperate with means along the guide supports of the endless filter belt along both outer margins thereof.

3,706,379
SKIMMER ASSEMBLY HAVING AN AUTOMATIC SHUT-OFF WEIR

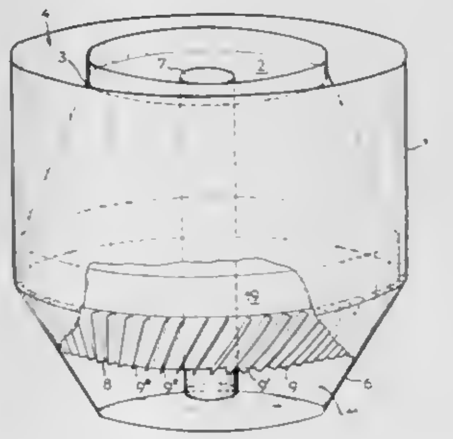
Glora Erlich, 220 W. Jersey St., Elizabeth, N.J.
Filed Oct. 13, 1970, Ser. No. 80,395
Int. Cl. E04h *3/20*
U.S. Cl. 210—169 **16 Claims**



A skimmer assembly adapted to be connected to a water circulation system to remove floating debris from the surface of a swimming pool or other body of liquid is provided with a floatable shut-off weir pivotally mounted in the inlet passage of a skimmer tank. The weir is responsive to the water level in the skimmer tank and serves the dual purpose of maintaining a constant water level in the tank when the water level in the pool is normal, and automatically seating against an appropriate seat to close the tank to prevent air inclusion into the water circulation system when the pool level drops below a predetermined point.

3,706,380
APPARATUS FOR TREATMENT OF SEWAGE

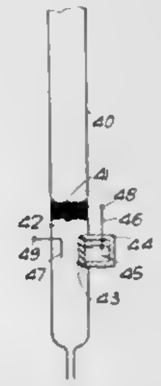
Jean Pierre Le Quinquis, Sainte Luce sur Loire, France, assignor to Compagnie d'Etudes et de Recherches des Services operationnels d'Assaignissement en France Compaigne, SOAF, Boulogne, S/Seine, France
Filed May 20, 1971, Ser. No. 145,346
Claims priority, application France, May 20, 1970, 7018243
Int. Cl. B01d *21/00*
U.S. Cl. 210—197 **10 Claims**



An installation for the treatment of sewage comprises a tank having an inner wall dividing the tank into a central digestion zone and peripheral zones of decantation and removal of treated effluents, the lower portion of the tank being in the form of a reversed truncated cone and having a series of small upwardly directed conduits connecting the bottom of the tank with the upper zone of decantation.

3,706,381
CHROMATOGRAPHIC APPARATUS

Peter Leonard Joynes, and Robert James Maggs, both of Cambridge, England, assignors to Pye Limited, Cambridge, England
Filed April 22, 1971, Ser. No. 136,494
Claims priority, application Great Britain, May 19, 1970, 24,287/70
Int. Cl. B01d *15/08*
U.S. Cl. 210—198 C **19 Claims**

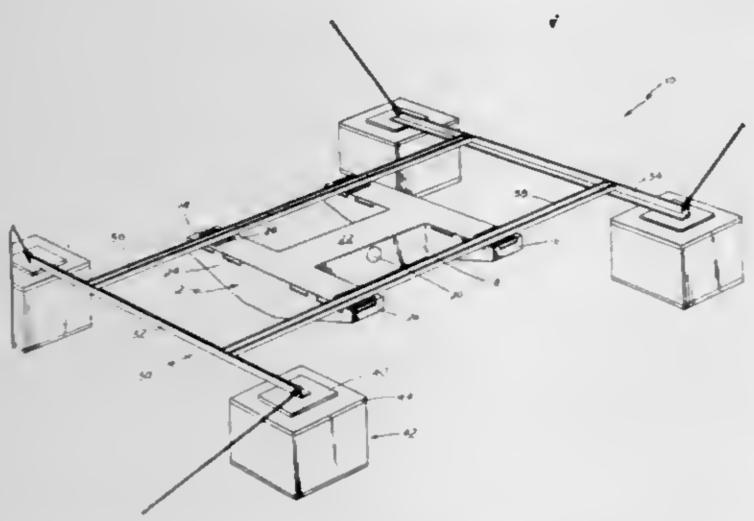


For liquid chromatographic apparatus where the solute in the eluant exhibits electrochemical properties and the mobile phase is an electrolyte, a detector comprises a first electrode formed of a solid suspension of carbon in an electrically insulating material and a second electrode. An electric potential which may be a d.c. potential but preferably is an alternating potential with a d.c. bias is applied between the electrodes and the resultant current is measured. The first electrode is conveniently a carbon impregnated silicone rubber membrane but other constructions are described.

3,706,382

OIL REMOVAL DEVICE

Ralph Herbert Cross, III, Lexington, Mass., assignor to David Parks Hoult, Wellesley; Ralph H. Cross, III, Lexington and Jerome H. Milgram, Cambridge, Mass.
Filed March 12, 1971, Ser. No. 123,567
Int. Cl. C02b *9/02*
U.S. Cl. 210—242 **5 Claims**



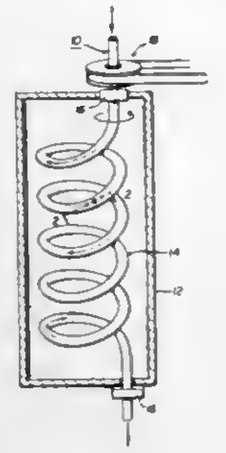
A buoyant oil-removal device for use with a floating oil-confining barrier on a water surface with oil slicks of substantial thickness floating thereon, the device having oil in-flow ports (of lesser vertical height than the oil slick thickness) with the ports normally floated at a level intermediate the thickness of the oil slick to provide inflow of the water-floated oil slick and to minimize either water or air inflow through said ports whether the water is calm or disturbed by waves, and designed to collect oil from the water surface at a rate which is maximized subject to the requirement that intake of water and air is minimized. The device has a longest overall dimension of not more than one-fourth of the wavelength of the shortest wave of significant amplitude, and includes a generally H-shaped skimmer structure; each arm portion of the structure is of generally rectangular or circular cross section, providing a plurality of inflow ports, each of vertical dimension of the order from 0.04 to 0.2 of the expected slick thickness. Inflow ports preferably are positioned immediately adjacent the top surface of the structure, and are horizontally elongated. The device is provided with a flexible, buoyant suctioning hose communicating with the inflow ports for the removal of oil.

3,706,383

FLUID SEPARATOR

James R. Palma, 1502 Curry Road, Schenectady, N.Y.
Filed May 21, 1970, Ser. No. 39,296
Int. Cl. B01d *33/02*
U.S. Cl. 210—374 **6 Claims**

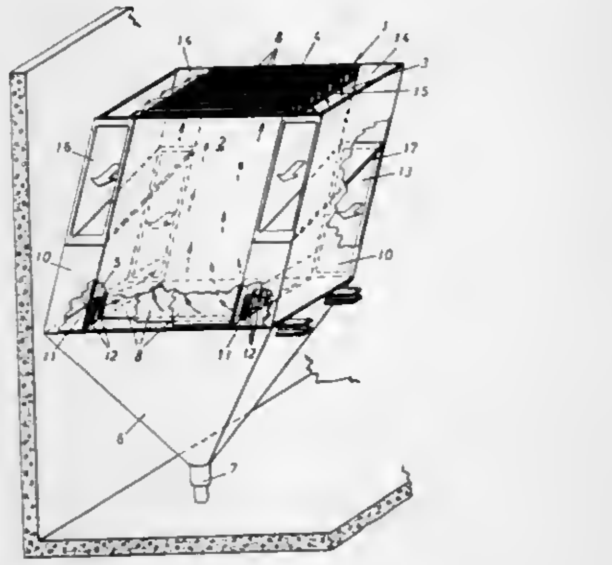
A fluid separator for separating solids from a liquid or separating a heavier substance from a lighter liquid substance by means of centrifugal force in conjunction with the eddy current principle comprising a housing or jacket containing a spirally formed fluid conduit for rotation within said housing adapted to convey fluid therethrough; the coils of the conduit are internally formed with a multiple of spaced abutments extending into the path of the fluid and openings are provided in the conduit adjacent each of the abutments to permit contaminants to exit from the conduit due to centrifugal forces created by the rotating spiral conduit which tends to flow the heavier substance or contaminant outwardly to the wall of the conduit; the abutments in the conduit extending into the path of the fluid set up eddy currents in the spinning liquid to spin adjacent the leading edge of the abutments in one direction and around the trailing edge of the abutments in the reverse direction collecting the heavier substances disposed in the fluid which are then forced out through the apertures adjacent said abutments. Due to the centrifugal forces set up by the continuously spinning spiral conduit, fluid is effectively prevented from exit through the openings.



3,706,384

DEVICE FOR SEDIMENTATION OF PARTICLES FROM LIQUID

Gunnar Weijman-Hane, Vikingbergsvagen 4, Malmo, Sweden
Filed Aug. 6, 1970, Ser. No. 61,627
Claims priority, application Sweden, Aug. 8, 1969, 11111/69
Int. Cl. B01d *21/00*
U.S. Cl. 210—519 **7 Claims**

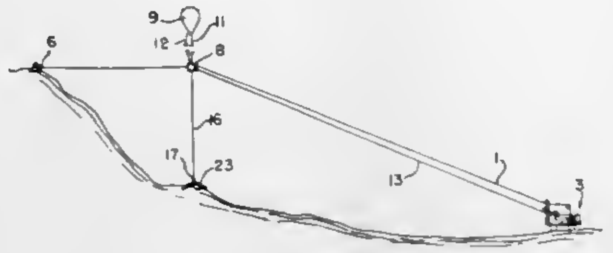


A device for sedimentation of particles from a liquid in which several plate-formed lamellae are arranged in and inclined at an angle in relation to the tank. The tank on both sides of said lamellae is provided with compartments which are separated by an inclined partition wall in a fluid-proof manner into two elongated partitions. (Through the lower of those partitions the liquid which is to be purified is supplied to the device and is fed through inlet openings at the lowermost edge). The lower of these partitions is provided with inlet openings to the lamellae space, whereby the upper edge of the tank is provided with a overflow to each of the upper partitions which has outlet openings for the purified liquid. The lowermost part of the tank is a funnel-shaped hopper having a sludge outlet.

3,706,385

AERIAL LOGGING SYSTEM

Fay H. Stewart, Eugene, Oreg., assignor to Bohemia Lumber Company, Inc., Eugene, Oreg.
Filed Nov. 25, 1970, Ser. No. 92,659
Int. Cl. B66c *19/00*
U.S. Cl. 212—71 **11 Claims**

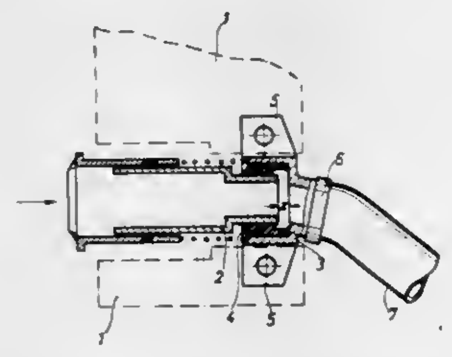


An aerial logging system for logging inclined terrain wherein a static lift balloon is anchored to a carriage engaged on a skyline which may be extended from an uphill point to a yarder drum at the landing. The skyline thus becomes inverted, having an apex at the point where the lift of the balloon is applied. A main line is used to haul the carriage downhill and the lifting force of the balloon moves the carriage uphill as the carriage seeks a natural apex along the skyline, a braking force being applied to the main line to control the speed of the carriage as it returns uphill. The lifting line and chokers are depended from the carriage.

3,706,386

LINE COUPLING FOR RAILWAY VEHICLES

Axel Schelle, Rottach-Scherfen, and Pierre Baronnet, Munich, both of Germany, assignors to Knorr-Bremse KG, Berlin and Munich, Germany
Filed July 29, 1970, Ser. No. 59,182
Int. Cl. B61g *5/08*
U.S. Cl. 213—76 **5 Claims**



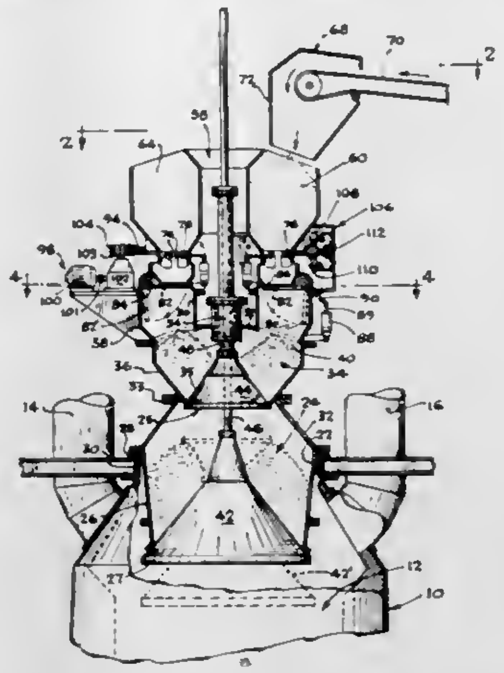
An automatic line coupler is centrally located in a bumper for a railway vehicle and has an intermediate element which is fixed on a coupler head. One end of a flexible line is rigidly secured to the intermediate element and a spring-loaded coupler element has its rear end mounted within a resilient deformable annular member closely fitted within the intermediate element.

3,706,387

BLAST FURNACE CHARGING APPARATUS FOR HIGH TOP PRESSURE

Leo T. Tokarz, 13419 Greenbay Ave., Chicago, Ill., assignor to John Mohr & Sons, Chicago, Ill.
Continuation of Ser. No. 866,644, Oct. 15, 1969, abandoned.
This application Jan. 17, 1972, Ser. No. 218,341
Int. Cl. F27b *5/12*
U.S. Cl. 214—37 **6 Claims**

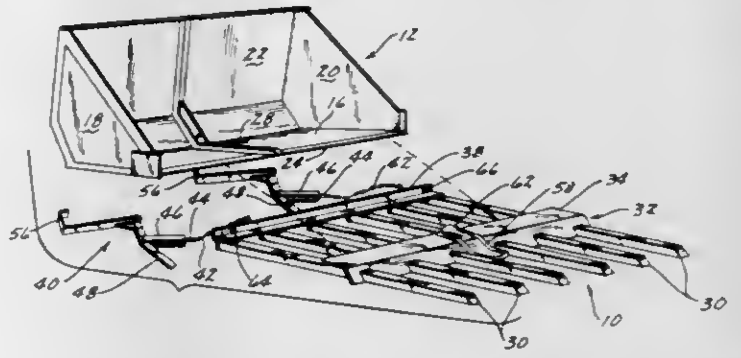
An improved blast furnace charging apparatus for blast furnaces operating with the high top pressure, the apparatus including a revolving multi-chamber distributor hopper with swing valves to define a gas seal below the distributor hopper and material gates to prevent discharge of material on to the swing valves; the revolving mechanism being removed from any pressurized chamber of the charging apparatus.



3,706,388

FORK ATTACHMENT FOR A LOADER BUCKET

Walter J. Westendorf, Smithland, Iowa
Filed Jan. 21, 1971, Ser. No. 108,327
Int. Cl. B66f *9/12*
U.S. Cl. 214—145 **6 Claims**



A fork attachment for a loader bucket comprising a plurality of spaced apart teeth having a transverse plate means secured thereto rearwardly of the forward ends thereof. The plate means includes a rearwardly extending plate portion which is spaced above the teeth. An elongated angle member is secured to the rearward ends of the teeth and has a pair of chain tightener elements secured thereto. The attachment is secured to the loader bucket by driving the loader forwardly so that the leading edge of the bucket bottom is received beneath the plate portion to secure the forward end of the bucket to the attachment. The chain tightener elements are then secured to the upper rearward portion of the loader bucket to secure the rearward end of the attachment to the bucket.

Material handling devices such as front-end loaders, tractor loaders, etc., generally have a pair of pivotal booms provided thereon to which various attachments are secured. Many tractor loaders are used by ranchers and farmers to handle material such as dirt, gravel, etc. A bucket attachment is secured to the booms when the loader is being used for dirt, gravel, and similar materials. It is necessary to replace the bucket attachment with a fork attachment when materials such as manure, ensilage and the like are going to be handled since the conventional bucket attachment cannot adequately handle the material. The replacement of the fork attachment for the bucket attachment is time consuming and requires that a separate fork attachment be purchased even though the fork and bucket attachments are somewhat similar in design.

3,706,389

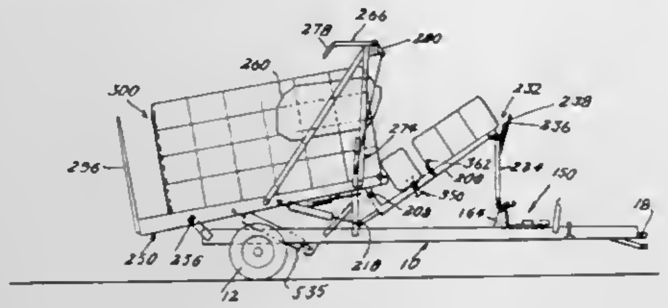
METHOD OF HANDLING BALES

Donald M. Grey, 12739 South Bethel, Selma, Calif.; Lee D. Butler, 13945 South Academy, Kingsburg, Calif.; Jerry W. Welker, 4847 N. 6th St., Fresno, Calif., and Jack W. Crane, R.D. No. 2, New Holland, Pa.

Division of Ser. No. 870,828, June 6, 1969, Pat. No. 3,638,808, which is a division of Ser. No. 755,141, Aug. 26, 1968, Pat. No. 3,502,230. This application Nov. 1, 1971, Ser. No. 194,305

Int. Cl. B65g *60/00*

U.S. Cl. 214—152 3 Claims



A bale wagon which unloads bales one at a time. The wagon is provided with a bale pick-up, a bale tier former, and a load rack which receives the tiers of bales from the bale tier former. A cross conveyor is mounted on the bale tier former, and when discharging the bales are dropped a tier at a time from the load rack onto the bale tier former, the lowest layer of bales on the tier being engaged by the cross conveyor and discharged, while the layer next above the lowest layer is held from interference with the lowest layer.

3,706,390

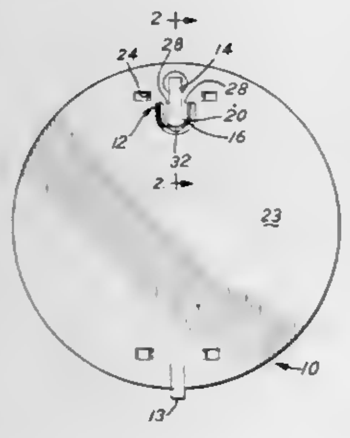
LOCKING DEVICES

Fred S. Boyer, 5638 N. Kostner, Chicago, Ill.

Filed Aug. 4, 1970, Ser. No. 60,896

Int. Cl. B65d *45/00*

U.S. Cl. 220—25 4 Claims



In a locking device for sheet metal plugs, plates and other opening closures of the type which are locked in place by imparting an impacting blow to the locking device, an aperture is positioned between the plate and locking device for receiving an unlocking tool for unlocking the device.

3,706,391

CLOSURE CAP FOR INSPECTION HOLES

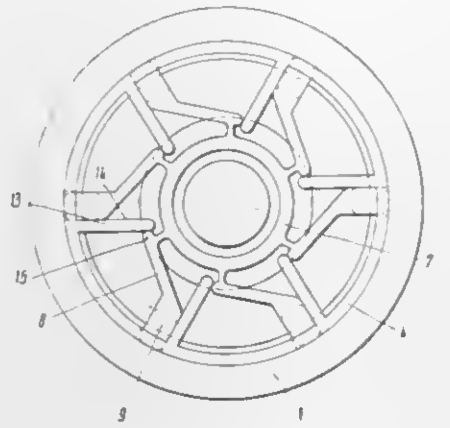
Gunter Wibrow, Bez Hamburg, Germany, assignor to ITW-Ateco G.m.b.H., Norderstedt, Germany

Filed July 19, 1971, Ser. No. 163,632

Int. Cl. B65d *45/00*

U.S. Cl. 220—25 8 Claims

This invention relates to a closure cap for inspection holes in the walls of housings of tool and fabrication machines, vehicles and the like. In particular for land and sea vehicles there is the desire to close holes in the housing or in the body with a closure cap, said holes serving an inspection of some parts or having to be accessible only occasionally for other reasons, said closure cap permitting a ready attachment and releasing again also without any particular difficulties, but on the other hand at least dustproof, if possible even spray-waterproof closing the hole in the wall. This closure cap is to also be able to be made in a simple and economical way, since it is to be removed and applied again by less skilled persons also depending on circumstances, and is to be formed simple and sturdy and is to be easy to handle.



3,706,392

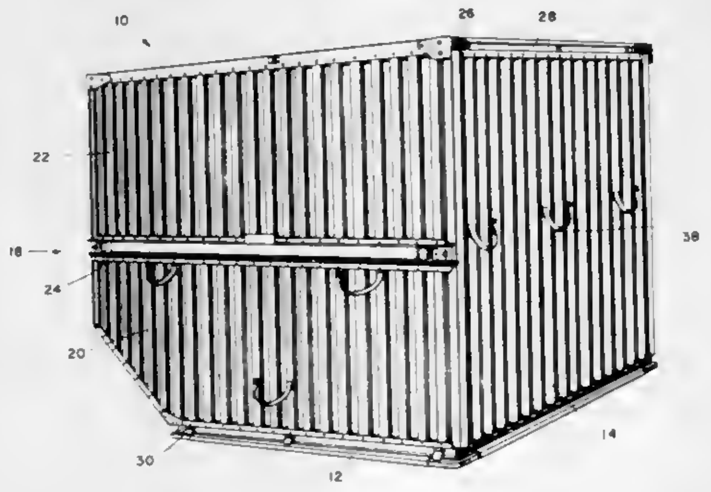
BAGGAGE AND CARGO CONTAINER DOOR MECHANISM

Walter F. Sprick; Frank C. Morse, both of Akron; Alexander Holzer, Cuyahoga Falls; Oscar W. Meller, and John W. Lovich, both of Akron, all of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Oct. 26, 1971, Ser. No. 192,451

Int. Cl. B65d *43/16*

U.S. Cl. 220—38 17 Claims



A door mechanism which forms an openable side of a cargo container. The door consists of upper and lower sections joined by a horizontal hinge. The doors are supported by means of brackets at the upper corners of the upper door sections which carry rollers running in tracks extending along the top of the container ends. Pins projecting from the lower edge of the lower door section engage suitable recesses in the container base when the doors are closed and a latch mechanism is provided for holding the door securely in its closed position.

3,706,393

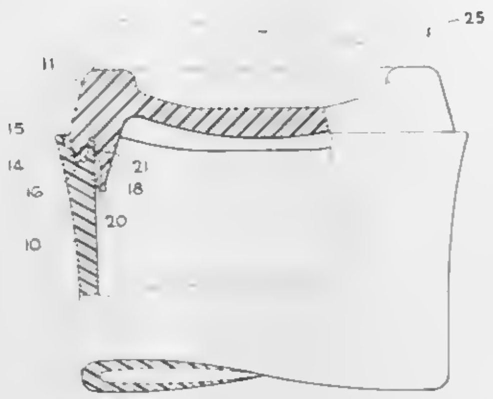
PLASTIC CONTAINER AND METHOD OF MAKING THE SAME

George L. Curtis, Wilton, Conn.; James H. Riesenberg, Amherst, and Ralph E. Kelly, Lancaster, both of N.Y., assignors to Pelorex Corp., Buffalo, N.Y.

Filed July 12, 1971, Ser. No. 161,589

Int. Cl. B65d *7/42*

U.S. Cl. 220—67 6 Claims



A plastic container has a cylindrical body member and a bottom member which are separately molded. The body member is formed with an open bottom and has an annular groove in its bottom edge. The bottom member has a pair of concentric upstanding annular flanges, the outer one fitting within the annular groove in the bottom edge of the body member, and the inner one fitting within the open bottom of the container to abut the lower portion of the interior wall thereof. The parts are permanently sealed to each other by ultrasonic welding, usually after a bottom-filling operation with the container in an inverted position.

3,706,394

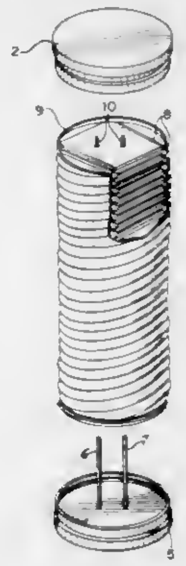
ONE-AT-A-TIME DISPENSER

Edmund H. Merz, Palos Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Sept. 16, 1970, Ser. No. 72,681

Int. Cl. G07f *11/00*

U.S. Cl. 221—75 6 Claims



A one-at-a-time dispenser which has an outer wall in the shape of a sidewall having a continuous screw thread. The top is rotatable and has two or more pins mounted in it, and extending through the objects to be dispensed. The bottom is removable and snaps onto a ring around the bottom of the dispenser.

3,706,395

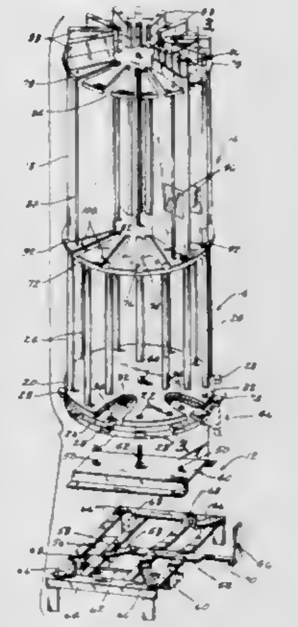
SELECTIVE DISPENSER WITH CLIP STORAGE FOR DISPENSING SMALL ARTICLES IN PRESET QUANTITIES

John W. Havener, 114 Jones St., and Franklin W. Reyner, Jr., Rural Route 2, both of West Union, Iowa

Filed Feb. 16, 1971, Ser. No. 115,308

Int. Cl. B65g *60/00*

U.S. Cl. 221—119 9 Claims



A lower circular floor includes tablet storage tubes around the periphery adapted to register with a valve element for discharge through a discharge opening in a support base. The valve element may be selectively reciprocated by a cam operated power device to dispense the desired number of tablets from the desired storage container. A second floor is placed on the top of the first plurality of storage containers and includes radially disposed clips of storage containers adapted to successively move into registry with the associated storage containers therebelow. A spring means biases the upper storage containers into registry with the lower containers as empty containers are removed. The clip of storage containers may be replaced when empty. The clip includes a bottom wall and an opening normally yieldably closed by a slide door which is moved to an open position when the clip is placed in position on the top floor with one of the plurality of containers in the clip being in registry with the associated lower container.

The counting of tablets when filling a prescription in a pharmacy is a time-consuming and laborious job. Also, errors can occur resulting in either two many or too few tablets being dispensed from the bulk containers into the customer container.

3,706,396

AGRICULTURAL PLANTING APPARATUS HAVING METERING MEANS

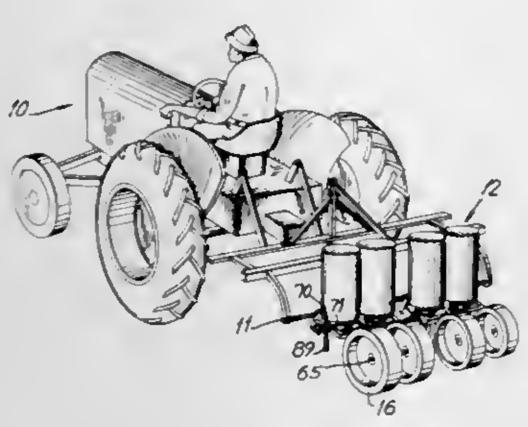
Philip B. Knapp, Lynbrook, and Jon R. Zogg, Baldwin, L. I., both of N.Y., assignors to Aptek Industries, Inc., Lynbrook, N.Y.

Filed July 23, 1970, Ser. No. 57,440

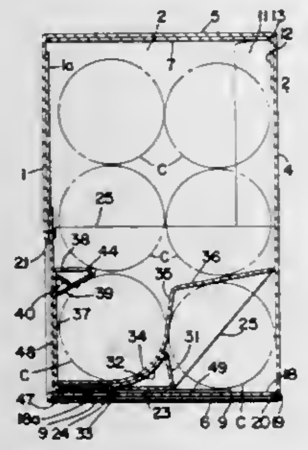
Int. Cl. B65g *59/00*

U.S. Cl. 221—265 1 Claim

Planting apparatus for use with a powerized vehicle for depositing seed containing pellets in the ground at precisely selected, spaced positions. The apparatus is powered by the linear advance of the vehicle and removes individual pellets from a bulk supply hopper and deposits the same in a discharge chute.



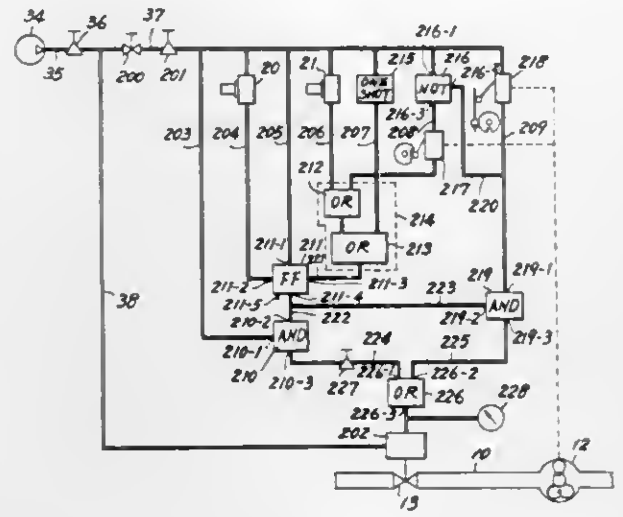
3,706,397
GRAVITY FEED WITH CAN SUPPORTED INSERT
Alan F. Zeilinger, Beachwood, Ohio, assignor to Magic American Chemical Corporation, Cleveland, Ohio
Filed Nov. 23, 1970, Ser. No. 91,957
Int. Cl. A47f *1/08*
U.S. Cl. 221—311 **6 Claims**



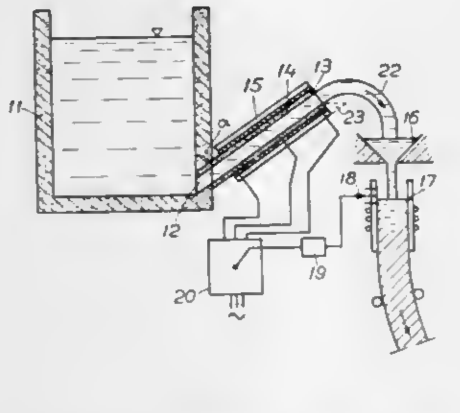
A gravity feed display pack for aerosol cans and the like is described, which is characterized by the use of an insert, which can be quickly and easily installed in the pack, and is utilized for automatically dispensing the cans, while the pack is on a display counter. A feature of the invention is the use of a retainer which not only holds the insert and cans within the pack during shipping and storage of the pack, but can be quickly and easily removed, just prior to placement of the pack on a display counter.

3,706,398
FIXED QUANTITY LIQUID SUPPLYING APPARATUS USING FLUIDIC DEVICES
Mahiko Kato, Tokyo; Isamu Saito, Totsuka-ku, Yokohama, and Tuneo Nishiba, Asahi-ku, Yokohama, all of Japan, assignors to Tokico Ltd., Kanagawa, Japan
Filed Oct. 30, 1970, Ser. No. 85,322
Claims priority, application Japan, Nov. 1, 1969, 44/87779; Aug. 24, 1970, 45/73633
Int. Cl. B67d *5/30*
U.S. Cl. 222—20 **4 Claims**

A fixed quantity liquid supplying apparatus performs a liquid supplying operation of predetermined fixed quantity with a control fluidic circuit using fluidic devices. The control circuit is operated by a preset counter which operates when the supplied quantity of the liquid reaches the fixed quantity. The fuel supplying is stopped in multiple stages by the control circuit. The preset counter is freely varied and setted with the variable fixed quantity. The fluidic devices are operated by fluid such as air.



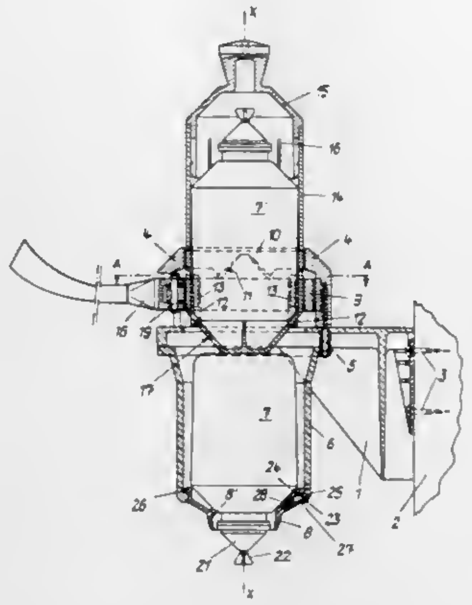
3,706,399
MEANS FOR REGULATING THE FLOW-RATE OF MELT FROM A CONTAINER
Yngve Sundberg, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed May 6, 1970, Ser. No. 34,988
Claims priority, application Sweden, May 21, 1969, 7147/1969
Int. Cl. B22d *37/100*
U.S. Cl. 222—56 **3 Claims**



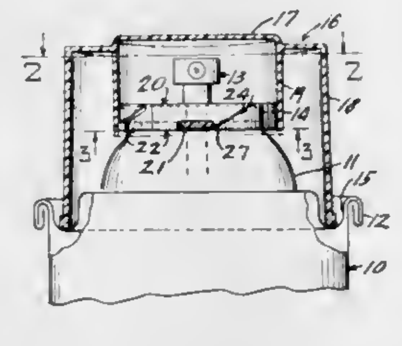
A furnace or ladle for melt has an outlet tube extending upwardly from its bottom at an angle from the vertical. An electromagnetic valve around the tube controls the flow of melt through the tube to some desired value.

3,706,400
DISTRIBUTOR APPARATUS
Claude Schindler, Geneva, Switzerland, assignor to Zyma S.A., Vand, Switzerland
Filed Dec. 21, 1970, Ser. No. 99,854
Claims priority, application Switzerland, Dec. 29, 1969, 19357/69
Int. Cl. B65d *35/54*
U.S. Cl. 222—95 **3 Claims**

A distributor for a liquid product comprises a body having support means for fixation to a wall or the like, a crushable interchangeable recipient containing the liquid product housed in said body, and a piston resting by gravitation on the recipient. A horizontally displaceable operating lever is connected to means for actuating the piston, and cam means transform a horizontal movement of the operating lever into a vertical movement of the piston-actuating means to lower the piston and thus crush the recipient by a determined quantity, thereby causing outflow of a dosed quantity of product.



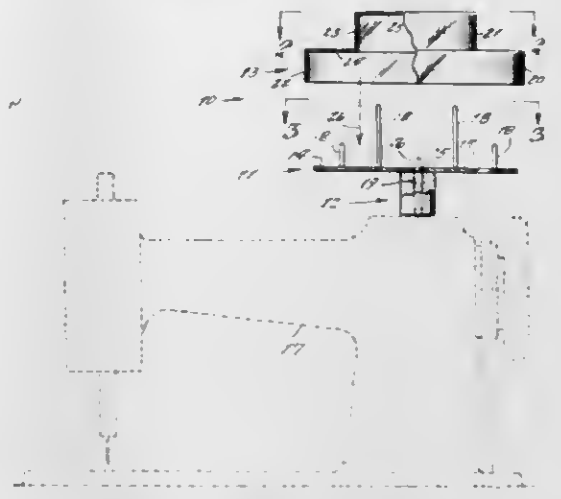
3,706,401
CHILD-PROOF OVERCAP FOR AN AEROSOL CAN
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastic Corporation, Evansville, Ind.
Filed July 15, 1970, Ser. No. 54,925
Int. Cl. B67d *5/32*
U.S. Cl. 222—153 **4 Claims**



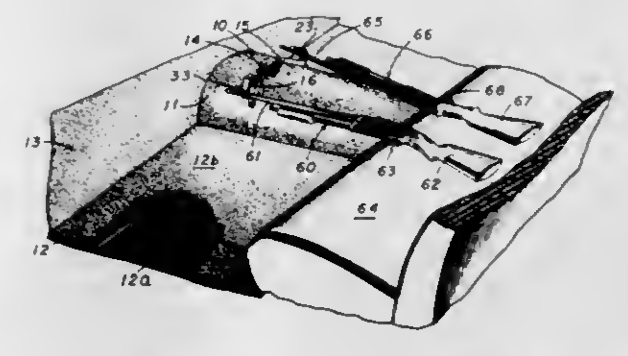
A child-proof over cap for an aerosol can. The cap has a skirt with two or more inwardly protruding lugs at its lower edge which are evenly spaced circumferentially. There is an annular element on the can which has a similar number of outwardly extending lug threads adapted to be engaged by the lugs. The lug threads have downwardly extending bottom surfaces leading to upwardly extending undercut recesses in which the lugs on the cap skirt may be engaged. The cap has a resilient top from which the skirt depends and which is deformed by engagement of the lugs and the lug threads for biasing the lugs into the thread recesses to restrain relative horizontal rotation of the cap and can.

3,706,402
SEWING MACHINE MULTIPLE THREAD DISPENSER
James Oscar O'Leary, 578½ East Main, Chillicothe, Ohio
Filed Nov. 9, 1970, Ser. No. 88,063
Int. Cl. A41b *31/00*
U.S. Cl. 223—106 **2 Claims**

A platform normally supported upon an upstanding spindle normally provided upon a sewing machine head provided for usually supporting a spool of thread, and the platform having a plurality of upstanding spindles secured upon the upper side thereof so to individually support various different threads on spools, and the peripheral edge of the platform being indented with notches or slots through which the thread from the spools can be fed.



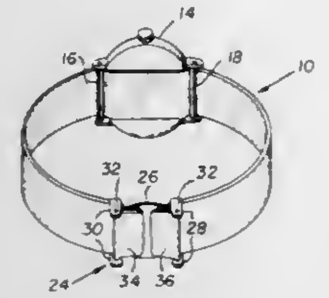
3,706,403
GUN HOLDING DEVICE
Robert L. F. Sikes, Rt. 1, Crestview, Fla.
Filed Oct. 26, 1971, Ser. No. 192,359
Int. Cl. F41c *33/00*
U.S. Cl. 224—1 R **10 Claims**



A vehicle gun holding device for holding a gun such as a shotgun or rifle within a vehicle that has a floor with a generally curved longitudinal raised portion surrounding the upper portion of the vehicle's drive shaft and a seat mounted on the floor that includes a base that is generally shaped to fit crosswise on the curved longitudinal raised portion of the floor of the vehicle. A curved hook member is located on the upper surface of the portion of the base that is shaped to fit on one side of the raised portion of the vehicle floor and a second hook member is located on the upper surface of the portion of the base that is shaped to fit on the opposite side of the raised portion of the vehicle floor. The free end portions of the hook members point generally inward and the hook members are each adapted to receive and hold a portion such as the barrel or stock of a gun that has another portion that is resting against the vehicle seat. The vehicle gun holding device permits guns to be conveniently held within a vehicle out of the way of the vehicle occupants and yet the guns are readily accessible for prompt use if needed.

3,706,404
STRETCH FABRIC WATCHBAND
Gerald W. Gluckin, 180 Madison Ave., New York, N.Y.
Filed Sept. 24, 1970
Int. Cl. A 44c *5/22*
U.S. Cl. 224—4 **1 Claim**

A length of stretch fabric which is readily selectively engaged with a wristwatch and held, by a clip or the like, by its likewise free ends in a closed loop so as to effectively function as a watchband. The fabric is selected to coordinate



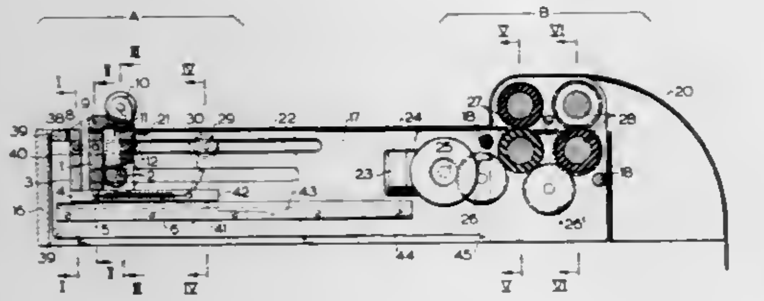
with the wearer's attire and the stretch thereof facilitates placement and removal of the band from about the wearer's wrist.

3,706,405
APPARATUS FOR SEPARATING COPYING TESTS

Hans Meyer, Horneburg NE, Germany, assignor to Hans Meyer Fabrik Vordruck-Systeme und Organisationsmittel GroBdruckerei und Verlat, Horneburg, Germany

Filed July 8, 1971, Ser. No. 160,866
Int. Cl. B26f *3/02*

U.S. Cl. 225—94 **7 Claims**



The apparatus for separating paper sheets from interleaved carbon sheets of a copying set consists of a pair of driven gripping rollers for seizing the copying set along its jointing edge, and a clamping carriage spaced from the gripping rollers with its clamping slot arranged opposite to the gripping slot of the gripping rollers. The carriage is provided for limited to-and-fro movement with respect to the gripping rollers. THe apparatus allows to safely separate paper and carbon sheets with high speed and without paper damage. Additional cutter spindles can be provided for cutting the carbon sheets into smallstrips.

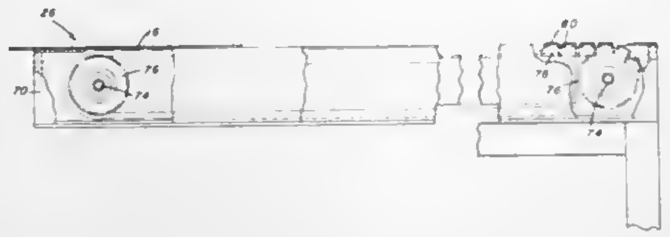
3,706,406
WEB TRANSPORT APPARATUS

Robert J. Borel, Rochester; Leonard S. Corey, Victor; Thaddeus W. Kucharski; John L. Stocking, both of Rochester, and Frederick H. Thomas, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 727,558, May 8, 1968, Pat. No. 3,535,212. This application Jan. 7, 1970, Ser. No. 6,012
Int. Cl. B65h *17/28*

U.S. Cl. 226—95 **5 Claims**

Apparatus for moving a web above a vacuum chamber comprising a vacuum chamber which has an opening in its upper surface and a foraminous belt movable within the chamber. A portion of the belt moves in the opening to support and move the web from the underside. A vacuum is applied to the vacuum chamber to create a sub-atmospheric pressure under



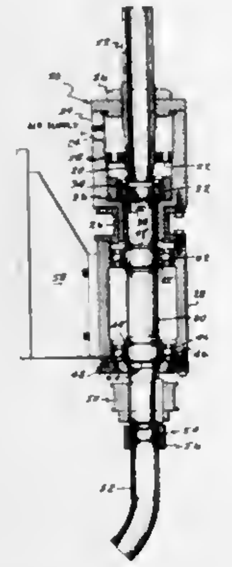
the moving belt to draw the web into contact with the belt as they move together across the vacuum chamber opening.

3,706,407
PIDDLER MECHANISM FOR STRAND MATERIAL

Carles S. W. King, and John H. Pierce, both of Cnarlotte, N.C., assignors to R. H. Bouligny Inc., Charlotte, N.C.

Continuation-in-part of Ser. No. 823,829, May 12, 1969, abandoned. This application Oct. 7, 1970, Ser. No. 78,872
Int. Cl. B65h *54/80*

U.S. Cl. 226—97 **10 Claims**



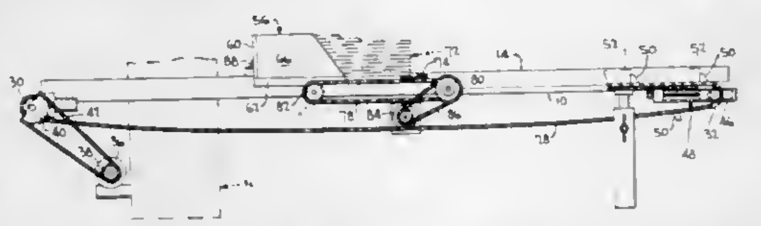
Means including a piddler mechanism is provided for coiling delivery of continuous strand material. The piddler mechanism is of the type incorporating an entrance tube into which the strand material is drawn by aspiration generated at an annular orifice formed between the adjacent ends of the entrance tube and a following piddler tube that rotates. The structural arrangement allows the tube ends to be set in closely spaced telescoping relation for forming the annular orifice, and an advantageously shortened strand path and special form of delivery chute are employed in one embodiment. Means for feeding the strand material to the piddler mechanism is also included that optionally employs a specially formed roll for freeing the feeding strand material as it is drawn into the entrance tube.

3,706,408
FEEDING AND CONVEYING DEVICE FOR AUTOMATIC NAILING MACHINES

Randolph Burch, Summit Point, W. Va.

Filed Dec. 8, 1970, Ser. No. 96,168
Int. Cl. B27f *7/02*

U.S. Cl. 227—45 **12 Claims**



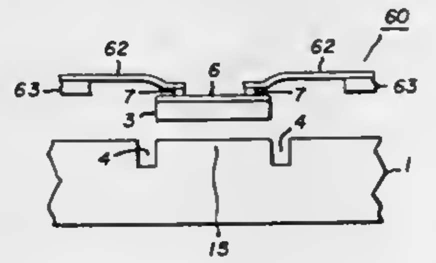
A device for use in the assembly of pallets, and particularly for feeding and conveying transverse pallet stringers and longitudinal deck boards in assembled, unsecured relationship to an automatic nailing machine for nailing the stringers and deck boards together. The device includes longitudinal chain conveyors at either side of the device, each chain conveyor having a plurality of push dogs in longitudinal spaced relationship, each corresponding pair of push dogs engaging and conveying a transverse pallet stringer. The endless chain conveyor further includes trip dog means adapted to trip a stationary limit switch, and hopper means for a plurality of stacks of longitudinal deck boards, in which the trip dog means of the chain will engage the limit switch, and activate a longitudinal push bar for the deck boards at the bottom of each stack, whereby such deck boards will be moved from the bottom of each stack in the hopper in assembled relationship onto the top of a plurality of stringers and presented to the nailing machine for final assembly.

3,706,409
SEMICONDUCTOR LEAD ATTACHMENT SYSTEM INCLUDING A SEMICONDUCTOR PELLET ORIENTATION PLATE

Edwin H. Lederer, Syracuse, N.Y., assignor to General Electric Company

Filed Feb. 26, 1970, Ser. No. 14,376
Int. Cl. B23k *1/00*

U.S. Cl. 228—6 **2 Claims**



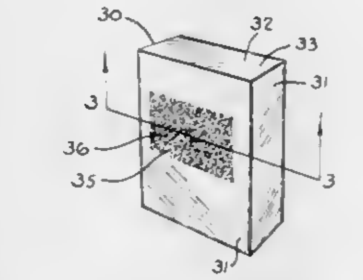
This invention relates to a semiconductor lead attachment system which is particularly useful in the automatic application of external leads to contact areas formed on pellets or dice of semiconductor material. These pellets, prior to subdivision of the pellets from the parent wafer which they constitute, are precisely engaged with and located on a pellet orientation plate. This is accomplished by attaching the parent wafer to the top surface of the orientation plate with a thermally releasable adhesive layer and subdividing the parent wafer with a plurality of grooves into individual pellets while at the same time forming a network of pedestal-shaped supports in the orientation plate which are thermally isolated from each other. Each individual pellet is then selectively released and removed from the orientation plate during the course of heating each pellet while the leads are being bonded thereto.

3,706,410
AIR PERMEABLE CONTAINER

David R. Baker, Concord, Calif., assignor to Fibreboard Corporation, San Francisco, Calif.

Filed Nov. 16, 1970, Ser. No. 89,977
Int. Cl. B65d *5/00*

U.S. Cl. 229—16 R **4 Claims**



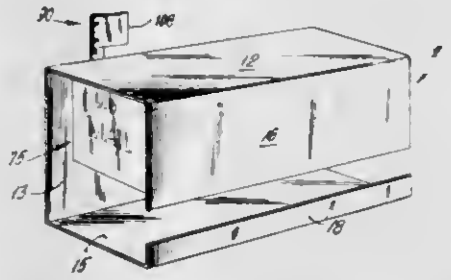
Tightly sealed containers are formed from blanks made of a substrate permeable to gas with a coating of a material substantially impermeable to gas applied to at least one surface of the blank. Selected areas of the coated surface of the blank are treated with a perforating material to form perforations through the coating but not the substrate in these areas, thereby permitting penetration of gas into and out of the container. By control of the size of the area perforated and the number and size of the perforations, the rate at which gas may enter and leave the container may be controlled.

3,706,411
RURAL DELIVERY MAIL BOX

Milton Klein, 610 Overhill Road, South Orange, N.J.

Filed Dec. 28, 1970, Ser. No. 101,586
Int. Cl. A47g *29/12*

U.S. Cl. 232—17 **7 Claims**



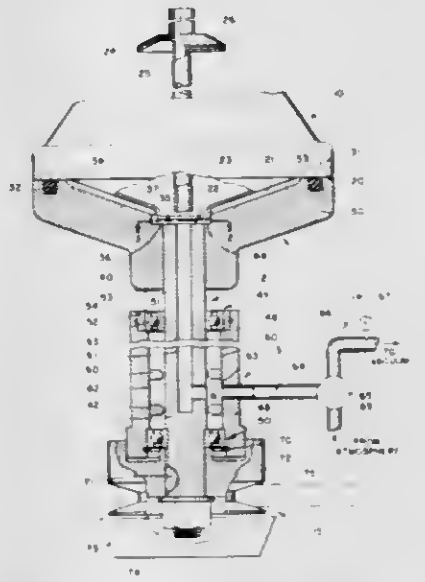
This rural delivery mail box comprises an upper compartment closed by a front, upwardly and forwardly swinging hinged door, to contain letters, and a shelf therebelow to receive newspapers and magazines. The shelf is open at both ends and has a through passage at one side. A flag is so mounted at one side of the mail box that it can be easily moved to and maintained in vertical position or in flipped back horizontal position.

3,706,412
PRESSURE-ACTUATED CENTRIFUGE CHUCK AND CENTRIFUGE INCORPORATING THE SAME

Allen Latham, Jr., Jamaica Plain, Mass., assignor to Haemonetics Corporation, Waltham, Mass.

Filed July 28, 1971, Ser. No. 166,865
Int. Cl. B01d *21/26*

U.S. Cl. 233—1 B **10 Claims**



A chuck suitable for holding a centrifuge rotor during centrifuging and requiring only minimum skill to place in position. The rotor is held by atmospheric pressure by creating a vacuum under the rotor base. Evacuation is by way of a fluid flow path extending through a portion of the spindle on which the chuck is mounted. Means responsive to the pressure in the system may be used to control the operation of the motor driving the spindle and rotor to ensure locking of the rotor prior to startup.

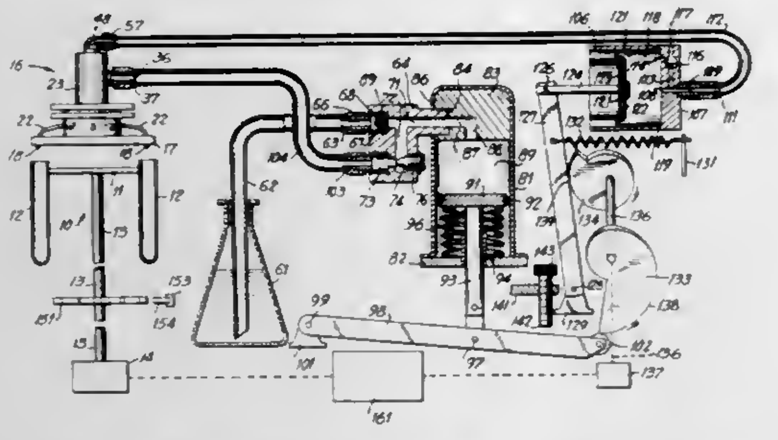
3,706,413

AUTOMATIC FILLING APPARATUS FOR CELL WASHING CENTRIFUGE

Josef Blum, Norwalk, Conn., assignor to Ivan Sorvall Inc., Newton, Conn.

Filed July 30, 1970, Ser. No. 59,590
Int. Cl. B04b *9/12*

U.S. Cl. 233—26 **23 Claims**



Automatic filling device for cell washing centrifuge in which a liquid pump and an air pump are operated in alternating timed sequence whereby a plurality of centrifuge tubes arrayed on a rotor are first filled simultaneously with a metered amount of washing liquid through a plurality of injection nozzles, and subsequently the said nozzles are purged of residual liquid by discharge of an air stream under pressure. An injection nozzle manifold is mounted above the centrifuge rotor whereby each nozzle is aligned to inject wash liquid directly into a respective centrifuge tube. Means are also provided for varying and controlling the amount of wash liquid to be injected into the centrifuge tubes. Further means are provided for repeating the sequential filling and purging cycle for successive washing procedures.

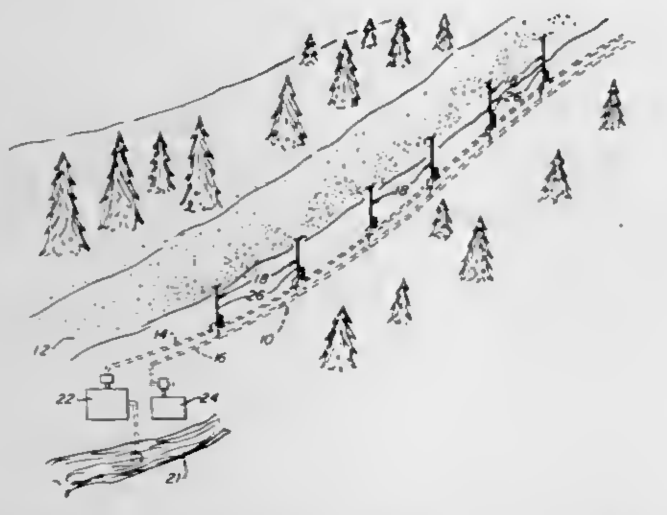
3,706,414

APPARATUS AND METHOD FOR MAKING SNOW

Herman K. Dupre, Seven Springs, Champion, Pa.

Continuation-in-part of Ser. No. 756,749, Sept. 3, 1968, abandoned, and a continuation-in-part of Ser. No. 828,292, May 27, 1969, abandoned. This application Oct. 7, 1970, Ser. No. 78,873
Int. Cl. A01g *15/00*

U.S. Cl. 239—14 **17 Claims**



A method and apparatus for making snow and more particularly a method and apparatus whereby pressurized air and water are introduced into a conduit at a lower portion thereof and thereafter flows upwardly through such conduit to be discharged therefrom on a selected area and at a height and/or location to eliminate interference with users of the area upon which the manufactured snow settles.

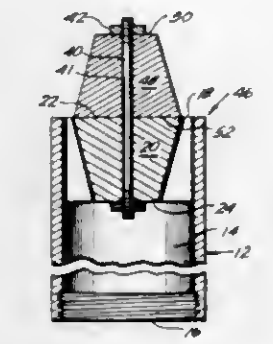
3,706,415

LIQUID DISCHARGE NOZZLES

John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.

Continuation-in-part of Ser. No. 784,541, Dec. 9, 1968, Pat. No. 3,558,053, which is a continuation-in-part of Ser. No. 691,111, Dec. 8, 1967, abandoned, which is a continuation-in-part of Ser. No. 492,389, Oct. 4, 1965, abandoned. This application Jan. 25, 1971, Ser. No. 109,532
Int. Cl. B05b *17/08*

U.S. Cl. 239—17 **13 Claims**



A family of aerating liquid discharge nozzles, each of which has the feature that it contains no moving parts and includes a hollow body defining a liquid inlet at one end and an outlet opening at the other end at opposite ends of an internal duct through the body. A plug, having substantial length between opposite end surfaces relative to the diameter of the duct, is disposed across the duct and is secured from movement along the length of the body. Liquid flow passage means are defined through the plug by a plurality of grooves formed in the side walls of the plug communicating between opposite ends of the plug. A discharge modulating member has opposing closed end end surfaces, one of which is coupled to the plug coaxially thereof and has a maximum transverse extent no greater than the minimum transverse extent of the adjacent end of the plug between opposed grooves in the plug side walls. By varying the configuration and/or position of the modulating member, a wide variety of discharge patterns may be produced.

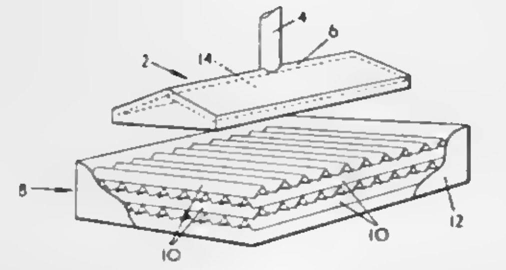
3,706,416

APPARATUS FOR RINSING SMALL PARTICULATE MATERIAL

Raymond Oliver Hoult, Burton upon Trent, Straffordshire, England, assignor to Coal Industry (Patents) Limited, London, England

Filed Feb. 23, 1971, Ser. No. 118,038
Claims priority, application Great Britain, March 3, 1970, 10,126/70
Int. Cl. B05b *1/36*

U.S. Cl. 239—193 **8 Claims**



Apparatus for producing small slow moving water droplets for rinsing small particulate material so as to remove fine particulate material adhering to the small material. The apparatus including an upper portion comprising a feed pipe and a baffle plate, and a lower portion comprising a plurality of layer of angle bar sections, the sections in each layer being parallel to each other and arranged transverse to the sections in an adjacent layer.

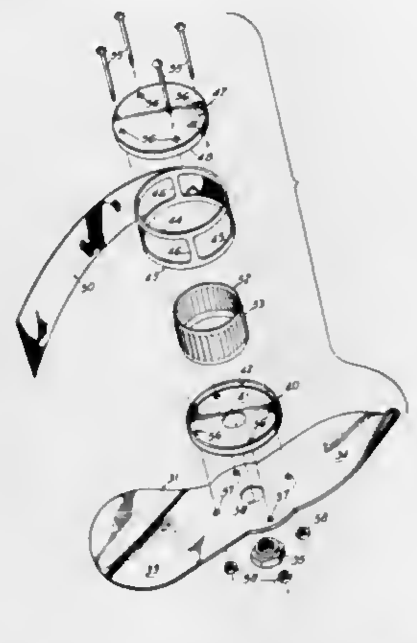
3,706,417

LIQUID SPRAYING METHOD AND APPARATUS

Keith H. Patrick, Montgomery, Ala., assignor to King Around Products, Inc., Montgomery, Ala.

Continuation-in-part of Ser. No. 686,425, Nov. 28, 1967, Pat. No. 3,552,650, and a continuation-in-part of Ser. No. 43,352, June 4, 1970, Pat. No. 3,655,130. This application Jan. 29, 1971, Ser. No. 110,834
Int. Cl. A01n *17/68*

U.S. Cl. 239—222 **8 Claims**



This invention relates to an improved liquid spraying method and apparatus for use in generating a fog-like array of sprayed material to be applied to foliage for pest control or for fertilizer distribution. More particularly, this invention includes a rotatably supported spraying head having an endless diffusion member concentrically mounted relative to the rotation axis of the spraying head. The diffusion member is provided with a plurality of perforations therein for separating into finely divided form, liquid passing therethrough. A liquid dispensing nozzle is in flow communication with the spraying head for introducing liquid into the inside surface thereof. An annular distribution and directing member is coaxially mounted with the spraying head for developing circulating currents of air pressure to effect an even distribution of the liquid introduced therein and for directing the liquid outwardly through the perforations in the diffusion member. An impellar means is operatively associated with the spraying head for producing a uniform blast of air axially in one direction along the outside surface of the diffusion member to generate a fog-like array of sprayed material in a radially and axially extending direction.

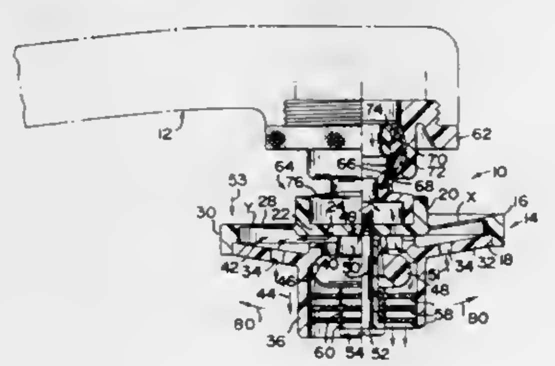
3,706,418

AERATOR

Robert W. Hyde, 1 Putter Place, Crystal River, Fla.

Filed Aug. 26, 1971, Ser. No. 175,189
Int. Cl. E03c *1/08*

U.S. Cl. 239—428.5 **22 Claims**



A water aerating device having a housing which comprises a diaphragm cap and a nozzle cap cemented, welded or pressed fitted together such that movement of a diaphragm integrally formed on the diaphragm cap causes relative movement of the nozzle cap and a change in the configuration of a spray chamber formed therebetween Sealing means is positioned in cooperative relation with a portion of the nozzle cap which is movably disposed so as to move into and out of sealing engagement with the sealing means wherein the sealing means may be automatically centered by virtue of it being movably connected within the housing. The device may be immovably attached to a water outlet or alternatively may include a swivel means interconnecting the housing to an adapter which is attached to the water outlet wherein a combined bearing and seal is positioned between the swivel means and the adapter to allow movement of the housing relative to the water outlet. Issuance of water from the device through a nozzle formed on the nozzle cap is in the form of an aerated stream wherein issuance of the water from fluid passages in the housing is in the form of a spray and control of the water's point of issuance is determined by the location of the diaphragm in a non-extended or extended position.

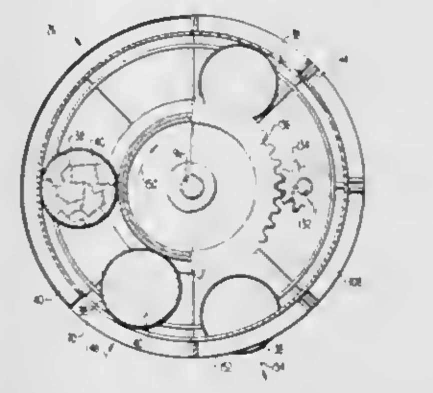
3,706,419

RESIN CRUSHER

Michael Phillips, North Brunswick, and Victor A. Jurow, Freehold, both of N.J., assignors to L. A. Dreyfus Company, South Plainfield, N.J.

Filed Jan. 21, 1971, Ser. No. 108,409
Int. Cl. 214 *311;* **B02c** *4/02*

U.S. Cl. 241—220 **11 Claims**



Disclosed is a method and apparatus for emptying containers filled with a resin or other friable material having a tendency to stick to the container walls. The containers have their tops removed, are inverted, and fed into the space between a stationary outer cylinder and a rotatable inner cylinder. These containers are squeezed between the cylinders as they rotate and progress approximately 315° about the periphery of the inner cylinder, so that the friable material is cracked and broken up and falls by gravity from the open, inverted top of the container.

3,706,420

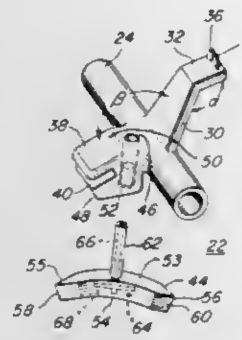
YARN WINDING MECHANISM

Manuel Lapidas, 47 Windmill Drive, Sudbury, and John C. Maull, Rock Meadow Road, Uxbridge, both of Mass.

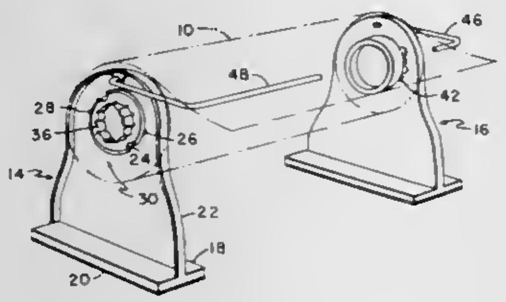
Filed Nov. 23, 1970, Ser. No. 92,062
Int. Cl. B65h *54/30*

U.S. Cl. 242—43 **6 Claims**

In a yarn winding mechanism wherein a length of yarn is wound onto a rotating bobbin, a yarn guide comprising a body supported for movement back and forth along a reciprocal path. A cam follower is affixed to a shaft which is rotatably supported by a metal sleeve positioned in an opening in the body, and the cam follower is adapted to move in a cam comprising a cylinder having a groove which is configured to permit the body to move along the reciprocal path. A yarn guide member is attached to the body for constraining the yarn to properly guide the yarn onto the bobbin. The body, cam follower, and shaft are made of a molded plastic of sufficiently high impact strength to withstand the forces applied to the guide to prevent deformation and breaking thereof and of a sufficiently low coefficient of friction to permit the body to move along the reciprocal path at the required operating speeds. The cam follower and shaft have a reinforcing member embedded therein which provides sufficient flexural rigidity to substantially prevent bending deforming, and breaking of the cam follower and shaft.

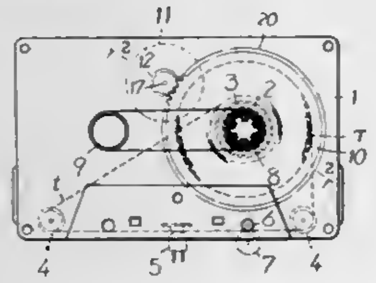


3,706,421
PAPER TOWEL RACK
Orville G. Popham, 6530 Hollow Lane, Loveland, Ohio
Filed May 28, 1971, Ser. No. 148,017
Int. Cl. B65b *19/00*
U.S. Cl. 242—55.2 **10 Claims**



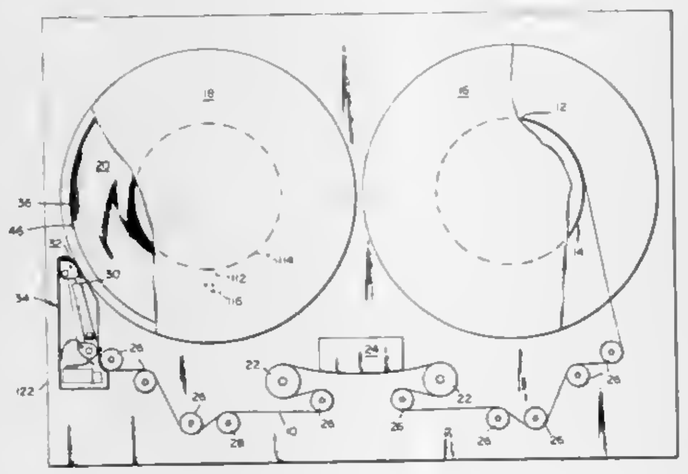
A rack for paper towels wound on a tube is constructed of two identical molded brackets mounted in opposed relationship by means of a pressure sensitive adhesive. The tube is supported by means of bayonet type supports extending through the brackets into the tube.

3,706,422
ENDLESS TAPE CARTRIDGE
Fukuzo Ito, Totsuka-ku, Yokahami-shi, Kanagawa-ken; Masaoki Sekine, Kawasaki-shi, Kanagawa-ken, and Yasusuke Arai, Machida-shi, Tokyo, all of Japan, assignors to Tokyo Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed March 13, 1970, Ser. No. 19,186
Claims priority, application Japan, March 18, 1969, 44/20222
Int. Cl. B65h *17/48*
U.S. Cl. 242—55.19 A **6 Claims**



According to the present invention, a magnetic tape is allowed to run in a normal way and can be taken up on a hub in a convoluted manner, even if the endless cartridge is mounted upside down, on a sound-recording and playback apparatus or such sound-recording and playback apparatus is operated with said apparatus itself being turned upside down. The present invention is featured, among others, by the fact that a rotary member adapted to receive the tape wound up on the hub and to give rotational movement to the wound up tape is provided in the cartridge in opposed relation with a rotary plate serving as a tape receiver means in the endless cartridge.

3,706,423
AUTOMATIC LOADING AND UNLOADING TAPE TRANSPORT APPARATUS UTILIZING A CAPTIVE LEADER
Joseph J. Neff, Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.
Filed Jan. 4, 1971, Ser. No. 103,509
Int. Cl. G03b *1/04;* **G11b** *15/32*
U.S. Cl. 242—195 **14 Claims**

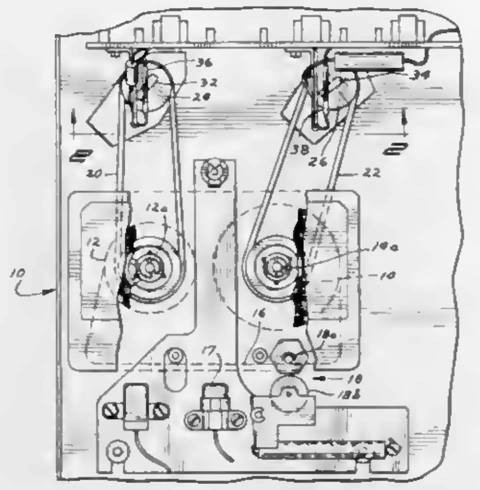


Captive leader web loading and unloading apparatus for automatically capturing the free end of a take-up leader extending along the web transport path, at the conclusion of the supply web rewind operation. A capture device automatically decouples a supply leader from the captive leader without requiring the application of auxiliary motions to the supply reel after rewind. The device includes a bistable mechanism having a first stable configuration for cooperating with the take-up leader such that the take-up leader is captured along the web transport path, and a second stable configuration for releasing the take-up leader when coupled to the supply leader. The bistable mechanism is actuated to assume its first stable configuration, by the take-up leader during decoupling from the supply leader. After automatic coupling of the take-up leader and the supply leader, the take-up leader actuates the bistable mechanism to assume its second stable configuration.

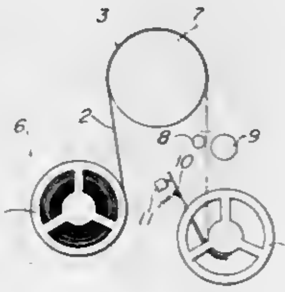
3,706,424
STOP CONTROL FOR A REEL TO REEL DRIVE MECHANISM
Eyvand E. Toensing, Minneapolis, Minn., assignor to Audiomatic Techniques Inc., Minneapolis, Minn.
Filed Nov. 25, 1970, Ser. No. 92,556
Int. Cl. B65h *63/02, 25/32*
U.S. Cl. 242—191 **4 Claims**

A tape transport stop control for a tape drive mechanism in which a pair of sensors sense the movement of the tape at two spaced apart positions, such as by sensing movement of the take-up reel and the supply reel, respectively. The tape drive is stopped when either sensor fails to sense tape movement. The sensors associated with tape movement periodically cause a

bistable flip flop to operate between its respective stable states in response to output signals associated with tape movement. When the flip flop remains in a stable state for a predetermined time interval, the drive mechanism is stopped.



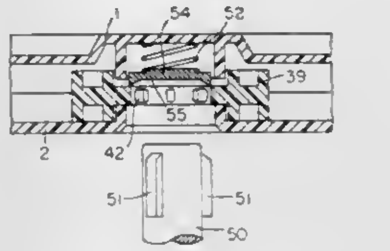
3,706,425
AUTOMATIC TAPE LOADING TYPE MAGNETIC RECORDING AND REPRODUCING APPARATUS
Masahiro Deguchi, Higashi-Osaka, and Masaru Hashirano, Moriguchi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed July 6, 1971, Ser. No. 160,035
Claims priority, application Japan, July 8, 1970, 45/60419
Int. Cl. G03b *1/04;* **G11b** *15/32*
U.S. Cl. 242—195 **3 Claims**



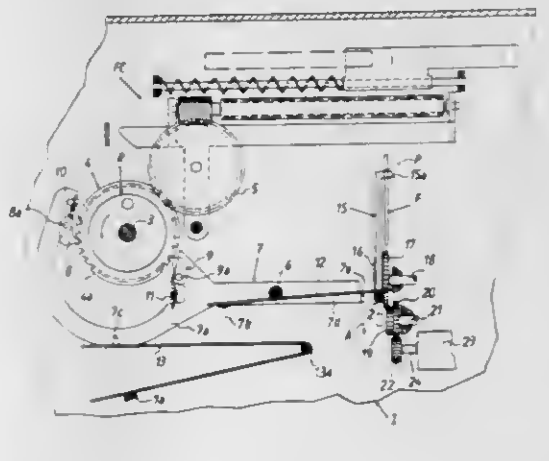
An automatic tape loading type magnetic recording and reproducing apparatus of the kind employing a leader tape of a predetermined length which is spliced to the forward end of a magnetic tape so that the leader tape is first guided along a predetermined path when the magnetic tape is to be loaded and when loading the magnetic tape, the leader tape is fed at a speed faster than the normal tape speed so that when the magnetic tape following the leader tape is placed in its correct predetermined path, its running speed is automatically switched from the said faster speed to the normal tape speed to thereby reduce the tape loading time.

3,706,426
CONTAINER WITH BRAKE FOR ENCLOSED REEL
Marvin E. Prahl, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 27, 1970, Ser. No. 93,320
Int. Cl. G11b *23/08*
U.S. Cl. 242—198 **2 Claims**

A cartridge stores a magnetic recording tape on two reels which are rotated when the cartridge is mounted on a drive spindle. Reels are prevented from turning inside the unmounted cartridge by a brake which is released when the cartridge is mounted. In one embodiment, the brake frictionally bears against the reel, and in another embodiment, fingers on the brake engage reel locking fingers. In both cases, the reel is released when the drive spindle disengages the brake from the reel.



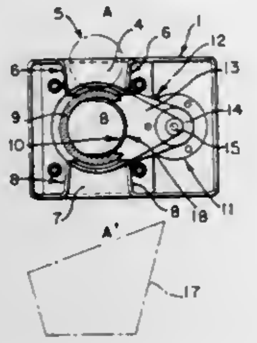
3,706,427
CINEMATOGRAPHIC APPARATUS
Anton Theer, Munich, Germany, assignor to Agfa Gevaert A.G., Munich, Germany
Filed Aug. 23, 1971, Ser. No. 173,771
Claims priority, application Germany, Aug. 27, 1970, P 70 31 984.5
Int. Cl. B11b *15/32;* **G03b** *1/04*
U.S. Cl. 242—205 **15 Claims**



The takeup reel of a cimenatographic apparatus is rotated by the claw pull-down which pivots one arm of a two-armed lever by way of a torsion spring. The other arm of the lever carries two pivotable spring-biased pawls which cooperate with a toothed wheel on the takeup reel in such a way that one of the pawls rotates the wheel in a direction to enable the takeup reel to collect the film when the pull-down pivots the lever in a clockwise direction and that the other pawl rotates the wheel in the same direction as the one pawl when the pull-down pivots the lever in a counterclockwise direction.

3,706,428
DISPATCH AND RECEPTION STATION FOR PNEUMATIC TRANSMISSIONS
Claude Carlier, 24 rue de Romainville, Montreuil, France
Filed Oct. 5, 1971, Ser. No. 186,284
Claims priority, application France, Oct. 5, 1970, 7035816; Sept. 14, 1971, 7133045
Int. Cl. B65g *51/32*
U.S. Cl. 243—19 **9 Claims**

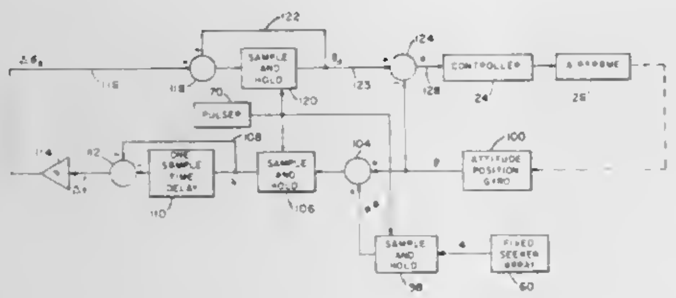
A station for a pneumatic transmission has an enclosure with concentric half-tubes mounted therein forming an extension of the pneumatic transmission line. The half-tubes are rotated together in the same direction one through a quarter turn and the other through a three-quarters turn selectively to



open upward to form a receiving opening; to open downward to form a discharge opening; and to form a closed extension of the transmission line.

3,706,429
MISSILE PROPORTIONAL NAVIGATION SYSTEM USING FIXED SEEKER

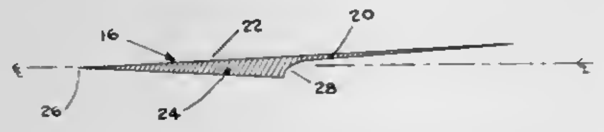
Gordon D. Welford, and Buster E. Kelley, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Navy
Filed Jan. 14, 1970, Ser. No. 7,325
Int. Cl. F41g *7/00;* **F42b** *15/02, 15/10*
U.S. Cl. 244—3.19 **3 Claims**



The outputs of a fixed array detector are employed as inputs to a homing missile steering system using proportional navigation. The seeker outputs are in the form of quantized signals, and are summed with gyro-derived attitude signals to produce missile control signals.

3,706,430
AIRFOIL FOR AIRCRAFT

Richard L. Kline, 24 Mersereau Avenue, Mount Vernon, N.Y., and Floyd F. Fogleman, 14 Drumlin Drive, Morris Plains, N.J.
Filed March 17, 1970, Ser. No. 20,195
Int. Cl. B64c *3/14*
U.S. Cl. 244—35 **6 Claims**

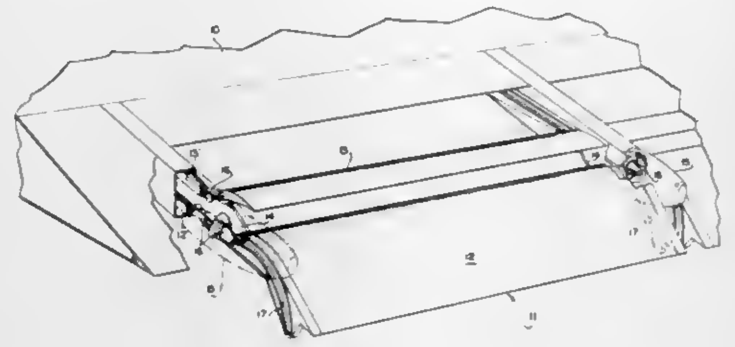


(SECTION TAKEN AT FUSELAGE)

An airfoil for fixed and rotary wing aircraft comprising a continuous upper surface that joins with a generally planar portion of the under surface at the leading edge to form the apex of a wedge-like airfoil section that extends toward and terminates abruptly in advance of the trailing edge.

3,706,431
AUXILIARY FLAP ACTUATOR FOR AIRCRAFT

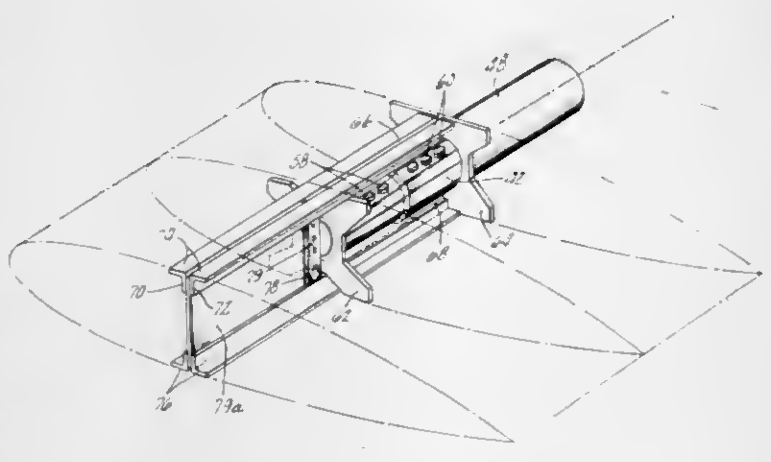
Donald G. Smith, Kennesaw, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Jan. 14, 1971, Ser. No. 106,406
Int. Cl. B64c *3/50*
U.S. Cl. 244—42 DA **10 Claims**



This device controls movement of the wing vane, during the flap and vane deployment cycle. It retains the vane at its retracted position during initial flap motion and, upon attainment of proper flap-vane gap, utilizes the flap's powered motion to attain both flap and vane extension/retraction, providing a rigid structural interconnect between the flap and vane during the vane deployment cycle.

3,706,432
REDUNDANT STABILIZER SUPPORT

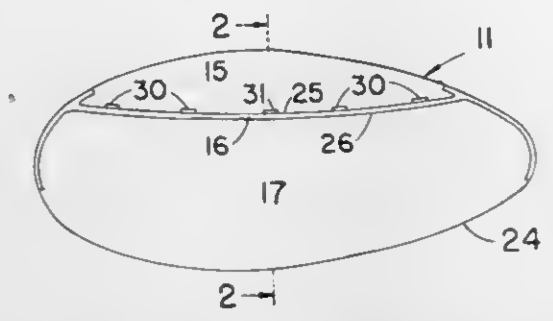
John Accashian, Newtown, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Sept. 14, 1971, Ser. No. 180,295
Int. Cl. B64c *13/04*
U.S. Cl. 244—83 R **7 Claims**



A horizontal stabilizer for a helicopter has two airfoil sections, one on each side of a tail cone. A stabilizer joining and torque tube mechanism comprising two concentric tubes mounted on bearings in the tail cone extends through the tail cone and beyond into the airfoil sections wherein the tubes terminate at laterally spaced points, the inner tube being longer than the outer tube. To transmit torque from the shafts to the airfoil sections a torque tube housing is provided in each airfoil section which conforms externally to and is connected to its airfoil section and which receives the end portions of both tubes and is bolted to them. An actuating lever for the stabilizer is provided on the torque tube mechanism within the tail cone which is connected to pilot controlled linkage.

3,706,433
AIRSHIP WITH INTERNAL TRANSFER OF LIFTING GAS

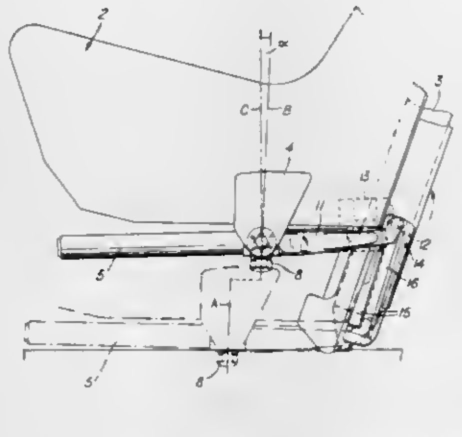
Miles H. Sonstegaard, 95 South Hill Ave., Fayetteville, Ark.
Filed Sept. 28, 1970, Ser. No. 75,954
Int. Cl. B64b *1/58*
U.S. Cl. 244—128 **20 Claims**



Passageways controlled by valves interconnect a permanent lifting-gas chamber with a high-altitude lifting-gas chamber that at low altitude may carry cargo gas, fuel gas, or ballast air. Once the high-altitude lifting-gas chamber is empty, the airship can ascend to high altitude, a portion of the lifting gas flowing from the permanent lifting-gas chamber to the high-altitude lifting-gas chamber; during descent, the transferred lifting-gas is returned to the permanent lifting-gas chamber.

3,706,434
VEHICLE EJECTION SEATS

James Martin, Southland Manor, Southland Road, Denham near Uxbridge, England
Filed Feb. 26, 1968, Ser. No. 708,201
Claims priority, application Great Britain, March 17, 1967, 12,777/67; April 19, 1967, 18,055/67
Int. Cl. B64d *25/10*
U.S. Cl. 244—122 AD **18 Claims**

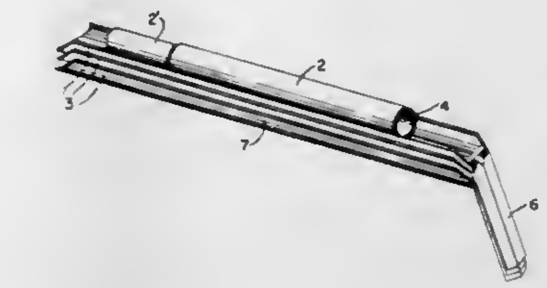


The invention concerns an ejection seat having a rocket motor for assisting in the ejection sequence, the direction of the thrust line of the rocket motor being automatically alterable in response to movement of the pan of the seat with respect to the frame thereof so that the thrust line always passes approximately through the center of gravity of the seat/airman combination even though such center may move substantially as a result of airmen of differing heights using the seat.

3,706,435
STAND FOR AN ARTIFICIAL TREE OR THE LIKE

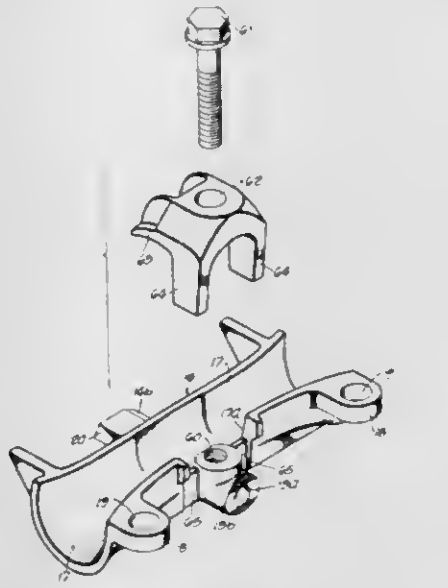
Armand E. Tedeschi, Jr., New York, N.Y., assignor to Mr. Christmas Incorporated, New York, N.Y.
Filed April 6, 1971, Ser. No. 131,724
Int. Cl. A47g *33/12*
U.S. Cl. 248—48 **4 Claims**

A stand arrangement for an artificial tree or the like including a vertically extending coupler having an opening at one end for detachably securing a plurality of leg members together in assembly. The leg members each have a flange portion each extending into the coupler opening, a foot portion resting on a surface such as a floor and an integral portion extending between the flange and foot portions to provide a self-supporting and self-stabilizing tripod arrangement.



3,706,436
CONDUCTOR CLAMP WITH MEANS FOR ANCHORING A CONDUCTOR STRINGING ASSEMBLY THERETO

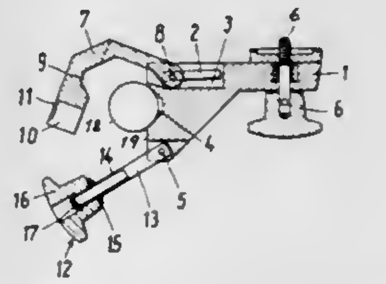
L. E. Lindsey, 222 Vista, Pasadena, Calif.
Division of Ser. No. 845,960, July 30, 1969, Pat. No. 3,640,504. This application June 23, 1971, Ser. No. 155,757
Int. Cl. F16l *3/00;* **H02g** *7/00*
U.S. Cl. 248—63 **5 Claims**



A conductor clamp for pivoting support on the outer end of a power line insulator and including means for anchoring a conductor stringing assembly aligned with the clamp seating channel until the conductor has been seated in the clamp.

3,706,437
CLAMP FOR OPTICAL INSTRUMENTS AND THE LIKE

Toni Eberhardt, Bad Kreuznach, Rhineland, Germany, assignor to Jos. Schneider & Co. Optische Werke, Kreuznach, Rhineland, Germany
Filed Nov. 30, 1970, Ser. No. 93,648
Claims priority, application Germany, Dec. 2, 1969, P 19 60 305.5
Int. Cl. F16b *2/10*
U.S. Cl. 248—230 **7 Claims**



A clamp for fastening an object to a supporting bar has a body forming a first clamp jaw and carries a swingable arm forming a confronting second clamp jaw; the free end of the arm is bifurcated and engageable by a thumb nut on a bolt also articulated to the body. The pivot of the arm is slidable in an inclined track diverging at a small angle, in the direction toward the body, from the line of force exerted by the engaged thumb nut upon the free end of the arm.

3,706,438

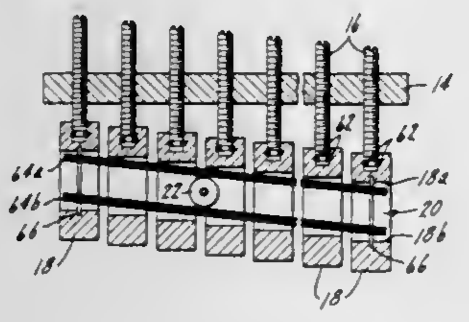
VALVE OPERATING MECHANISM

James A. Coodon, Gaston, and Charles W. Rothhaar, Muncie, both of Ind., assignors to Maxon Pro-Mix Burner Corporation, Muncie, Ind.

Filed Jan. 13, 1971, Ser. No. 106,114

Int. Cl. F16k *31/52*

U.S. Cl. 251—251 **14 Claims**



An operating mechanism for controlling the movement of a valve element. The mechanism includes support means movable in response to the rotation of a driving shaft means. The support means has a plurality of adjusting means connected thereto and arranged along a predetermined path thereon. A continuous deformable channel having a pair of opposed cam surfaces is defined by means connected to the adjusting means. A follower means is positioned in the channel so as to follow each of the cam surfaces. The cam surfaces translate the follower means in converse directions in response to the rotation of the driving shaft means. Connecting means join the follower means with a valve element that moves between an open and a closed position in response to the translation of the follower means.

3,706,439

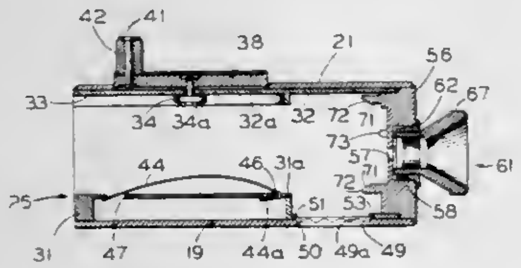
MOTION PICTURE VIEWER WITH REMOVABLE CARTRIDGE

James R. Skinner, Cupertino; Mark O. Uitz, Mountain View, and Paul W. Halt, Saratoga, all of Calif., assignors to Action Film, Inc., Mountain View, Calif.

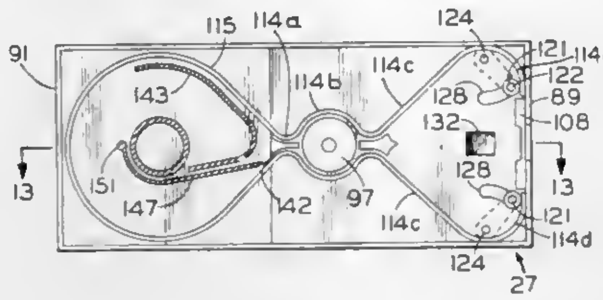
Filed Oct. 17, 1969, Ser. No. 867,289

Int. Cl. G03b *23/04, 1/16*

U.S. Cl. 352—78 **14 Claims**



Motion picture apparatus with removable cartridge having a housing with a cartridge removably mounted in the housing. An aperture is provided in the cartridge. A length of film is disposed within the cartridge and means is provided for advancing the length of film frame by frame past the aperture. Means is mounted in the cartridge and exposed to ambient light for supplying light to the film on the side of the film opposite the aperture. An optical assembly is mounted on the housing in front of the aperture for forming an image of the film as it is advanced in the cartridge.



3,706,440

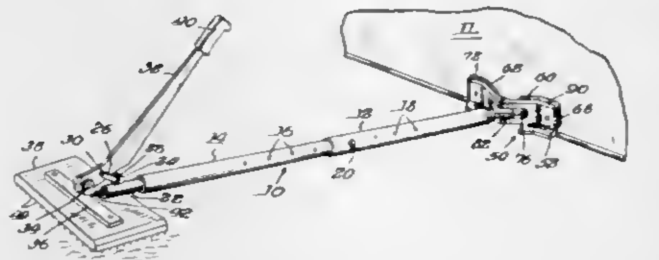
TAIL BLOCK FOR CARPET STRETCHING TOOL

Howard C. Ross, Chicago, Ill., assignor to Kinkead Industries, Inc., Chicago, Ill.

Filed Oct. 19, 1970, Ser. No. 81,818

Int. Cl. A47g *47/04*

U.S. Cl. 254—62 **11 Claims**



A carpet stretching tool with a tail block constructed to permit abutment against the intersection of two projecting vertical wall surfaces, as well as abutment against flat wall surfaces. The improved tail block of the carpet stretching tool is adapted to engage two vertically extending surfaces angularly disposed adjacent each other, as well as a single vertical surface.

3,706,441

JACKING DEVICES

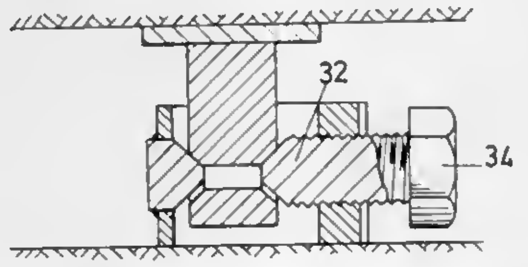
Dudley Norman Forbes, 268 Pastuer Road, Blackheath Ext. 1, Johannesburg, Republic of South Africa

Filed May 24, 1971, Ser. No. 146,104

Claims priority, application Republic of South Africa, May 22, 1970, 70/3468

Int. Cl. B66f *3/08*

U.S. Cl. 254—98 **11 Claims**



This invention deals with a jack which can be incorporated in the length of a pit prop, can be used as a flat jack or can be used as a pulling jack. Essentially the jack is composed of a plunger held in a stirrup by a conical anvil and a pointed screw engaging in opposed conical recesses in the plunger. By turning the screw the stirrup is caused to move transversely to the plunger axis and at the same time the plunger moves up and down in the stirrup. If used as part of a pit prop, the plunger forms telescopic extension of the prop and the stirrup rests on an end of the prop. Acting as a jack the top of the plunger acts on one surface and the stirrup on another. For pulling purposes the plunger is attached to the element to be pulled. The device of the invention generates large forces, but is only suitable for small displacements.

3,706,442

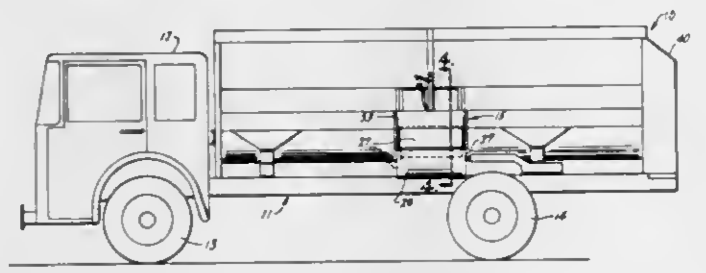
MOBILE FEED MIXER AND BUNK LOADER

Robert W. Peat, Garden City, Kans., assignor to Butler Manufacturing Company, Kansas City, Mo.

Filed March 25, 1971, Ser. No. 127,878

Int. Cl. B01f *7/08, 15/02*

U.S. Cl. 259—41 **1 Claim**



A truck having a mixing box with internal augers which move material along the bottom of the box from the ends toward the midpoint along the bottom, upwardly and then back toward the ends. A lateral discharge conveyor is located at the midpoint to deliver material to one side. The discharge is located near the rear wheels of the truck.

3,706,443

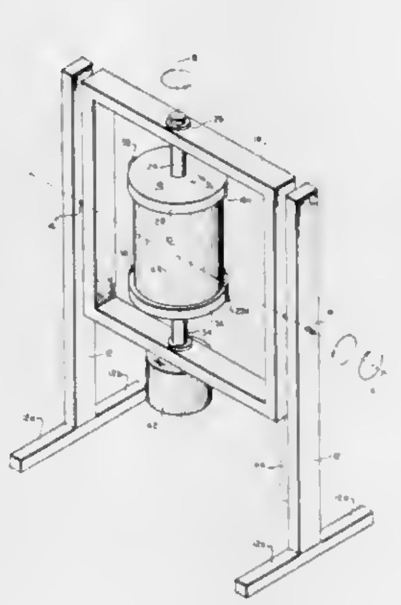
AGITATION METHOD AND MEANS

Charles J. Oberhauser, Watertown, Mass., assignor to Dynatech Corporation, Cambridge, Mass.

Filed Aug. 19, 1970, Ser. No. 65,241

Int. Cl. B01f *9/00, 11/00*

U.S. Cl. 259—72 **14 Claims**



A liquid in a container is agitated by rapidly rotating the container about an axis thereof while, at the same time, allowing the container to rock about a second axis, preferably perpendicular to the first.

3,706,444

CARBURETTOR FOR MOTOR VEHICLE

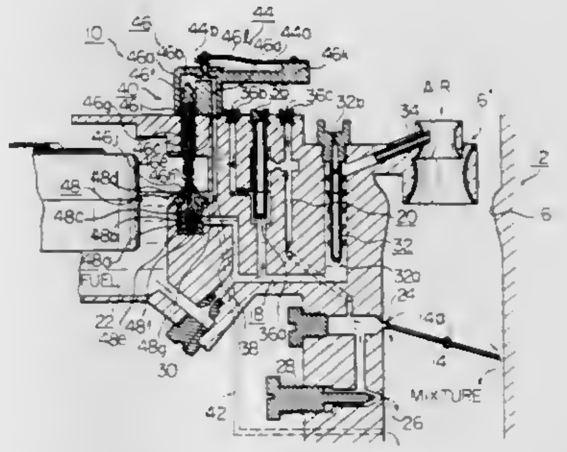
Kenji Masaki, Yokosuka, and Sinzo Kato, Tokyo, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sept. 3, 1970, Ser. No. 69,396

Claims priority, application Japan, Sept. 9, 1969, 44/71376; Sept. 9, 1969, 44/71377; Oct. 3, 1969, 44/79012

Int. Cl. F02m *1/10*

U.S. Cl. 261—39 D **2 Claims**



A mixture supply control system for an internal combustion engine of a motor vehicle, comprising an auxiliary fuel passage for providing communication between the fuel reservoir and the main mixture passage so as to supply additional fuel to the main mixture passage, valve means for opening and closing the auxiliary fuel passage in response to the temperature of the engine, an auxiliary air passage for providing communication between the valve means and a portion posterior to the throttle valve so as to supply additional air to the intake manifold, and temperature sensing means for controlling the opening and closing operations of the valve means in response to the temperature of the engine. The mixture supply control system supplies to the engine an appropriate amount of enriched mixture for the initial "cold-engine" and subsequent warming-up operations.

3,706,445

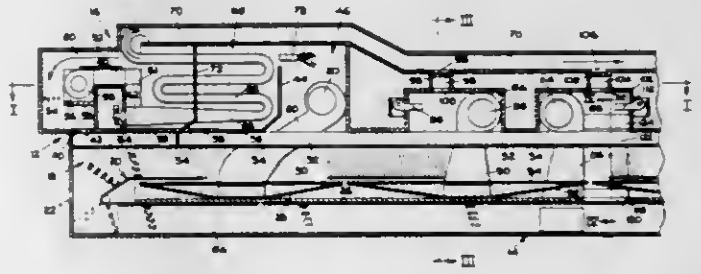
FUME INCINERATOR

Charles B. Gentry, Grand Rapids, Mich., assignor to Granco Equipment, Inc., Grand Rapids, Mich.

Continuation-in-part of Ser. No. 59,142, July 29, 1970, abandoned, and a continuation-in-part of Ser. No. 104,905, Jan. 8, 1971, abandoned. This application Sept. 30, 1971, Ser. No. 185,046

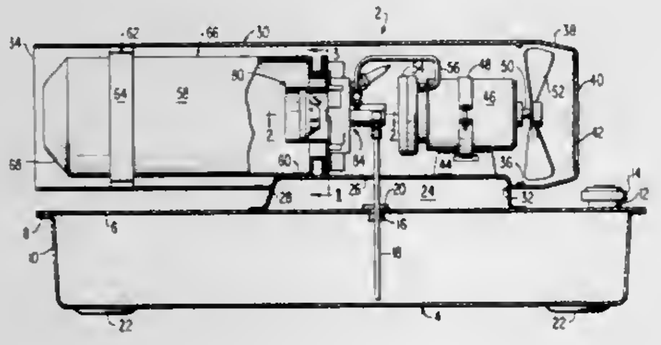
Int. Cl. F27b *9/30;* **F23q** *7/06*

U.S. Cl. 263—8 R **26 Claims**



An incinerator for a drying oven and the like to remove combustible fumes such as solvent vapors from the exhaust from such ovens. The incinerator is formed from a narrow, elongated, heat-conducting, metal incinerator conduit having at least one U or reverse bend to increase turbulence within the conduit and to increase heat exchange of hot gases with the exterior of the conduit. The fume-laden gases to be incinerated are channelled along the exterior surface of the incinerator conduit for heat exchange with the incinerator. A fan draws the solvent-laden gases through the larger preheat conduit and forces the preheated gases into the incinerator conduit at a higher pressure than that of the preheat conduit. In one embodiment, a portion of the combusted gases from the incinerator conduit is admixed with the solvent and air mixture in the preheat conduit to assist in preheating the mixture. The incinerator can be built into the oven with which it is used, or can be a separate entity mounted on top of the oven or even separated from the oven by ducting.

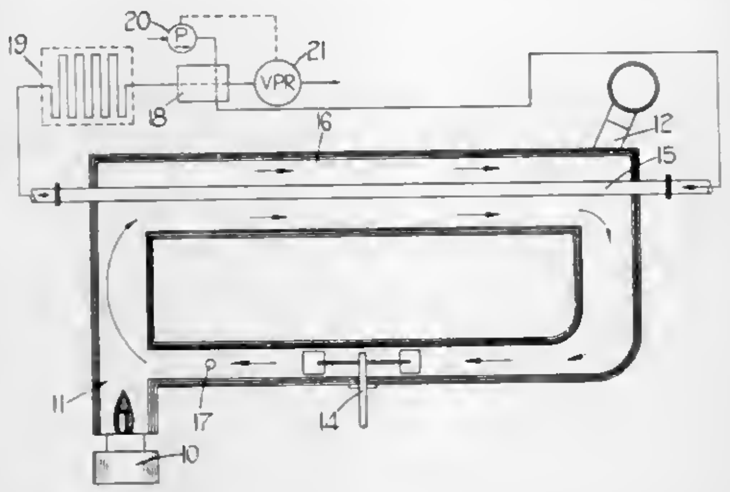
3,706,446
PORTABLE HEATER
Eugene C. Briggs, Dayton, Ohio, assignor to Koehring Company, Milwaukee, Wis.
Filed March 29, 1971, Ser. No. 128,720
Int. Cl. F23l *9/04*; F24b *3/04*
U.S. Cl. 263—19 A **6 Claims**



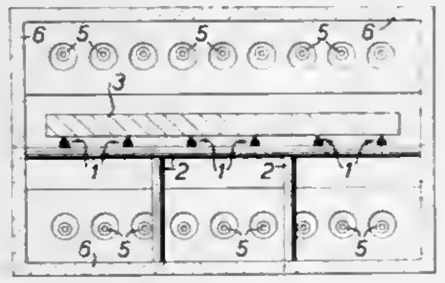
The elongated generally tubular shell of an oil burning portable heater is provided with a coaxial combustion chamber at its front end portion. A motor within a rear end portion of the shell drives both a primary combustion air pump and a fan for drawing air into the rear end of the shell and forcing it longitudinally through the shell. A burner tube extends a short distance into the rear end of the combustion chamber and a burner head is mounted at the rear end of the burner tube. A fuel nozzle in the burner head is supplied with oil and primary air and projects an air-oil mixture axially of the burner tube. Auxiliary air from the fan enters openings in the circumference of the burner head and exits into the burner tube in a swirling pattern. An open ended conical flame retention head is located within the burner tube with the small end of the cone facing the nozzle to receive the air-oil mixture projected therefrom, and auxiliary air openings in the flame retention head have outwardly protruding vanes adjacent their margins for guiding auxiliary air into the flame retention head and imparting a swirl thereto in the same rotational direction as that provided when the auxiliary air enters the burner head.

3,706,447
HEAT TREATMENT APPARATUS FOR THE TREATMENT OF SEWAGE AND OTHER SLUDGES
Kenneth George Mulhall, 2 Deer Barn Hill, Redditch, England
Filed Dec. 31, 1970, Ser. No. 103,123
Int. Cl. F27b *5/02*
U.S. Cl. 263—37 **6 Claims**

A sludge heat treatment apparatus is provided in which heating of the incoming raw sludge is effected by passing the sludge through a sludge conduit extending along a duct through which hot air and combustion products of a fluid fuel burner are caused to circulate. The temperature of the circulating air is controlled by a thermostat.



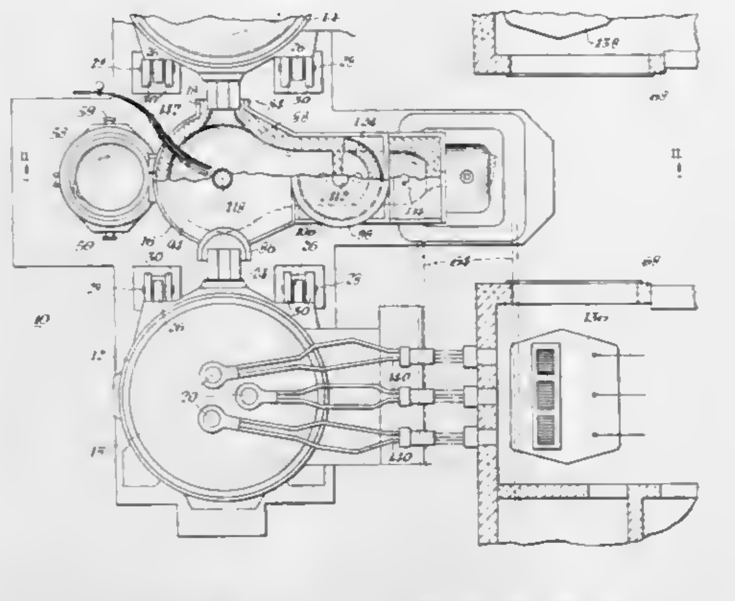
3,706,448
SKIDS OR BEAMS FOR FURNACES
Frank Michael Salter, Kent, and John Edwin Dibley, Surrey, both of England, assignors to The British Iron and Steel Research Association, London, England
Filed Jan. 21, 1971, Ser. No. 108,407
Claims priority, application Great Britain, March 23, 1970, 13,923/70
Int. Cl. F27b *5/00*
U.S. Cl. 266—1 R **11 Claims**



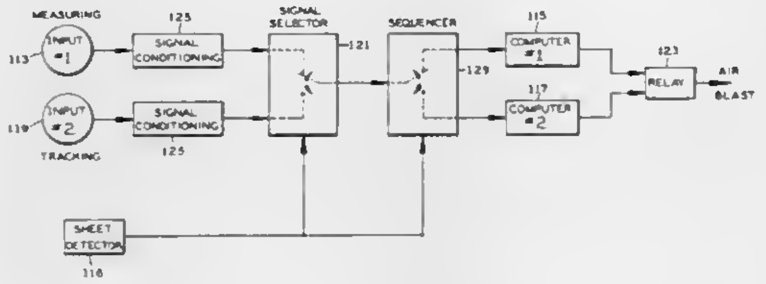
A skid or beam for a slab reheating furnace has a hollow water cooled pipe with a rail welded along the top of the pipe on which the slabs bear. The rail is of inverted channel section with two outer limbs extending downwardly from an upper portion. The lower ends of the outer limbs are welded to the pipe. Preformed grooves extend across the bearing surface of the rail at spaced locations along its length. The channel shaped rail minimizes conduction of heat from the slabs to the pipe and in use the grooves crack and relieve stresses caused by the temperature differences across the rail.

3,706,449
VACUUM DEGASSING UNIT
C. H. Anderson, MacMurray, Pa., and Colin Griffiths, Arlington Heights, Ill., assignors to Pullman Incorporated, Pittsburgh, Pa.
Filed April 27, 1971, Ser. No. 137,797
Int. Cl. C21c *7/10*
U.S. Cl. 266—34 V **14 Claims**

A vacuum degassing unit comprising a reservoir vessel, a pivot structure for mounting said vessel, a degassing vessel having a pair of siphon legs extending into said reservoir vessel, means for maintaining a liquid contained within said reservoir vessel at differential levels respectively relative to said siphon legs to maintain a siphoning flow therethrough, and means for tilting said reservoir vessel about said pivot structure for initiating said siphoning flow.



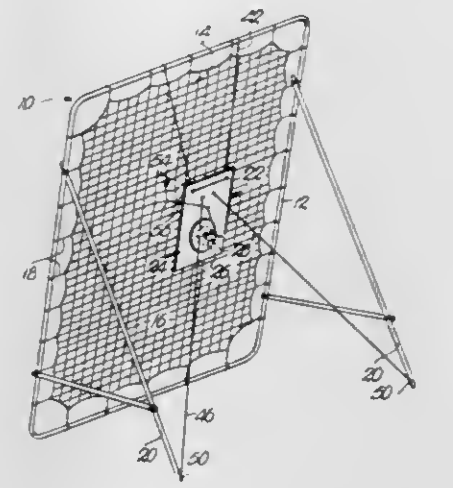
3,706,450
FOLDING APPARATUS
Roland W. Gerstenberger, and David P. Gunn, both of Fort Lauderdale, Fla., assignors to Jensen Machinery Inc., Fort Lauderdale, Fla.
Filed Oct. 20, 1970, Ser. No. 82,429
Int. Cl. B65h *45/18*, *45/12*
U.S. Cl. 270—84 **7 Claims**



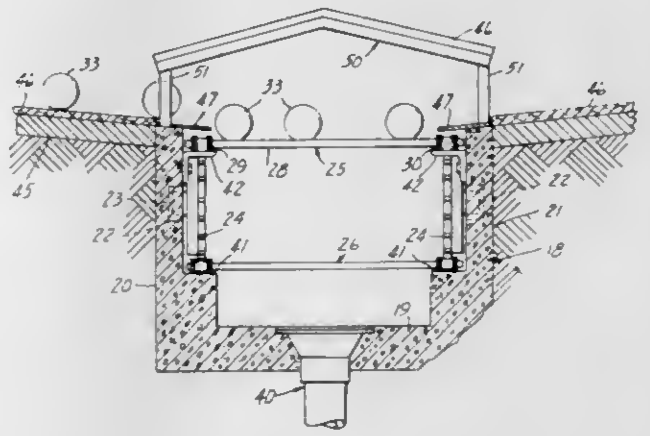
In the folding apparatus, conveyors are arranged in vertically stacked relation and run in different directions to save space. A roll folder mechanism which is actuated by an air jet is located between the first two conveyors which run in the same direction. A third conveyor is located under the second conveyor ad runs in the opposite direction. A pick-up-and-drop type of folder mechanism is associated with the second conveyor, and another roll type folder with air jet is associated with the third conveyor. A fourth conveyor receives pieces from the third conveyor and runs transversely relative to the same. Final folds are made on this fourth conveyor by pick-up-and-drop type folding mechanisms. The article is measured by an electric pulsing device as the article is being fed in from an ironer, and the system has the ability to measure an article while it is still being fed from the ironer, even though the folder may be running at a faster speed than the ironer.

3,706,451
TARGET TYPE SCORING DEVICE
Jack R. Dixon, 125 North Main, Miami, Okla.
Filed Dec. 3, 1970, Ser. No. 94,764
Int. Cl. A63b *69/40*
U.S. Cl. 273—26 A **10 Claims**

A target type scoring device which includes a target formed of resilient material such as a net supported by elastic members and a frame, there being a plate positioned in spaced relationship behind the target and having indicia thereon to define a scoring area on the target, there being a rotatable member carried by the plate and having markings to indicate a score as a result of the scoring area of the target being struck by an object, there being means coupling the rotatable member with the scoring area of the target so that when the target of resilient material rebounds as a result of being struck by an object the means is actuated to rotate the rotatable member and thus indicate a score.



3,706,452
GOLF DRIVING RANGE CONSTRUCTION
Ronald W. Soucie, 940 Meadowsweet Drive, Corte Madera, Calif.
Filed Sept. 11, 1970, Ser. No. 71,303
Int. Cl. A63b *67/02*, *69/36*
U.S. Cl. 273—35 R **5 Claims**



A golf driving range constructed with a central longitudinally extending ball return conveyor and with the contour of the ball receiving range slanting upwardly and outwardly from both sides of the conveyor to permit the balls driven from the teeing platform to automatically roll into the conveyor. The balls roll under a longitudinally extending conveyor cover which is provided to protect the conveyor from being directly hit by driven balls. The conveyor includes upper and lower runs and shafts which extends between pairs of opposed chains and support the golf balls as they are carried back to the teeing platform. The conveyor carries the balls into a hopper or other suitable receptacle positioned in the club house from which point the balls may be dispensed to the users. The range may preferably be constructed by excavation and building up of the terrain at the site and is provided with a permanent coating of relatively hard material covered with a simulated turf or carpeting to provide a surface which requires no care or upkeep.

3,706,453

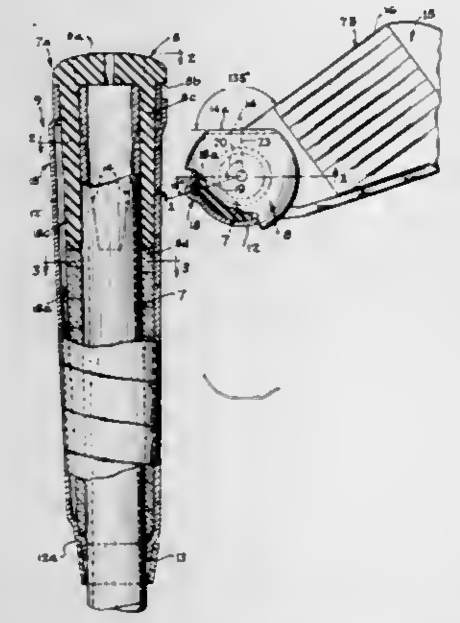
GOLF CLUB WITH FINGER ORIENTING GRIP

Nate Rosasco, Jr., Chicago, Ill., assignor to Northwestern Golf Company, Chicago, Ill.

Continuation of Ser. No. 730,977, May 6, 1968, abandoned. This application Nov. 2, 1970, Ser. No. 86,307

Int. Cl. A63b *53/14*

U.S. Cl. 273—81.4 **1 Claim**



A golf club in which a grip having a flat portion for the palm of one of the golfer's hand is combined with a finger positioning means for the fingers of the other hand so the two hands are desirably oriented relative to each other and to the clubhead of the club. The finger positioning means is an elongated ridge which has a longitudinal axis generally following the longitudinal axis of the tubular shaft. The ridge is located on the tubular shaft about 105° as measured between the axes perpendicular to the flat portion of the grip and the ridge. The same relationship of the flat surface to the ridge is provided for the various clubs with different clubheads of varying pitch. The hands of the golfer will be correctly positioned relative to each other when the palm of the leading hand abuts the flat surface and the fingers of the following hand are positioned relative to the elongated ridge. The fingers of the following hand are properly positioned relative to the ridge when the aligned creases formed on the inside of hand by the second joints of the fingers engages the ridge.

3,706,454

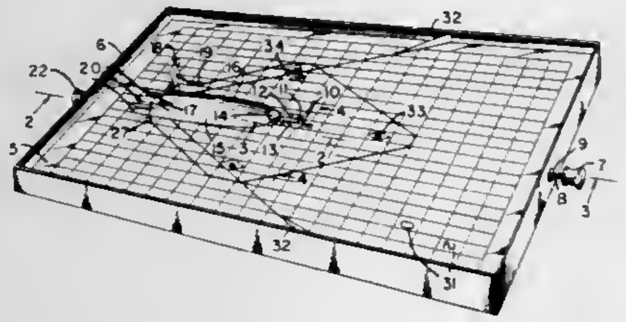
SIMULATED BASEBALL GAME

Joseph Parlato, 527 Bay Ridge Parkway, Brooklyn, N.Y.

Filed March 24, 1971, Ser. No. 127,719

Int. Cl. A63f *7/14*

U.S. Cl. 273—89 **3 Claims**



This invention is directed to a baseball game played on a game board constructed to provide, in addition to the usual field area, a pitching and a batting area each having its own independently operable pitching or batting device. A relatively wide three-part catching receptacle is formed in the batting area and a relatively wide pitching guide channel of trough-like cross-section extends between the pitching area and the catching receptacle so that a ball impelled from the pitching area toward the catching receptacle may be caused to follow a curvilinear path toward the batting area before being "hit" or before its reception into the batting receptacle.

3,706,455

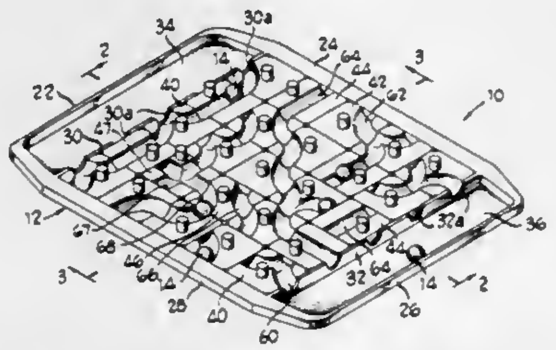
MAZE TYPE GAME

Burton C. Meyer, Chicago, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 22, 1971, Ser. No. 117,515

Int. Cl. A63b *67/14*

U.S. Cl. 273—110 **1 Claim**



A maze-type game on a tiltable game board including rollable playing pieces and playing piece receiving areas at the opposite ends of the game board, characterized by a maze-like path of travel between the playing piece receiving areas with portions of the maze-like path of travel being individually movable during the course of the play of the game.

3,706,456

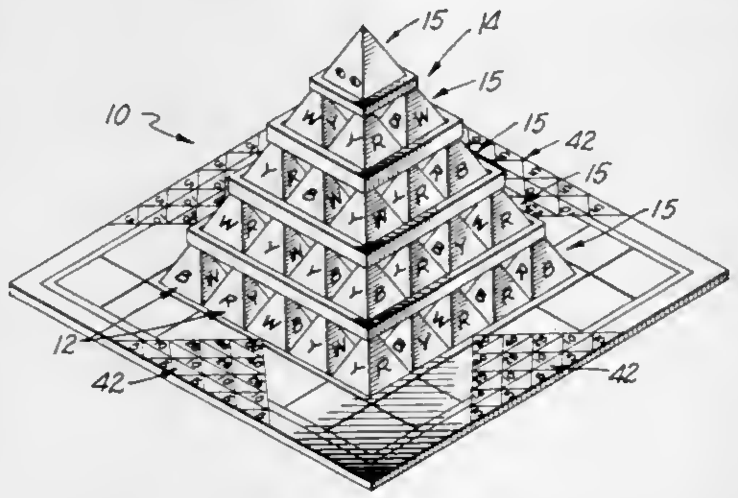
BOARD GAME APPARATUS

Joseph J. Sesti, 427 Reed Street, Covina, Calif., and Ferdinand Sesti, 223 Braziliana Drive, San Dimas, Calif

Filed Jan. 18, 1971, Ser. No. 107,145

Int. Cl. A63f *3/00*

U.S. Cl. 273—135 AC **17 Claims**



Game apparatus including a number of similar game blocks having faces marked with distinctive colors, and adapted to be placed side by side to form a block structure, and a set of indicia selector cards composed of card groups equal in number and corresponding in color to the block faces. Each card bears a pair of block placement indicia matching the indicia on two selected block faces. The apparatus has pyramidal shaped blocks which are assembled in a number of tiers or plateaus to form a completed block structure with the shape of a pyramid. This apparatus has plateau boards for supporting each block plateau on the preceding plateau, scoring charts on the lowermost or base plateau board, a chance selection hood block adapted to be placed over and rotated with a game block, and a bonus scoring feature.

3,706,457

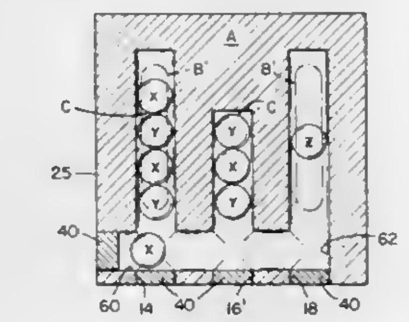
GAME HAVING CAPTURED MARBLE EXPOSED FOR DIGITAL MANIPULATION

Michael Gonzales, Sebastopol; Richard H. Benton, and William G. Moore, both of Mill Valley, all of Calif., assignors to Leland Dibble, Jr., Santa Rosa, Calif.

Filed June 29, 1971, Ser. No. 158,002

Int. Cl. A63f *7/04*

U.S. Cl. 273—1534 **2 Claims**



A plurality of side by side cylindrical bores are each drilled from a vertical edge of a block with one edge of each bore adjacent a planar and major surface of the block. At least some of the bores are partially exposed to the surface of the block by routing out a channel to expose less than a diameter of the cylindrical bore through the major surface to the exterior of the block. Spheres having a diameter less than that of the bore, but greater than that of the channel, are inserted interior of the bore. The bore is plugged at its end to trap the spheres. The spheres are thus held within the bore and yet exposed to external view and digital manipulation through the routed channel. According to one aspect of this invention, transverse ridges and valleys interior of the bore can be used to hold the spheres in preselected positions for marking turns in the game relating to sequential movement of a plurality of spheres in a plurality of exposed bores. According to another aspect of the invention, two exposed passages can be communicated to a hidden passageway and trap; through manipulation of observed spheres each marked with different indicia, the order of spheres can be changed.

3,706,458

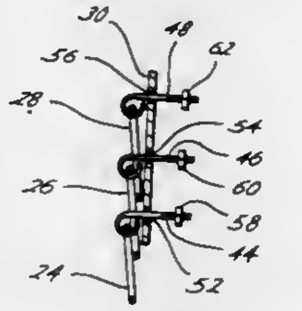
RING PUZZLE WITH CHANGEABLE NUMBER OF RINGS

Henry F. Jones, 2918 Orleander Drive, Pasadena, Tex.

Filed July 22, 1971, Ser. No. 165,155

Int. Cl. A63f *9/08*

U.S. Cl. 273—158 **2 Claims**



A puzzle having a plurality of identical rings each of which is connected to a base by a support which is rotatably and longitudinally movable in the base with the support for each ring except for the last ring in the series being secured to the base through the inside of the next adjacent ring and an engaging member having two sides generally parallel and spaced a distance apart less than the inside diameter of the ring and joined together at least at one end whereby manipulation of the rings and engaging member can be performed to insert the engaging members through all of the rings and removed therefrom. The supports are individually releasably connected to the base so that the number of rings, and hence the difficulty of the puzzle, may be changed at will.

3,706,459

OIL SEAL FOR ROTARY PISTON MACHINES

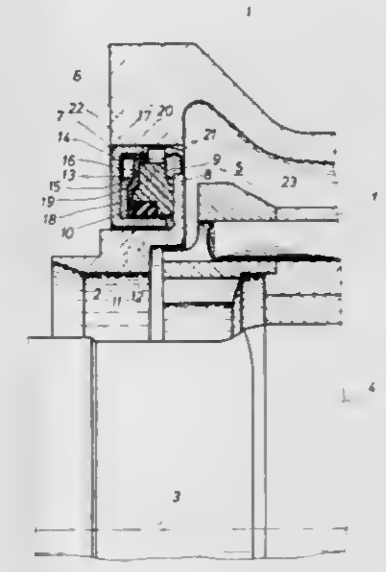
Manfred Frenzel, and Karl Vom Stein, both of Burscheid, Germany, assignors to Goetzewerke Friedrich Goetze A.G., Burscheid, Germany

Filed Dec. 30, 1970, Ser. No. 102,605

Claims priority, application Germany, April 29, 1970, G 70 16 069.9

Int. Cl. F16j *9/00, 15/40*

U.S. Cl. 277—40 **10 Claims**



A sliding ring oil seal has its sliding ring held by a support ring. Lugs protrude radially from the support ring to interfere with the seal housing and prevent relative rotation between the sliding ring and the seal housing.

3,706,460

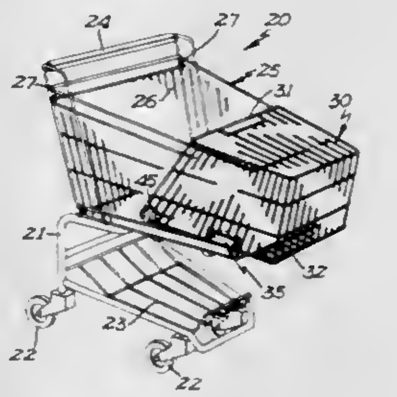
SHOPPING CART

James L. Thomas, 6201 Bethia Lane, Brooklyn Park, Minn.

Filed Sept. 4, 1970, Ser. No. 69,840

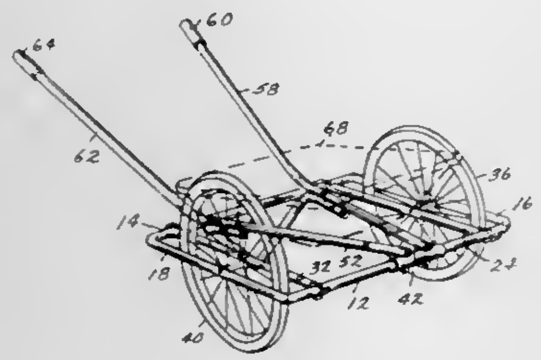
Int. Cl. B62b *11/00*

U.S. Cl. 280—33.99 F **2 Claims**



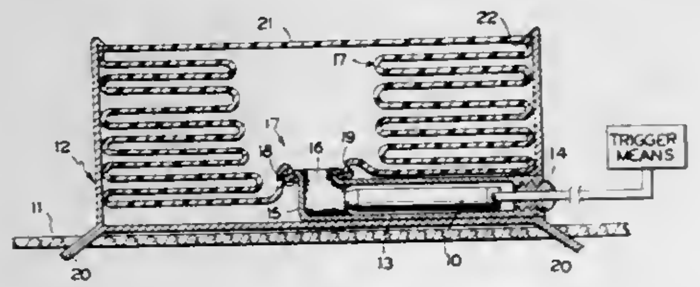
An expandable shopping cart having an extension basket movable from a retracted position for storage, to an extended position for use. The extension basket increases the volumetric capacity of the conventional shopping cart by providing an additional separate compartment when extended. When retracted the shopping cart is nestable with similar carts for storage in the conventional manner. The extension basket may be mounted on conventional nonexpandable shopping carts without redesign or change in the construction of the conventional cart.

3,706,461
WHEELBARROW ASSEMBLY
Paris E. Devol, 122 Cardinal Lane, Tabbs, Va.
Filed Feb. 12, 1971, Ser. No. 114,840
Int. Cl. B62b *1/10*
U.S. Cl. 280—47.26 **7 Claims**



A wheelbarrow assembly having a low slung frame member and two wheels mounted on separate axles. Two handle members of carefully selected dimensions extend upwardly and outwardly from the frame member and at a predetermined angle therewith whereby a large leverage factor is provided for the operator together with strong load support for easy maneuverability.

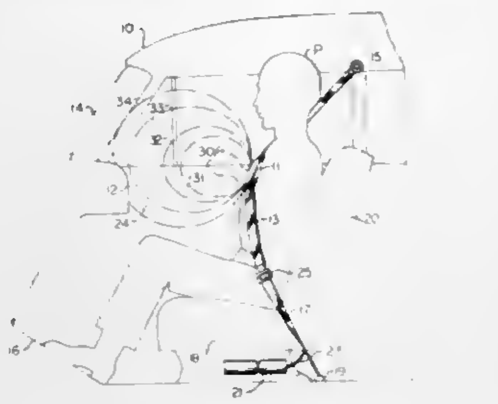
3,706,462
INFLATABLE SAFETY DEVICE
Wallace B. Lilly, 202 College Ave., Beckley, W. Va.
Filed May 28, 1970, Ser. No. 41,282
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **2 Claims**



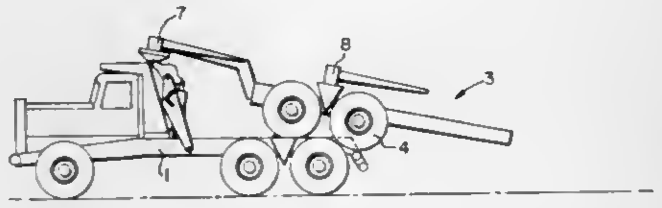
An inflatable bag for protecting the occupant of a car from injury as a result of a collision. The bag is securely connected to the occupant's seat belt. The bag normally is deflated and is releasably confined so that upon inflation the bag is quickly released and, by reason of its being mounted on the seat belt, assumes a position in front of the occupant using the seat belt.

3,706,463
INFLATABLE SAFETY BALLOON WITH INERTIAL MEANS OF ACTUATION
Martin Lipkin, 445 East 86th Street, New York, N.Y.
Filed Feb. 24, 1970, Ser. No. 13,270
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **25 Claims**

An inflatable safety balloon made of a flexible material is folded and mounted within a compartment on an elastic attachment cord which is mounted inside of a car in a manner resembling a shoulder harness so as to position the compartment in front of a wearer's chest. A gas release mechanism and a source of pressurized gas which inflates the balloon in an area between a wearer's chest and the dashboard or front seat when activated. The gas release mechanism may be inertially activated or manually activated.



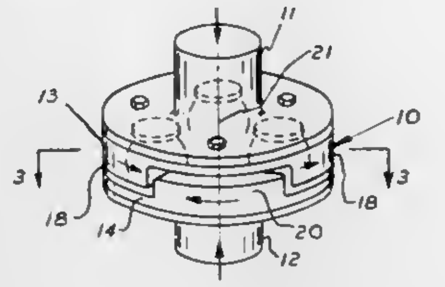
3,706,464
POWER SYSTEM FOR LOADING AN EMPTY TRAILER ONTO A TRACTOR OR FOR LOADING PRE-LOADED TRAILERS ONTO A FIFTH WHEEL OF THE TRACTOR
Clifford G. Burrows, North Vancouver, British Columbia; John E. Magnuson, Surrey, British Columbia, and Ludi Giese, North Vancouver, British Columbia, all of Canada, assignors to Canadian Kenworth Ltd., Burnaby, Canada
Filed Dec. 13, 1970, Ser. No. 100,957
Int. Cl. B62d *53/00*
U.S. Cl. 280—401 **11 Claims**



A tractor-semi-trailer combination is disclosed, the tractor having power means on the tractor for loading the trailer onto the rear frame of the tractor when the trailer is to be transferred without a load or to load pre-loaded trailers onto a fifth wheel of the tractor. A lift arm is pivotally attached at one end to the tractor sub-frame. An elevatable bell crank is pivotally attached between its ends to the opposite end of the lift arm. To the respective ends of the bell crank are pivotally attached the fifth wheel and power means, suitably a double-acting power cylinder interconnected between the tractor frame and bell crank. The bell crank carries a hook member which engages a pin carried by the lift arm when rotated about its connection to the lift arm, thereby locking the bell crank in a releasable position relative to the lift arm and raising the fifth wheel. A locking member is employed to hold the hook member in engagement with the pin carried by the lift arm. The power means, when actuated, raises the lift arm, bell crank and fifth wheel forward and upward over the rear frame of the tractor, thereby drawing the coupled empty trailer onto the tractor with the trailer wheels supported on the rear frame portion of the tractor.

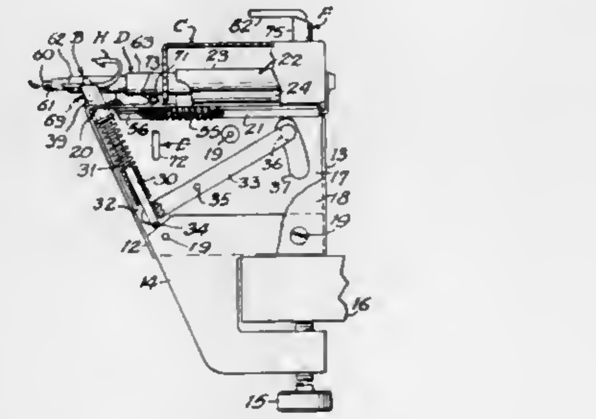
Loaded semi-trailers with their forward bunk supported on retractable legs are loaded onto the fifth wheel of the tractor by positioning the fifth wheel of the tractor under the trailer reach, raising the fifth wheel by actuation of the power means to engage the trailer kingpin, raising the fifth wheel and bunk sufficiently for the legs of the trailer to clear the ground, retracting the legs, and lowering the fifth wheel to its lowered or "ground" position.

3,706,465
ELASTOMERIC REFLEX JOINT
Edward J. Olowinski, Erie, Pa., assignor to Lord Corporation, Erie, Pa.
Filed Sept. 30, 1971, Ser. No. 185,019
Int. Cl. F16b *7/00;* **A61f** *1/04*
U.S. Cl. 287—85 R **10 Claims**



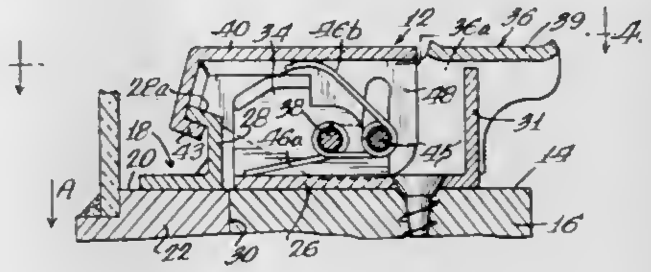
Spaced members have opposed spaced apart load-carrying surfaces. A plurality of elongate elastomeric bodies are symmetrically disposed between the surfaces in spaced apart relation about a pivot axis in axial compression load-carrying relation. Vane means carried by the spaced members are resiliently maintained or biased in engaging relation with the periphery of the elastomeric bodies. Upon axial compression of the elastomeric bodies, their circumference expands. The vane means are responsive to this circumferential expansion for causing relative rotation between the spaced members about the pivot axis.

3,706,466
SNELL-TYING IMPLEMENT
Delphin H. Landry, 55 Cerro Vista, Hacienda del Pismo, and Howard A. Biby, 54 Cerro Vista, Hacienda del Pismo, both of, Pismo Beach, Calif.
Filed Nov. 29, 1971, Ser. No. 202,851
Int. Cl. D03j *3/00*
U.S. Cl. 289—17 **7 Claims**



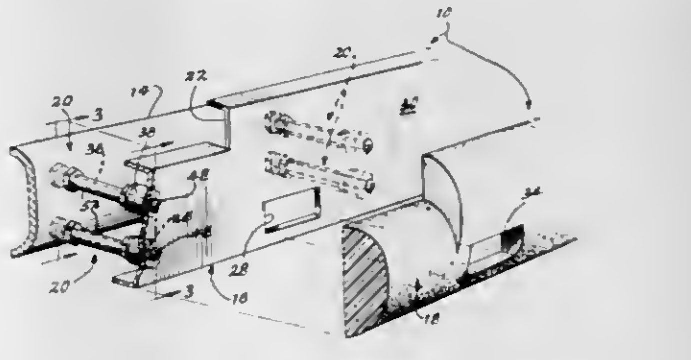
A snell is attached to a fish hook by coiling it around the projecting end of a tubular mandrel, around a stretch of the snell and around the shank of the hook held alongside the mandrel, then catching it in a hook on the end of a pulling needle extending through the mandrel and projecting from the end thereof, then retracting the needle and mandrel into a fixed bearing sleeve so as to draw a loop of the snell through the coils while pushing the coils off the mandrel onto the hook shank and the several stretches of the snell passing through the coils, and finally pulling the two ends of the snell, projecting from the opposite ends of the body of coils, to tighten the coils in secure attachment to the hook. The needle and mandrel are yieldingly retractable during this operation. For tying a loop on the opposite end of the snell, a lock is provided to hold the mandrel in its projected position, and the needle is operated to draw a loop of the snell through a doubled end portion thereof which has been coiled around the projecting end of the mandrel, while the latter remains fixed by its lock.

3,706,467
CHECK RAIL LOCK
Jerry L. Martin, Echo Heights, Owatonna, Minn., assignor to Truth Incorporated
Continuation of Ser. No. 789,556, Jan. 7, 1969, abandoned. This application March 12, 1971, Ser. No. 123,879
Int. Cl. E05c *5/00, 9/14*
U.S. Cl. 292—111 **10 Claims**



A check rail window lock for a double hung window having a bottom sash and a top sash and including a catch means affixed to the bottom rail of the top sash. A two-part latch means selectively engages the catch means and is affixed to the top rail of the bottom sash by a mounting base. The latch means includes a first part movably mounted on the base for pivotal movement about an axis fixed vertically to the base to rotate the first part into and out of engagement with the catch means and for generally horizontal movement to draw the catch means toward the latch means after initial engagement therebetween. A second part of the latch means is pivotally mounted on the base and is operatively connected to the first part to permit said rotatable movement and to positively move the first part horizontally to lock and unlock the sashes.

3,706,468
VEHICLE BUMPER
Salvatore J. Yoviene, 79 McClellan Circle, Buffalo, N.Y.
Filed Nov. 27, 1970, Ser. No. 93,004
Int. Cl. B60r *19/08*
U.S. Cl. 293—88 **1 Claim**

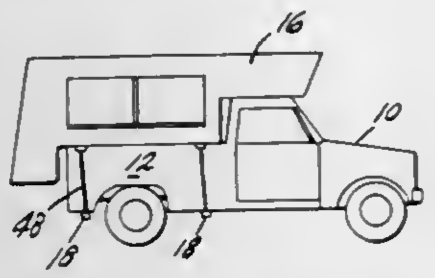


A vehicle bumper including a relatively rigid plate member, an impact energy absorbing body portion adhesively fixed to and sized to extend substantially coextensive with the plate member, and a plurality of impact energy absorbing-mounting devices for fixing the plate member to the vehicle.

3,706,469
FRAME MOUNTED CAMPER HOLD-DOWN
Frederick M. Covert, 9115 Jackson Road, Dexter, Mich.
Filed July 21, 1971, Ser. No. 164,646
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 MC **8 Claims**

A hold-down device for maintaining recreational vehicle campers upon the bed of a pickup truck wherein the hold-down is mounted directly and solely to the main vehicle frame.

The apparatus of the invention includes an elongated arm having an inner end bolted to the truck frame, and outer end attached by means of flexible tension means to the camper enclosure. Bracing means is interposed between the ends of the

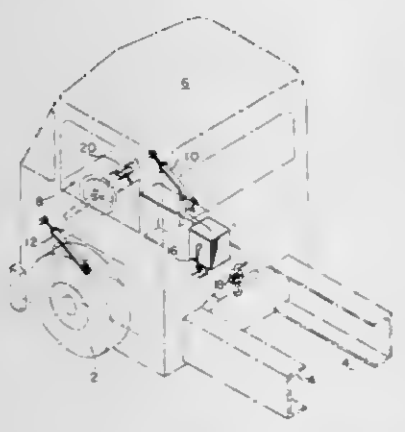


arm and the vehicle frame to resist upward deflection of the arm and the hold-down apparatus may be readily bolted upon pickup truck frames, and removed therefrom.

3,706,470
CAB TILT HYDRAULIC CIRCUIT

Robert E. Johnson, Kent, Wash., assignor to Pacific Car and Foundry Company, Bellevue, Wash.

Filed July 23, 1970, Ser. No. 57,503
Int. Cl. B62d *33/06*
U.S. Cl. 296—28 C **6 Claims**

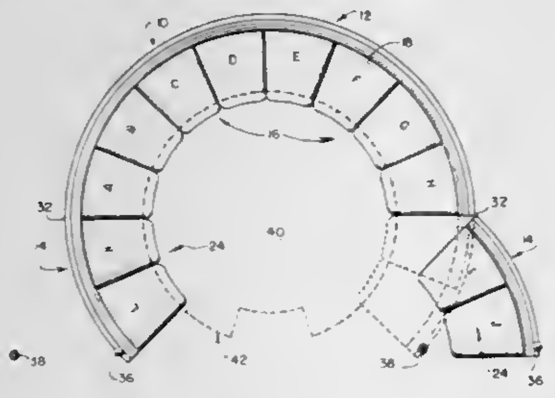


A control system for use with a truck having a tilt type cab wherein the cab is tilted by means of hydraulic pressure. The system includes a hydraulically operated latch mechanism such that the operator may unlatch the cab and raise it using the same control mechanism. The system also includes a secondary control means which will override the first control means with respect to the latch structure enabling the operator to latch the cab in position such that it may not be raised by the first control means.

3,706,471
SEATING UNIT

Ron Shimosawa, Chicago, Ill., assignor to Kiku Co., Chicago, Ill.

Filed Oct. 22, 1970, Ser. No. 83,116
Int. Cl. A47b *39/00*
U.S. Cl. 297—158 **6 Claims**

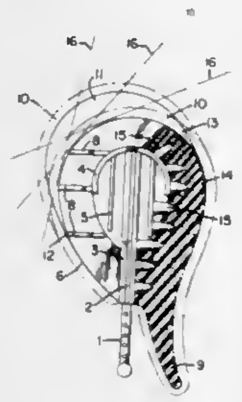


A seating unit comprising a fixed seating section and one or more end seating sections at one end or at the opposite end of the fixed seating section, which end sections are pivotally secured to the fixed seating section so that they may be moved or pivoted outwardly in relation to the fixed seating section to permit persons to move or slide into the fixed seating section without discomfort or inconveniencing the others seated.

3,706,472
HEAD REST WITH ENERGY ABSORBING HEAD PAD, PARTICULARLY FOR VEHICLE SEATS

Wolfgang Mertens, Karlsruhe, Germany, assignor to Kurt Herzer, Karlsruhe/Durlach, Germany

Filed Aug. 24, 1970, Ser. No. 66,180
Claims priority, application Germany,
Int. Cl. A47c *7/38*
U.S. Cl. 297—397 **9 Claims**

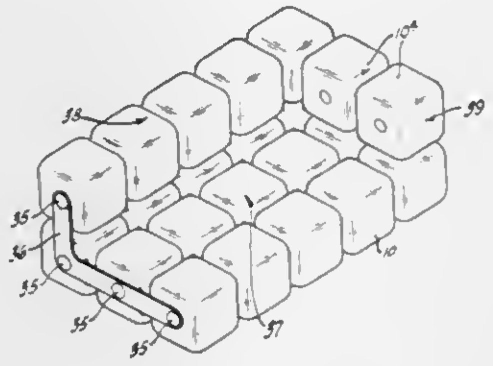


A head rest for a vehicle seat comprising a rigid frame structure supporting a deformable ribbed or finned structure of sheet material or molded from hard foam and having a thin covering padding of upholstery.

3,706,473
STRUCTURAL MODULE AND FURNITURE OR OTHER STRUCTURES FORMED THEREFROM

John W. Mullen, 5365 Montrose Street, Dallas, Tex.

Filed June 10, 1971, Ser. No. 151,841
Int. Cl. A47c *7/02, 27/08*
U.S. Cl. 297—456 **19 Claims**

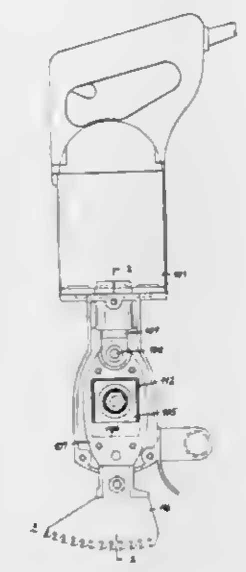


A structural module and furniture constructed using the same, wherein preformed blocks of resilient or elastomeric material, preferably having rounded edges, with openings for connecting the blocks to others into structural assemblies are utilized to form seating or reclining furniture structures. The blocks are also preferably formed with a smooth exterior skin or a plastic film coating which may be applied by immersion or by spraying. Rods or flexible members may be used to join the blocks. The blocks may be formed as cubes with the openings disposed along one axis, two axes or three axes passing through substantially the center of the cube, or may be blocks elongated along one or two axes, with suitable openings formed therein.

3,706,474
MOTOR-DRIVEN CHISELING DEVICE

Henry Neuenburg, Ahornstrasse 22, 43 Essen-Stadtwald, Germany

Filed June 4, 1971, Ser. No. 149,953
Claims priority, application Germany, June 11, 1970, P 20 28 754.1; April 24, 1971, P 21 20 077.1
Int. Cl. E21c *37/24*
U.S. Cl. 299—38 **1 Claim**

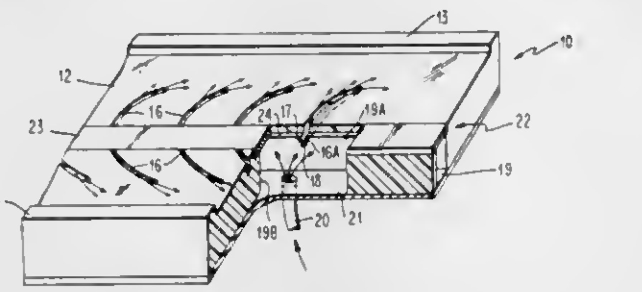


A motor-driven chiseling device for making cuts and grooves in rocks and the like by means of a tool with teeth, which comprises transmission means operable to transform the rotary movement of a drive motor for driving the chiseling device into an oscillating movement of said tool in a plane extending through the longitudinal axis of said tool, said device also including a beating mechanism operable to exert upon the tool a plurality of beats during the oscillating movement of said tool.

3,706,475
AIR SLIDES

Carl Yakubowski, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed March 29, 1971, Ser. No. 128,777
Int. Cl. B65g *53/30*
U.S. Cl. 302—31 **14 Claims**

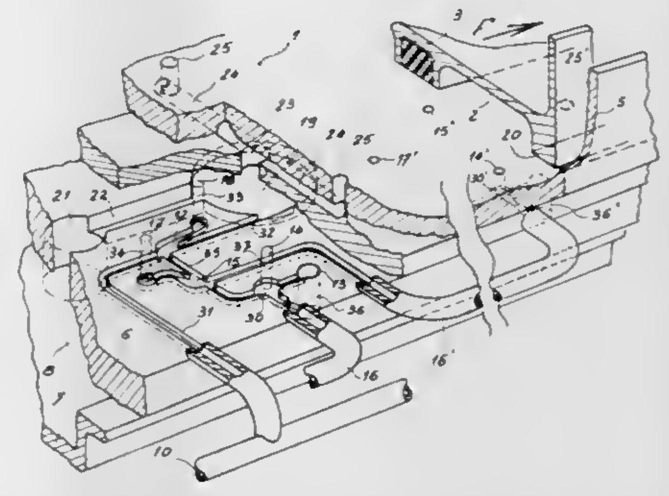


An air slide for imparting both lift and direction to a semiconductor wafer, the air slide comprising a guide plane having a plurality of arcuate recesses in the surface thereof, the recesses having side and bottom walls with the bottom wall of each of the recesses having an upward slope which merges into the surface of the guide plane substantially in the direction of intended motion of the semiconductor wafer. In the embodiment shown, a longitudinally extending plenum chamber may be connected so as to underlie the track or be positioned at opposite lateral edges of the track, the edge connection of the plenum chambers enhancing the ability for close spacing and thus tiering of the guide planes. Additionally, disclosed are two basic track structures which permit of alternate air supply sources, such as a fan or high pressure air.

3,706,476
TRANSPORT SYSTEMS UTILIZING A TRACK SUPPLIED WITH FLUID UNDER PRESSURE

Jean Charles Marie Thomas-Collignon, Chesnay, France, assignor to Bertin & Cie, Plaisir, France

Filed March 1, 1971, Ser. No. 119,727
Claims priority, application France, Feb. 27, 1970, 7007206
Int. Cl. B65g *53/04*
U.S. Cl. 302—31 **12 Claims**

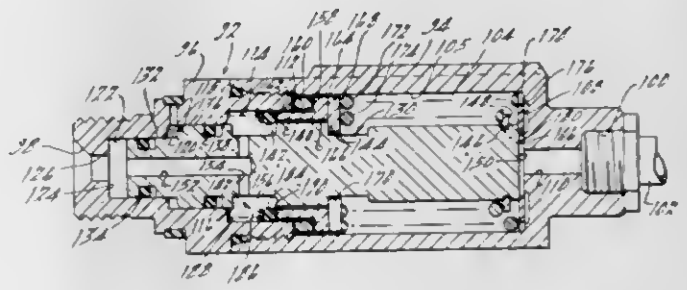


A track comprises a multiplicity of elemental nozzles controlled to discharge a layer of pressure fluid formed between the track and a load movable thereon when the presence of such load is detected, no pressure fluid being discharged in the absence of such load. This control is effected by means of a fluidic logic element responsive to a fluidic signal generated by a detector located on the track and sensitive to the presence of a load thereon.

3,706,477
PROPORTIONING DEVICE

William Stelzer, Milford, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Sept. 2, 1970, Ser. No. 68,896
Int. Cl. B60t *8/26, 11/34*
U.S. Cl. 303—6 C **14 Claims**



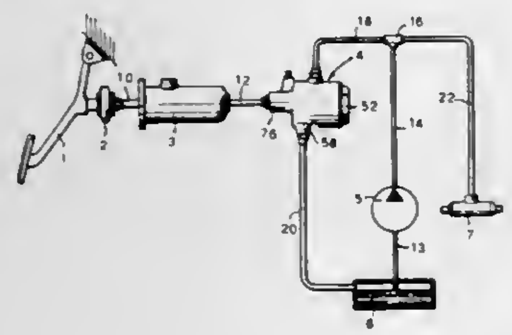
A device for varying the proportion of brake pressure delivered to the front and rear brakes of a vehicle having a differential area piston for decreasing the proportion delivered to the rear brake after a certain inlet pressure is reached and an additional member which is movable to establish a fixed offset between the pressures delivered to the front and rear brakes after a certain differential between front and rear brake pressures is reached.

3,706,478
HYDRAULIC CIRCUITS

Giancarlo Michellone, Cambiano, and Mario Palazzetti, Turin, both of Italy, assignors to Fiat Societa per Azioni, Turin, Italy

Filed Dec. 31, 1970, Ser. No. 103,080
Int. Cl. B60t *13/16*
U.S. Cl. 303—10 **2 Claims**

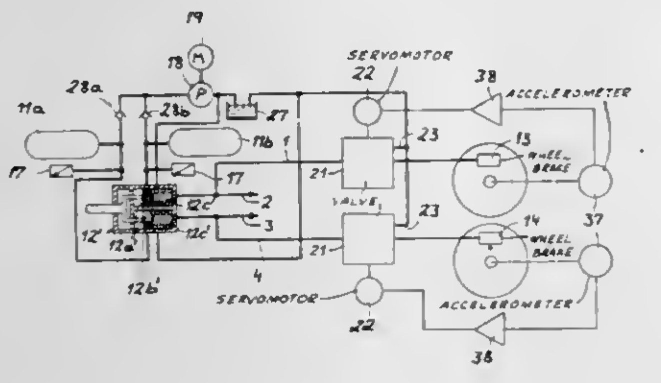
A hydraulic circuit suitable for a vehicle braking system is arranged so that a pump feeding the circuit is under load only when the circuit is actuated, as by braking. The pump outlet is connected to a flow restriction valve actuated by, for instance, a pedal, with a power cylinder such as a brake cylinder connected upstream of the valve.



3,706,479

NONSKID BRAKE SYSTEM FOR MOTOR VEHICLE WITH PRESSURIZED HYDRAULIC SYSTEM

Hans-Christof Klein, Hattersheim am Main, Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Germany
Continuation of Ser. No. 37,420, May 13, 1970, abandoned. This application May 13, 1970, Ser. No. 37,420
Claims priority, application Germany, Sept. 26, 1967, T 34885
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 F **11 Claims**



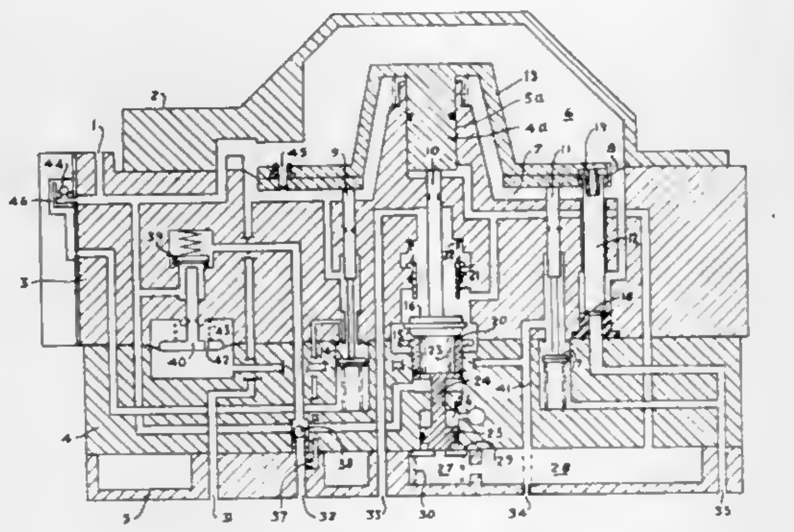
A nonskid brake system for a motor vehicle with a pressurized hydraulic system such as power steering or brakes or a hydraulic load leveler, having a deceleration-responsive valve between the brake control valve for draining pressure from the wheel brake into a reservoir. In the case in which a master cylinder is used, the valve refills the wheel brake with fluid on termination of a nonskid regulating operation by briefly connecting the wheel brake to the pressurized system.

3,706,480

BRAKE CONTROL VALVE APPARATUS

Jack Washbourn, London, England, assignor to Westinghouse Brake and Signal Company, Limited, London, England
Filed Feb. 16, 1971, Ser. No. 115,651
Claims priority, application Great Britain, March 19, 1970, 13,302/70
Int. Cl. B60t *15/52*
U.S. Cl. 303—36 **3 Claims**

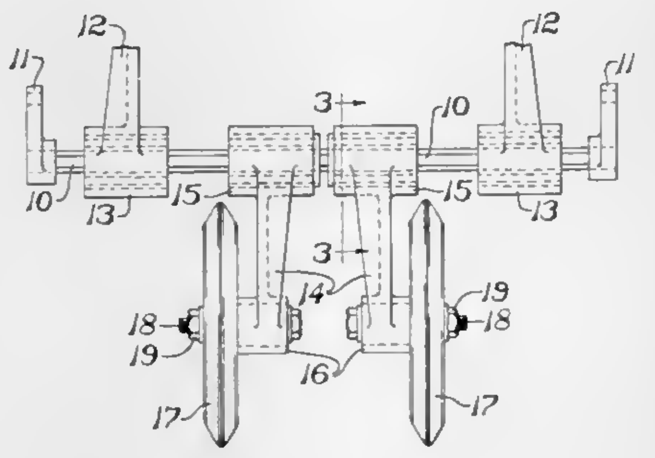
An improved form of triple valve for control of fluid braking has a charged accelerated release reservoir which is connectable to the brake pipe the pressure in which is controlling the triple valve on release of the brakes to assist such release and the propagation of the release along a train having a succession of such triple valves on the same brake pipe. The accelerated release is piloted by brake cylinder exhaust pressure transients being used to control a pressure responsive device to briefly operate an accelerated release valve which connects the accelerated releaser reservoir to the brake pipe.



3,706,481

VEHICLE SUSPENSION

James H. Kramer, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
Filed May 15, 1970, Ser. No. 37,512
Int. Cl. B62d *55/16*
U.S. Cl. 305—27 **2 Claims**

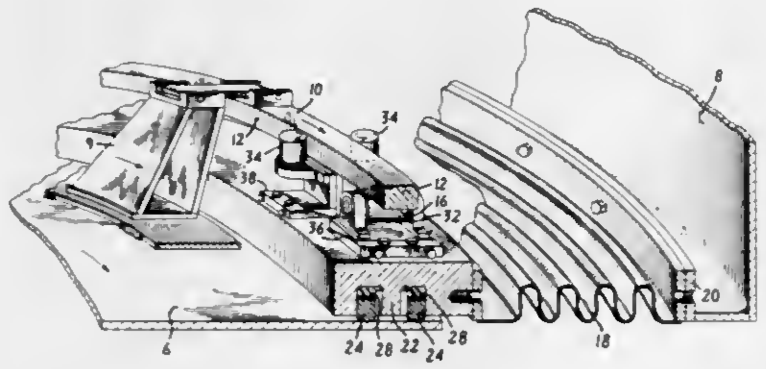


A suspension for traction belt driven vehicles in which each arm of the suspension is permitted to deflect independently of the remaining arms. Movement of the suspension arms about a common pivot shaft is resisted by elastomeric torsion springs attached to the ends of the suspension arms surrounding spaced axial portions of the pivot shaft such that the arms extend in cantilevered arrangement from the shaft. Idler pulleys are rotatably attached to the free end of each arm for contacting the running traction belt.

3,706,482

PRESSURE SEAL ASSEMBLY

Richard H. Crockett, Grand Junction, Colo., assignor to Toscotech Corporation, New York, N.Y.
Filed July 15, 1971, Ser. No. 162,997
Int. Cl. F16j *15/16*
U.S. Cl. 308—1 **2 Claims**

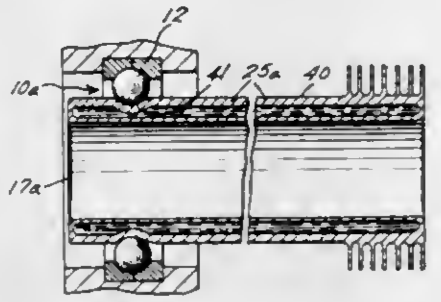


A pressure seal assembly between a rotary retort and a stationary hydrocarbonaceous vapor and spent shale accumulator is provided which maintains seal rings in alignment or engagement with the shell of the rotary retort.

3,706,483

HEAT TRANSFER BEARING MOUNTING

Arthur S. Irwin, Bemus Point, N.Y., assignor to TRW Inc., Cleveland, Ohio
Division of Ser. No. 865,605, Oct. 13, 1969, Pat. No. 3,645,593. This application Oct. 6, 1971, Ser. No. 187,196
Int. Cl. F16c *37/00*
U.S. Cl. 308—77 **5 Claims**



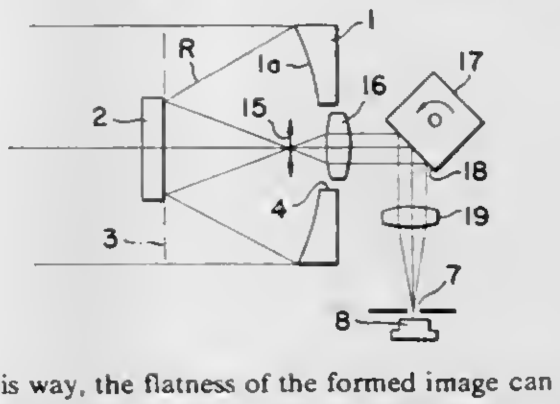
An anti-friction bearing assembly mounting wherein the inner ring of the bearing, in the preferred embodiment, is mounted on a hollow sleeve which in turn is mounted on the rotating shaft, the sleeve extends axially along the shaft and is hollow in the manner of an envelope. The interior is filled with a heat conductive material such as sodium and the axial end of the sleeve remote from the bearing has radially outwardly directed cooling fins associated therewith. In this manner, heat created during rotation of the bearing assembly is drawn away from the inner ring of the bearing to a point where it can be effectively dissipated.

3,706,484

OPTICAL SYSTEM FOR MECHANICALLY SCANNING WITH A ROTATING POLYHEDRAL REFLECTOR

Yoshikazu Doi; Toshiro Kishikawa, and Yasumasa Sunaga, all of Ohmiya-shi, Saitama-ken, Japan, assignors to Fuji Shashin Koki Kabushiki Kaisha, Ohmiya-shi, Japan
Filed April 23, 1970, Ser. No. 31,323
Int. Cl. G02b *27/08*
U.S. Cl. 350—7 **2 Claims**

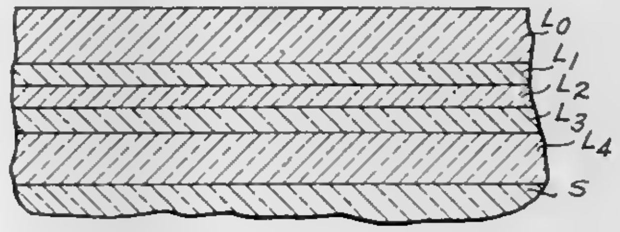
A method for mechanically scanning an image of a lens system by rotating a reflecting polyhedral element. A ray bundle from an object is converted into parallel light at a portion of the optical system and the polyhedral element is disposed in the path of the parallel light to reflect the parallel light thereon. The reflected light is focused by an image-forming lens. In this way, the flatness of the formed image can be improved and the size of the polyhedral element can substantially be reduced.



3,706,485

MULTI-LAYER ANTI-REFLECTION COATINGS USING INTERMEDIATE LAYERS HAVING MONOTONICALLY GRADED REFRACTIVE INDEX

John Anthony Fawcett, Thrussington, and William Hugh Gray, Oadby, both of England, assignors to The Rank Organisation Limited, London, England
Filed Feb. 4, 1971, Ser. No. 112,785
Claims priority, application Great Britain, Feb. 4, 1970, 5,397/70
Int. Cl. G02b *1/10*
U.S. Cl. 350—164 **24 Claims**

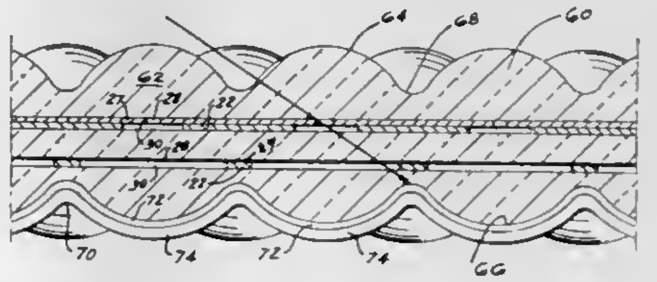


An anti-reflection multiple layer coating is formed on a transparent substrate by successive deposition of an inner layer, at least three intermediate layers and an outer layer, the optical thicknesses of the inner and outer layers being approximately λ/4 and the overall optical thickness of the coating being approximately λ, where λ is a reference wavelength within the band of wavelengths over which reflection is to be reduced. The intermediate layers are formed with progressively decreasing refractive indices from the innermost to the outermost intermediate layers, either as a number of separate layers or as a single layer of graded refractive index.

3,706,486

REINFORCED LENTICULAR SHEET WITH PLURAL APERTURED SHEETS

Roger de Montebello, 20 Chapel Street, Brookline, Mass.
Division of Ser. No. 674,556, Oct. 11, 1967, Pat. No. 3,584,369. This application Aug. 27, 1970, Ser. No. 67,636
Int. Cl. G02b *27/00*
U.S. Cl. 350—167 **3 Claims**



A process of forming a lenticular sheet for use in integral photography having an intermediate apertured metal sheet which acts as a reinforcing member and/or as a diaphragm and/or as a field-limiting member, the apertures being coaxial with the lenslets of the lenticular sheet in which they are embedded or with which the sheet is associated. Preferably, the diaphragm layer is a thin apertured metal layer bonded on a second thicker metal layer, in certain instances, the thin layer being provided with diaphragm apertures at the principal points of the lenslets while the thicker layer has larger apertures, which serve as clearance apertures. In certain instances a second metal sheet similar to the first sheet may be provided with the apertures serving as field-limiting apertures, in which case they are preferably hexagonal. The reinforced lenticular sheets according to the present invention may be used for taking the original photographs in integral photography, for converting the pseudoscopic image of a hologram, or of an integral photograph into an autostereoscopic integral photograph, and also in certain instances for viewing integral photographs.

ERRATUM

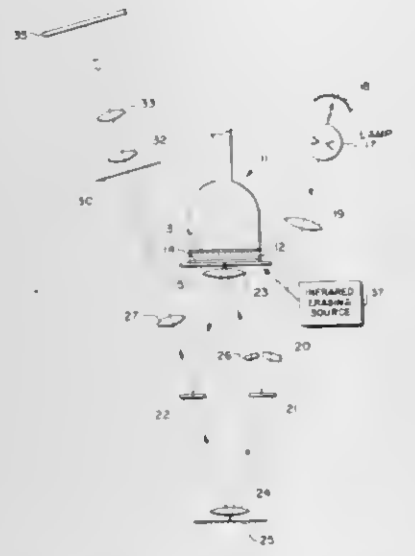
For Class 352—78 see:
Patent No. 3,706,439

3,706,487

PHOTOCHROMIC PROJECTION SYSTEM

Salvatore F. LaForgia, Toms River, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed May 4, 1971, Ser. No. 140,176
Int. Cl. G03b *21/00, 21/14*
U.S. Cl. 353—11 **10 Claims**



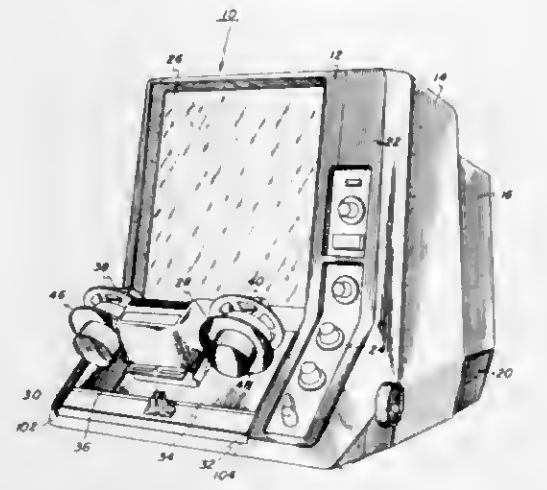
A photochromic projection system wherein indicia appearing on a cathode ray tube, and forming an opaque image on an ultraviolet-sensitive film positioned against the end face of the cathode ray tube, is imaged upon a viewing screen after passing through a transparent map. A pair of dichroic filters are used both of which reflect yellow and green radiation so that only the yellow and green portion of the radiation from an external illuminating source for the film is reflected to the film. The red and blue portion of the source radiation is transmitted through one of the dichroic filters and reflected from a mirror through the second dichroic filter where it is recombined with the yellow and green light reflected from the face of the cathode ray tube and from the second dichroic filter to provide an image in white light which then is directed through the transparent map onto the viewing screen.

3,706,488

VARIABLE FILM REEL

Joseph P. Masetta, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 27, 1970, Ser. No. 40,833
Int. Cl. G03b *23/00;* **B65h** *75/18*
U.S. Cl. 353—26 **14 Claims**



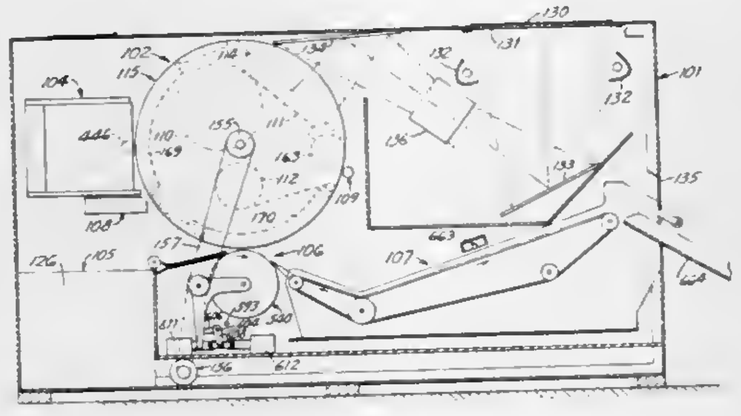
A film reel structure and support therefor characterized by the support being movable relative to a projection system with which it is associated. The reel structure is characterized by the capability of accommodating films having different widths through simple adjustment of the reel sections each having a rim or flange movable toward or away from the other rim or flange. The adjustment can be accomplished very easily and quickly without the use of tools.

3,706,489

COPYING AND DUPLICATING APPARATUS

James G. Moxness, St. Paul; Harold H. Nelson, West St. Paul, and Edward A. O'Mara, Maplewood Village, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 640,547, May 23, 1967, abandoned. This application April 24, 1970, Ser. No. 31,732
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 **15 Claims**



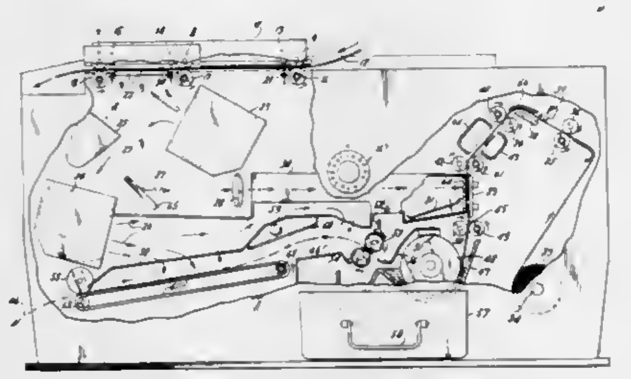
An electrographic copying apparatus and process for producing copies of graphic originals utilizing the electropowder process. The apparatus comprises a pod assembly for storing a supply of a photosensitive web material and for supporting sections thereof during imaging and development. The web material during development supported on the outer peripheral surface of the pod assembly and the developing surface is conductive to permit the electric field to be developed at the developing station. The pod preferably has a flat planar surface upon which the web is placed during imaging and a curved surface where the web is placed as the pod is moved during development. The pod is adapted for supporting two imaged sections to afford the production of two copies on each revolution of the pod.

3,706,490

EXACT LENGTH ADJUSTMENT MECHANISM FOR COPYING MACHINE

T. F. Aasen, Hollywood; Thomas E. Hartman, Opa Locka, and Martin Schaffel, Miami, all of Fla., assignors to Copystatics Manufacturing Corporation, Miami Lakes, Fla.

Filed Oct. 27, 1970, Ser. No. 82,861
Int. Cl. G03g *15/00*
U.S. Cl. 355—13 **8 Claims**



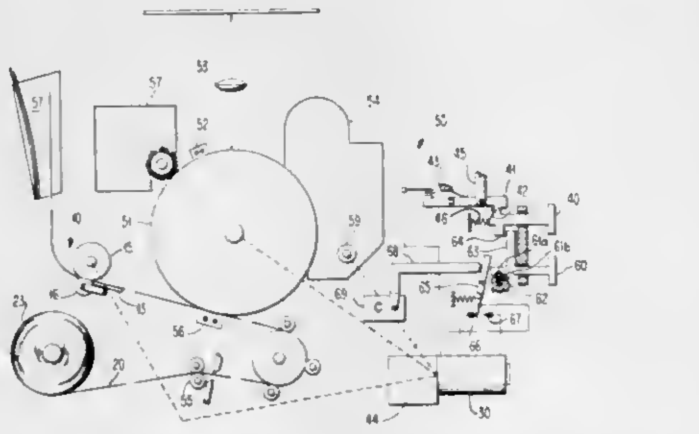
A mechanism for controlling the cutting from a roll of a sheet of copy paper whose length is the same as that of an original document fed into a copying machine. As in conventional systems, the leading edge of the original document is sensed to start the feed of copy paper. When the trailing edge of the original document is sensed, a knife operates to cut the copy paper and to stop further feed from the copy paper roll. As is known for systems of this type, the length of the copy paper sheet can be too short or too long, and the leading edges of the original and the copy sheet may not be in optical synchronization. The synchronization problem is overcome by providing an adjustably positioned sensor in the path of the original document. The length of the cut copy sheet is controlled by the setting of a potentiometer in an RC circuit coupled to the relay which controls the copy paper feed and the operation of the knife.

3,706,491

FUSER ROLL CLEANING METHOD AND APPARATUS FOR PERFORMING IT

Rudolph S. Furman, Lexington, and Jerrold F. Zimmer, Versailles, both of Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 16, 1971, Ser. No. 208,736
Int. Cl. G03g *15/00*
U.S. Cl. 355—133 **7 Claims**



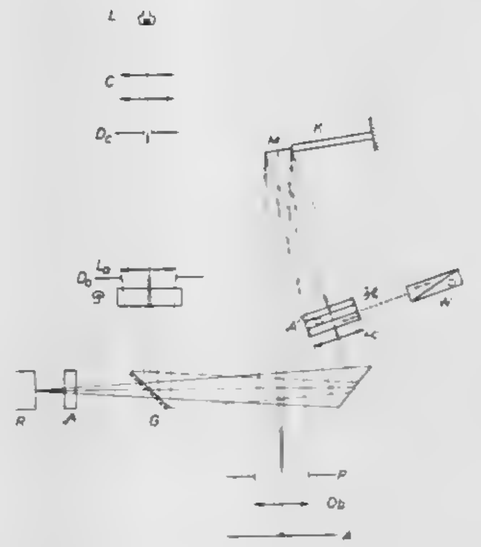
The backup roll of a roll fuser for fixing xerographic images is periodically cleaned by passing plain paper through the fuser roll couple at a slow rate while the backup roll is heated above a toner melt temperature. Roll cleaning is accomplished automatically by providing a xerographic document copier with a special slow rate operating cycle wherein image production is inhibited so that plain paper is fed through the roll couple in accordance with the cleaning method.

3,706,492

PHOTOELECTRIC SYSTEM AND METHOD FOR DETECTING THE LONGITUDINAL LOCATION OF SURFACES

Gerard Roblin, Ivry, and Georges Nomarski, Bourg La Reine, both of France, assignors to Agence Nationale de Valorisation de la Recherch (ANVAR), Courbeuoie, France

Filed Dec. 2, 1970, Ser. No. 94,473
Claims priority, application France, Dec. 5, 1969, 6942108
Int. Cl. G01b *9/02*
U.S. Cl. 356—5 **6 Claims**



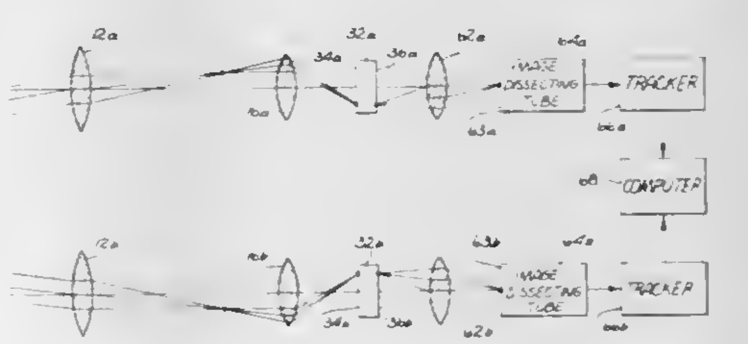
A method and an arrangement enabling the location of a plane or spherical, specularly reflecting or diffusing surface. The method comprises alternately modulating the "tube" or total length of the instrument in such a manner as to create a focusing error alternating with respect to that plane of the image which would correspond to perfect focus without modulation a variable photoelectric signal is provided by a photoreceiver which is subject to variations in light flux transmitted by an interferogram disposed in the portion common to the two waves in the plane of the pupil. An error signal produced by the treatment of the photoelectric signal is used to control the displacement of the objective or the object along the optical axis in order to focus or calculate the focusing error. The method and arrangement are useful especially in the field of metrology.

3,706,493

RANGING AND AIMING SYSTEM

Jerome J. Redmann, Granada Hills, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,092
Int. Cl. G01c *3/08;* **G01s** *3/78*
U.S. Cl. 356—4 **3 Claims**



A ranging and aiming system for determining the position of a source which emits continuous or noncontinuous forms of radiation. At least two optical systems whose axes are separated by a known distance contain lenses for focusing rays from the source onto an image retaining surface. Apparatus is provided for determining the angular position of the radiation source with respect to the optical system axes and may comprise a relay lens system for viewing the position of the source on the rear phosphor surface of an image storage tube. The front of the tube may contain a photo cathode surface, with image retaining means within the tube. Moreover, the angular position may be determined by means of an image dissecting tube.

3,706,494
OPTICAL RATE-OF-DISPLACEMENT MEASURING APPARATUS

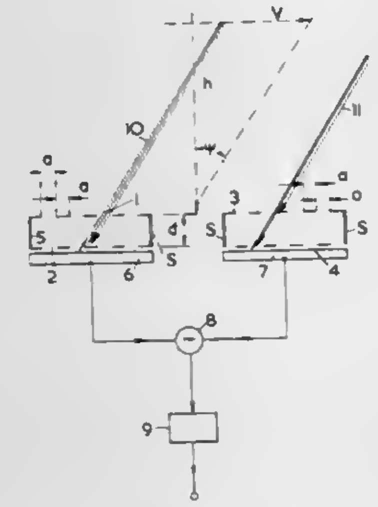
Peter Gardner, Camberley, England, assignor to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed June 21, 1971, Ser. No. 155,196

Claims priority, application Great Britain, June 19, 1970, 29,793/70

Int. Cl. G01p *3/36;* **G02b** *27/32;* **H01j** *3/14*

U.S. Cl. 356—28 **4 Claims**



According to the invention there is provided an optical masking device comprising a first pair of mask patterns and a second pair of mask patterns, each mask pattern formed of parallel alternately opaque and translucent bars, the mask patterns being mounted in parallel planes and in a fixed relationship to each other so that their bars are all parallel to each other and so that parallel light rays incident on both pairs of mask patterns such that they pass through the translucent bars of both patterns of the first pair of mask patterns with maximum transmission will be substantially obstructed by the opaque bars of one pattern of the second pair of mask patterns. Apparatus for the detection of apparent movement of an object point or scene in a given direction, and apparatus for the detection of such movement in two mutually orthogonal directions, both of which employ an optical masking device as described above, are also disclosed. Such apparatii have applications in airborne photographic equipment in which it is required to compensate for the movements of an object occurring during the period of exposure.

3,706,495
METHOD OF MEASURING THE VELOCITY OF A SMALL MOVING OBJECT

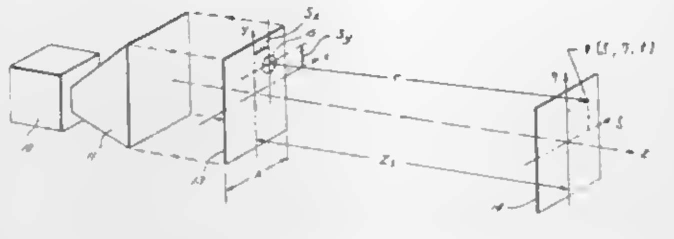
William P. Dotson, Jr., P.O. Box 507, Roberts Drive, Dickinson, Tex.

Filed July 31, 1970, Ser. No. 60,006

Int. Cl. G01p *3/36;* **G01b** *11/00*

U.S. Cl. 356—28 **11 Claims**

The velocity of a small moving particle is determined by allowing the particle to pass between a laser light source and a photographic film or plate. The laser is caused to illuminate the photographic film with coherent plane-wave light for a short interval of time while the particle is between the laser and the film to thereby record a hologram pattern on the film. The duration of the exposure time is made such that the particle moves a noticeable distance during such exposure time. The exposed photographic film is developed and the velocity of the particle is determined by analysis of the developed film.



In one embodiment, the velocity is determined by scanning the film with a microdensitometer and measuring the separation distance between phase reversal points on the microdensitometer trace. In another embodiment, the velocity is determined by reconstructing an image from the hologram pattern on the film and measuring the path length of the particle in the reconstructed image.

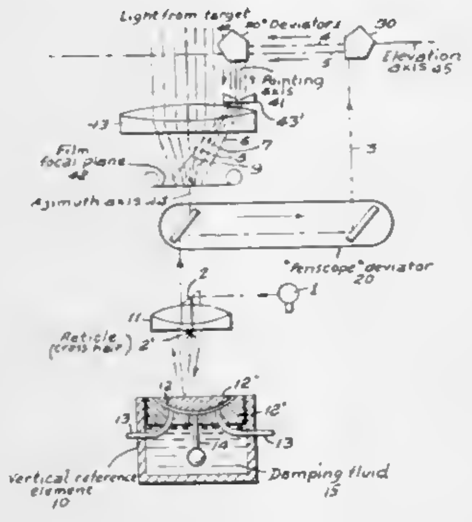
3,706,496
CINETHEODOLITE

George Geier, Teaneck, N.J., and William E. Mimmack, El Paso, Tex., assignors to The United States of America as represented by the Secretary of the Army

Continuation-in-part of Ser. No. 669,319, Sept. 20, 1967, abandoned. This application Jan. 13, 1971, Ser. No. 106,211

Int. Cl. G01c *1/10*

U.S. Cl. 356—149 **5 Claims**



Light from a target passes through a lens system and forms an image on a focal plane, e.g. a picture on a camera film. At the moment the picture is taken we want to know the precise direction in which the camera is pointing so we establish the pointing axis of our cinetheodolite and camera with respect to the true vertical.

To determine the true pointing axis with respect to the vertical and record it on our film we introduce a light beam from a point source, reflect it off from a perfectly level reflecting surface, and past a reticle or cross hairs to create an image of the reticle, split the beam and reticle image into four component beams and images, and direct those four beams and images into the camera by means of optical deviators which are immune to the mechanical errors of the instrument. Each component beam and reticle image pinpoints a mark on the picture as related to the pointing axis with respect to the true vertical. In other words, the true pointing axis is determined by the imaginary "center" between the four beams and images.

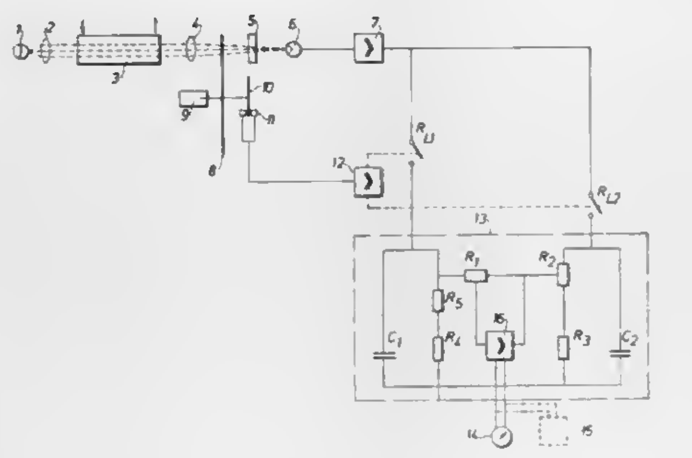
3,706,497
METHOD AND APPARATUS FOR DETERMINING COLORIMETRIC CONCENTRATIONS

Arne Robert Lindberg, Slingergatan 18, 431 39 Molndal, Sweden

Filed Nov. 5, 1970, Ser. No. 87,079

Int. Cl. G01j *3/48*

U.S. Cl. 356—188 **8 Claims**



A method and an apparatus for determining colorimetric concentrations wherein the difference between the light absorption of a medium in two or more different wave-length ranges is measured by means of an automatic wave-length switching, whereupon the concentration of the medium is calculated in dependence of said difference and the absolute absorption of the medium in one of the wave-length ranges.

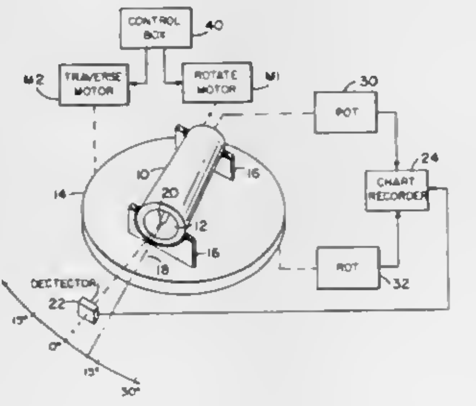
3,706,498
AUTOMATIC BEAM SCANNING APPARATUS FOR EVALUATING OPTICAL BEACONS

Teddy J. Peacher, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army

Filed April 23, 1971, Ser. No. 136,696

Int. Cl. G01j *1/00, 1/42*

U.S. Cl. 356—121 **4 Claims**



An automatic beam scanning apparatus is disclosed wherein a cylindrical open-ended chamber houses an optical beacon for evaluation. The chamber is rotatable about its longitudinal axis for determining the beacon beam intensity at selectable points off the axis of rotation. The chamber also is traversable in a path which sweeps a beacon beam over a detector. Hence, a predetermined rotate and sweep arrangement allows detection of the spatial energy distribution of the beam of an optical beacon.

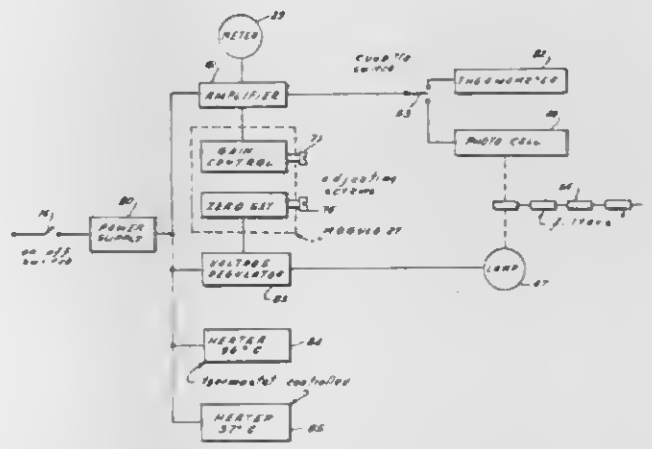
3,706,499
BLOOD TEST SYSTEM

Edward J. Rapoza, Butler; Maxwell E. Siegel, Sussex, both of N.J.; Weems E. Estelle, Southport, Conn.; Pasquale M. Petrucci, Orange, Conn.; Joseph S. Linarducci, Wilton, Conn.; John Hamma, Milford, Conn., and John Montgomery, Trumbull, Conn., assignors to Becton Dickinson and Company, East Rutherford, N.J.

Filed March 2, 1970, Ser. No. 15,469

Int. Cl. G01j *1/42, 3/48*

U.S. Cl. 356—184 **7 Claims**



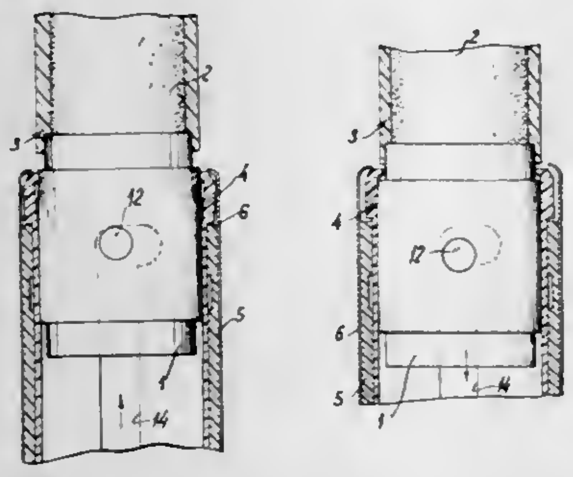
A blood testing system which includes a colorimeter for observing the light transmission characteristics of a reacted blood sample to determine the concentration of a particular component. The colorimeter includes a lamp, a sample holding well, a photocell, and a meter having a needle to indicate the output of the photocell. A removable module is provided which is adapted to plug into the circuitry of the instrument and adjustably calibrate the instrument for a particular blood determination. The module includes a printed scale which is designed to be positioned immediately adjacent the meter needle when the module is operatively connected to the colorimeter, the units of the scale being correlated to the particular blood determination of the module such that the scale reads directly in the units of the test being conducted. By employing a number of modules, each being color-coded and calibrated for a particular blood determination, the colorimeter may be easily adapted to perform a number of tests by merely inserting the appropriate module. A carousel is provided for mounting several modules in the instrument, the carousel being rotatable to sequentially translate individual modules to the operative position adjacent the output needle of the meter. A number of filters are provided for the colorimeter, and a mechanism is incorporated which is designed to selectively position individual filters in the light path of the colorimeter. A patient record card is provided which is adapted to overlie and be temporarily affixed to the module. The card, which may also be color-coded, includes a scale which overlies the scale of the module, this scale being adapted to be marked to serve as a permanent record of the test determination. A removable tear-off tab is associated with the card which may be utilized to identify a blood sample by patient number and test. A number of marked cards, obtained over a period of time for a particular test, is adapted to be placed in overlapping relationship whereby the test results will be displayed as a graph plotted against time. A folder is provided to retain the cards in such overlapping relationship, the folder having a clear plastic overlay with indicia thereon to indicate the normal range of the test results. The cuvette containing the reagent required for the blood determination is provided with a molded plastic cap which is designed to retain a capillary within the cuvette when the cap is attached. For this purpose, the cap includes an integral depending flap having an aperture therethrough, the aperture being designed to threadedly receive the capillary.

ERRATUM

For Class 401—78 see:
Patent No. 3,706,354

3,706,500
HOLDERS FOR HOUSING PASTY MATERIALS

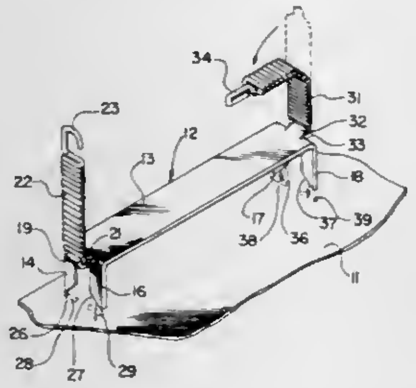
Ralph Gruska, Val-de-Marne, France, assignor to SEBEC Societe d'Exploitation de Brevets d'Emballage Cosmetique S.A., Fribourg, Switzerland
Filed Jan. 18, 1971, Ser. No. 107,235
Claims priority, application France, Jan. 21, 1970, 7002057
Int. Cl. A45d *40/06*
U.S. Cl. 401—78 **5 Claims**



A holder for lipsticks or the like is of the known kind comprising two relatively rotatable co-axial sleeves with a projecting control knob on the inner sleeve. A sliding holder for the stick has lugs extending through slots in the inner sleeve and into slots in the outer sleeve. One set of slots is longitudinal and the other helicoidal. The slots in the inner sleeve are open at the end further from the control knob. A transparent cover or shell for the stick is fitted onto the sliding holder. The invention is characterized in that the shell has an internal shoulder equal in diameter to the end part of the sliding holder on which it is mounted. The inner sleeve has an internal flange at that end further from the control knob and of a diameter between the internal diameter of the shell and the diameter of the internal shoulder. An annular space remains between the end of the shell and the remainder of the sliding holder, its axial length being not less than the axial length of the flange. When the lipstick is to be first used it is caused to project until the flange enters said space. The stick is then withdrawn somewhat leaving the shell abutting the flange. The shell is then discarded.

3,706,501
FILE FOLDER PAPER FASTENER

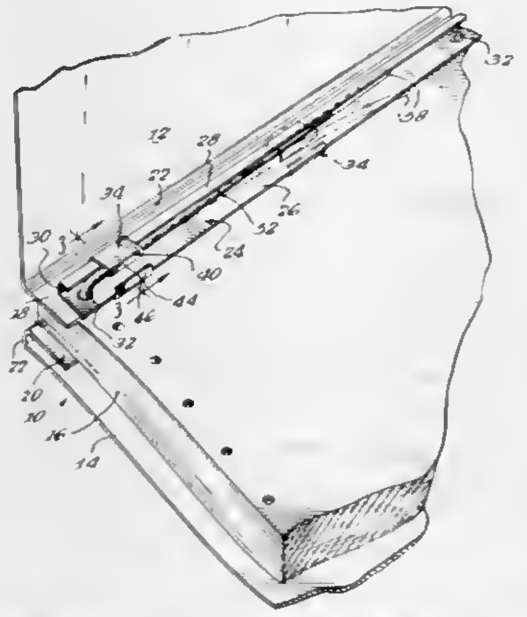
Coleman R. Chamberlin, P.O. Box 84, New Windsor, N.Y.
Filed Dec. 28, 1970, Ser. No. 101,882
Int. Cl. B42f *3/06*
U.S. Cl. 402—15 **3 Claims**



A paper fastener for a file holder or a stack of paper sheets is made from a elongated base strip slit at its opposite ends to provide spaced prongs and an intermediate loop, when folded for the attachment of the base strip or clip to the folder material after the prongs have penetrated the same and the loop being bent to retain in a self supporting manner upwardly extending coiled springs, the lower turn of the coil spring resting flush against the loop so that the springs when bent are made free will return to vertically extending position, these spring connectors are made flat by squashing the coils spring or with turns of eliptical shape and such that they accommodate little thickness or space over the top of the paper sheets when they are assembled by their punched holes thereover. These spring connectors are adapted to be extended as well as bent and have cooperating loop and hook ends for engaging them together over the top of the paper sheets to confine the paper sheets upon the file holder.

3,706,502
LOOSE LEAF BINDING MECHANISM

Hector La Fleur, 6308 North Kedzie Ave., Chicago, Ill.
Continuation-in-part of Ser. No. 21,171, March 19, 1970, abandoned. This application June 15, 1970, Ser. No. 46,275
Int. Cl. B42f *3/00, 13/06*
U.S. Cl. 402—17 **1 Claim**

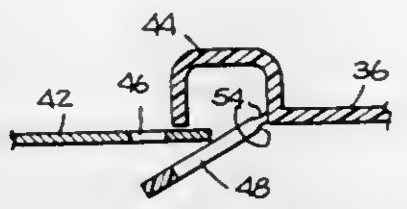


A loose leaf binder securing mechanism in which a rigid track is mounted to the exterior of one cover hinge strip with sliders positioned on the track prior to mounting. The sliders are movable along portions of the track between passageways in the track in registry with perforations in the hinge strip and the assembled sheeted material to be bound. Flexible binder posts are mounted to the binder opposite the said one cover hinge strip and pass through the perforations. Each slider has a hook member which is adapted to engage along a portion of the surface of the binder post associated therewith when the post is passed through its respective passageway and bent to lie along the length of the track. In one embodiment, the hook member of each slider is in disalignment with the passageways so that it is not possible to push a slider past its associated post where the post emerges from its passageway. When a slider is engaged upon its post and moved toward the associated passageway, the slider will wedge against and lock the post adjacent the point where it extends from the passageway. In an alternative embodiment, each slider has a slot adapted to engage a post in locked condition when the slider is pushed adjacent its passageway.

3,706,503
LEAF BINDING

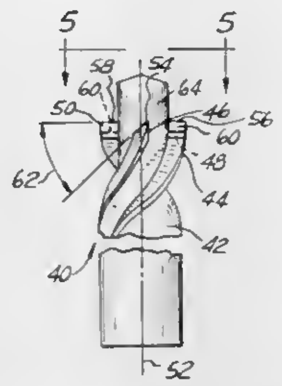
James P. Foley, Crest Road, Katonah, N.Y.
Filed June 30, 1969, Ser. No. 837,405
Int. Cl. B42f *13/00, 13/12*
U.S. Cl. 402—69 **4 Claims**

Loop-type leaf binding arrangements wherein binding loops are struck from a base member and bent around and back down onto the base member and either permanently secured to the base member or releasable therefrom by virtue of a moveable base member portion which provides relative movement between one end of each binding loop and corresponding enlarged openings in the base member.



3,706,504
SPIRAL DRILL HAVING UNEQUAL CUTTING FACES

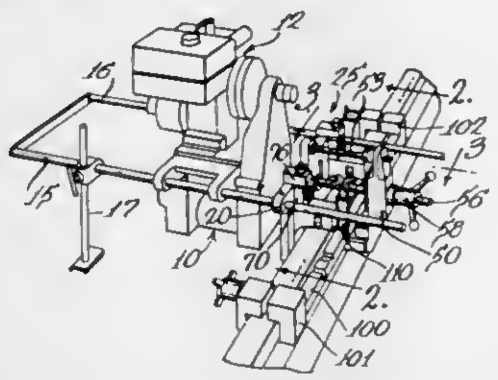
Louis Simonffy, 7253 West Lafayette, Detroit, Mich.
Filed July 29, 1970, Ser. No. 59,243
Int. Cl. B23b *51/02*
U.S. Cl. 408—228 **1 Claim**



A tool for cutting certain extremely hard materials, such as the aluminum bronzes, which consists of a working end having a plurality of cutting faces, all of which are disposed substantially parallel to the longitudinal axis of the tool. Cutting edges, along the forward ends of the cutting faces, are all disposed at approximately the same angle to the longitudinal axis of the tool. A clearance surface is rearwardly disposed at an angle of approximately 45° from each of the cutting faces.

3,706,505
PORTABLE RAIL DRILL

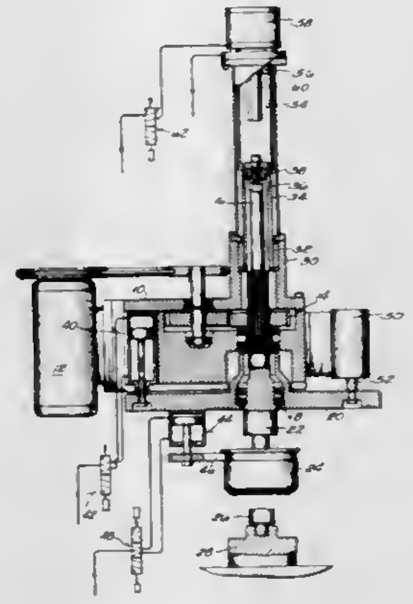
Chris Stougaard, Racine, Wis., assignor to Racine Railroad Products, Inc.
Filed Feb. 12, 1971, Ser. No. 114,891
Int. Cl. B23b *45/08, 45/14*
U.S. Cl. 408—78 **7 Claims**



A portable rail drill having pre-set adjustments for different size rails to properly locate the center of the drill, improved clamping structure to securely lock the drill to the rail, and index means for locating the rail drill in a plurality of positions relative to a rail joint to drill a number of holes in the rail accurately located relative to each other.

3,706,506
METAL CUTTING MACHINES

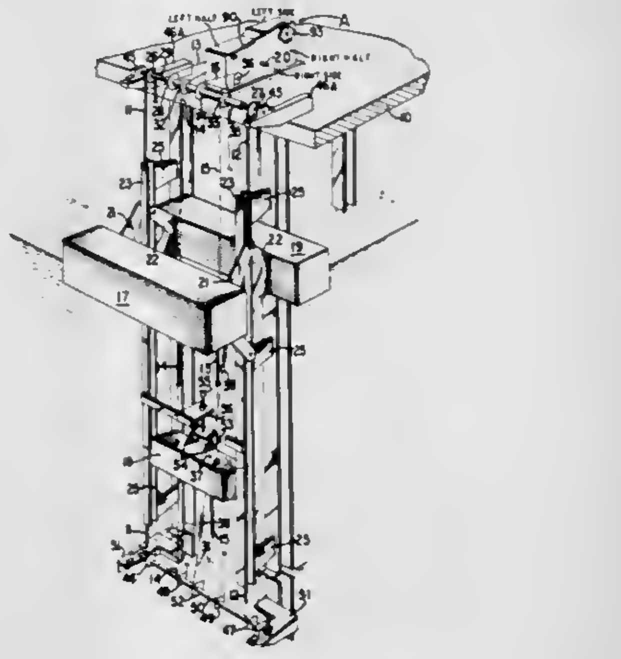
Marvin H. Dorak, Manitowoc, Wis., assignor to Kaufman Mfg. Co., Manitowoc, Wis.
Filed Dec. 21, 1970, Ser. No. 100,222
Int. Cl. B23b *47/22*
U.S. Cl. 408—130 **2 Claims**



A metal working machine employing expandible and collapsible cutting tools has a motor driven spindle rotating in only one direction. The spindle has axial movement relative to its driving gear. The axial movement is controlled forwardly, first by a fast advance hydraulic system which also adjusts the expandible and/or collapsible cutting tool to its cutting position, and second by a lead screw and solid feed nut which advances the cutting tool as a required rate for at desired purpose. At the end of the cutting movement the hydraulic system expands or collapses the cutting tool, as the case may be, and starts to rapidly withdraw the tool from the workpiece. During this rapid withdrawal, another motor rapidly rotates the lead screw in a direction to unscrew it back to its starting position.

3,706,507
TIDE-ACTUATED MACHINE

Charles C. Dunbar, 62 Bowdoin Street, Portland, Maine
Filed Aug. 11, 1971, Ser. No. 170,756
Int. Cl. F01d *25/28*
U.S. Cl. 415—7 **6 Claims**



A machine is disclosed for deriving power from the vertical tidal movement of a floating body whereby power continues to be supplied to a rotatable power shaft at high tide and at low tide and adjacent periods when tidal movement is relatively slight by power supplied by a weight which is controlled so as to descend independently of tidal movement while being lifted by float means during rising tidal movement. A clock mechanism controls weight holding and releasing means in timed relation to tidal movements and means is provided for setting said clock mechanism so as to release the weight prior to high tide and prior to low tide in predetermined timed relationship.

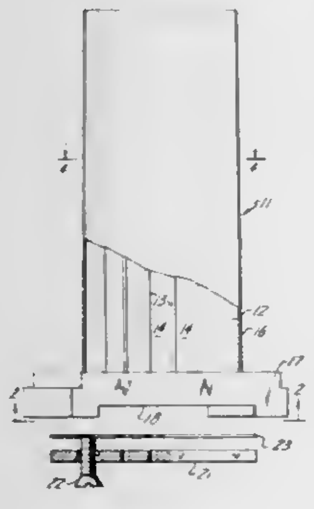
3,706,508
TRANSPIRATION COOLED TURBINE BLADE WITH METERED COOLANT FLOW

Seymour Moskowitz, Fort Lee, William Lingwood, deceased, by Sean Lingwood, Watchung, both of N.J., assignors to Curtis-Wright Corporation

Filed April 16, 1971, Ser. No. 134,601

Int. Cl. F01d *5/18*

U.S. Cl. 415—115 **4 Claims**



A turbine stator blade having a porous skin covering a strut member with channels for cooling air fed from the root, and a removable metering plate attached to the root and having orifices of various sizes for transmitting air to the blade channels, the metering plate being selected for having appropriate orifices for the cooling requirements of blades in differing temperature and pressure environments.

3,706,509
ROTARY BLADED STRUCTURE FOR A FLUID FLOW MACHINE

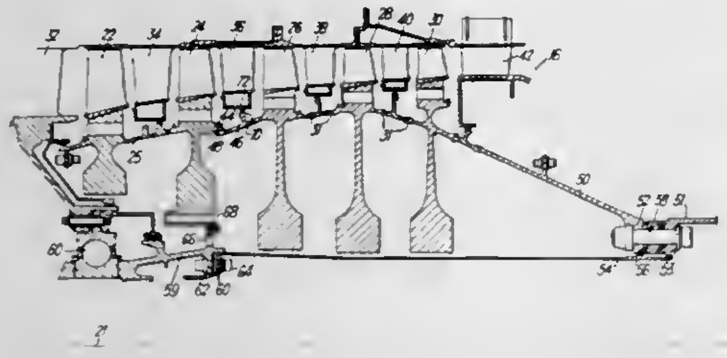
Jack Britt, Ambergate, England, assignor to Rolls-Royce Limited, Derby, England

Filed Jan. 15, 1971, Ser. No. 106,813

Claims priority, application Great Britain, Jan. 20, 1970, 2,744/70

Int. Cl. F01d *5/02, 1/02;* **B63h** *1/00*

U.S. Cl. 415—131 **7 Claims**



A rotary bladed structure for a fluid flow machine comprising adjacent coaxial bladed rotors arranged for rotation together, a helical torque-transmitting connection connecting said bladed rotors together and permitting limited axial and angular relative movement of said rotors, and loading means for loading said connection against said relative movement by applying opposing torques to the adjacent rotors about the axis of rotation thereof.

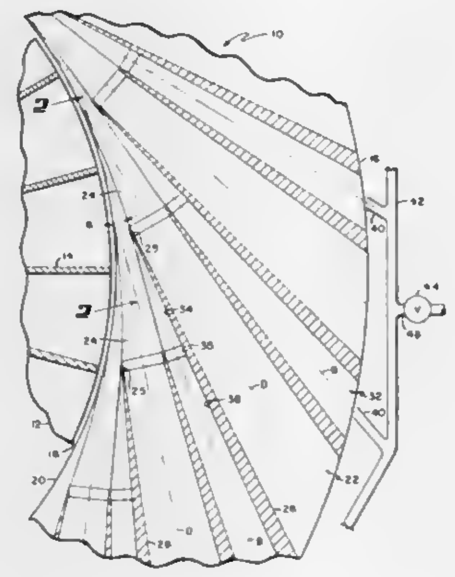
3,706,510
PIPE DIFFUSER WITH AUXILIARY BLEED SYSTEM

John A. O'Connor, Orange, Conn., assignor to Avco Corporation, Stratford, Cono.

Filed Aug. 2, 1971, Ser. No. 168,205

Int. Cl. F01b *25/00;* **F04d** *29/44*

U.S. Cl. 415—145 **5 Claims**



The disclosure illustrates a "pipe" diffuser having basic flow passages sized to handle the output requirements of a centrifugal compressor without a bleed requirement. The diffuser has a series of auxiliary bleed passages intersecting the inlet portions of the pipe diffuser passages. The bleed passages are sized to handle a supplementary bleed flow requirement when needed.

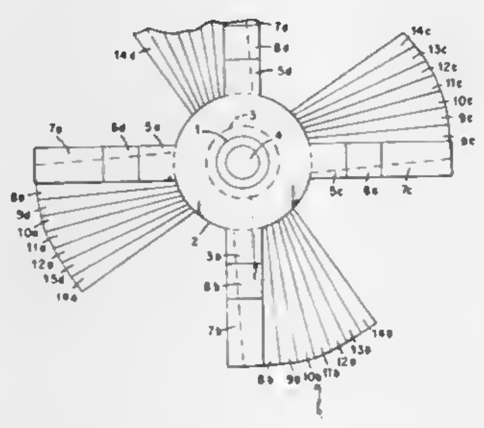
3,706,511
LAMINATED PLASTIC PROPELLER

Augustus E. Abbott, Cincinnati, Ohio, assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed April 6, 1971, Ser. No. 131,755

Int. Cl. B01f *7/24*

U.S. Cl. 416—229 **4 Claims**



An improved corrosive- and abrasive-resistant mixer propeller for thorium fluoride and zinc fluoride in the production of thorium metal. The propeller is preferably constructed from laminated plastic components.

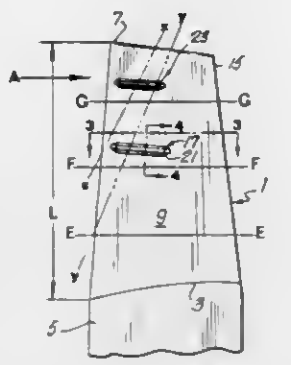
3,706,512
COMPRESSOR BLADES

Arthur D. Strelshik, Montreal, Quebec, Canada, assignor to United Aircraft of Canada Limited, Longueuil, Quebec, Canada

Filed Nov. 16, 1970, Ser. No. 89,640

Int. Cl. F01d *5/10*

U.S. Cl. 416—236 **5 Claims**



An improved thin, plate-like, compressor blade having stiffening ribs on its airfoil surfaces extending from or adjacent the leading edge of the blade toward the trailing edge and being positioned on the blade to reduce the tendency of the blade to fail by buckling when the leading edge of the blade is struck by foreign objects.

3,706,513
REACTOR LIQUID CIRCULATING PUMP ARRANGEMENT

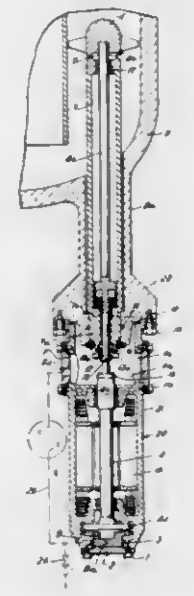
Hans Holz; Christian Klepp, both of Frankenthal, and Gunter Koll, Frankenthal-Studernheim, all of Germany, assignors to Schanzlin Klein & Becker Aktiengesellschaft, **Frankenthal/Pfalz, Germany**

Filed April 5, 1971, Ser. No. 131,168

Claims priority, application Germany, April 11, 1970, P 20 17 415.6

Int. Cl. F04b *17/00, 35/00;* **G01f** *11/06, 11/30;* **H02k** *9/00, 9/20*

U.S. Cl. 417—360 **10 Claims**



A pump circulating a radioactive liquid in a reactor container has a housing including a support tube projecting into the reactor container. A shaft is mounted in the support tube, and has a pump wheel located in the container. The shaft can be lowered so that sealing faces of the pump wheel and support tube abut each other, and communication between container and pump housing is interrupted. In this position, the liquid can be discharged from the pump housing for servicing a motor in the same driving the shaft.

3,706,514
INNER SEAL ASSEMBLY FOR ROTARY MECHANISMS

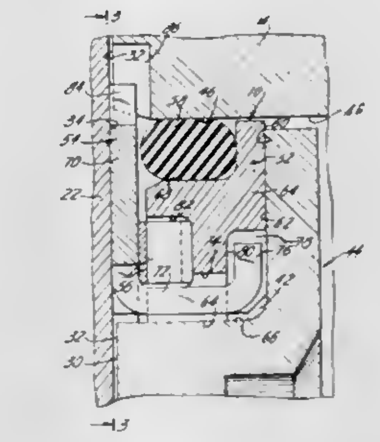
Max Ruf, Obereisesheim, Germany, assignor to Audi Nsu Auto Untion Aktiengesellschaft, Neckarsulm and Wankel G.m.b.H. Lindau, Bodensee, both of, Germany

Filed Sept. 9, 1971, Ser. No. 179,059

Claims priority, application Germany, Oct. 27, 1970, P 20 52 623.2

Int. Cl. F01c *19/00*

U.S. Cl. 418—104 **20 Claims**



The inner seal assembly for rotary mechanisms having a rotor mounted within a housing for rotation on an eccentric of a crankshaft comprises a seal-ring interconnected with a support ring for conjoined rotation and limited axial movement relative to each other and a biasing means disposed between the two rings for urging the rings to separate. A resilient seal means is carried by the outer peripheral portion of the seal-ring. The unitary inner seal assembly is positioned in a recess defined by a peripheral step in a disk attached to the crankshaft and an annular, axially extending wall formed in the rotor so that the seal-ring is in sealing abutment against the radial wall of the peripheral step while the resilient seal means seals the interstices between the axially extending wall of the rotor and the periphery of the disk. The support ring and rotor are constructed and arranged to interconnect and thereby provide conjoined rotation of the inner seal assembly and rotor.

3,706,515
DEVICE FOR FEEDING FLOWABLE MATERIAL TO A MOLD CAVITY

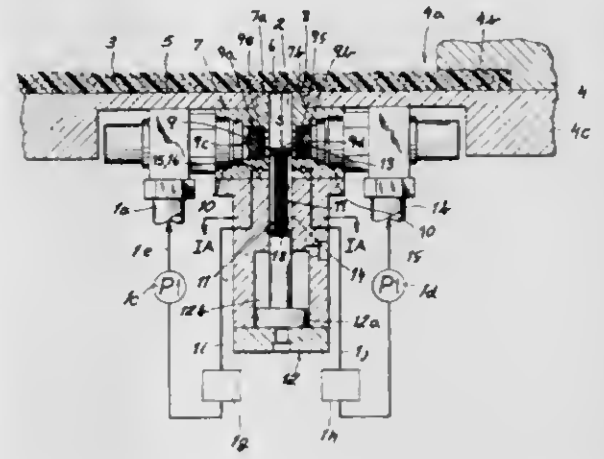
Rudl Keuerleber, Esslingen, and Fritz-Wilhelm Pahl, Delbruck, both of Germany, assignors to Krauss-Maffel Ak-tiengesellschaft, Munich, Germany

Filed Feb. 16, 1971, Ser. No. 115,205

Claims priority, application Germany, Feb. 20, 1970, P 20 07 935.0

Int. Cl. B29d *27/04*

U.S. Cl. 425—4 **9 Claims**



A device for feeding flowable materials, e.g., a mixture of inter-reactive components, into a mold cavity, has a mixing chamber opening directly into the mold cavity without constriction and a pair of inlets connected to respective supply lines for the components. A control member or plunger is provided in the reaction chamber to close its outlet flush with a mold surface and is provided with grooves in a closed condition of the slider which create recirculation paths for the components when they are not fed to the mixing chamber.

3,706,516

APPARATUS FOR PRODUCING FOAM SECTIONS FROM COMPONENTS THAT REACT QUICKLY WITH ONE ANOTHER WHEN MIXED

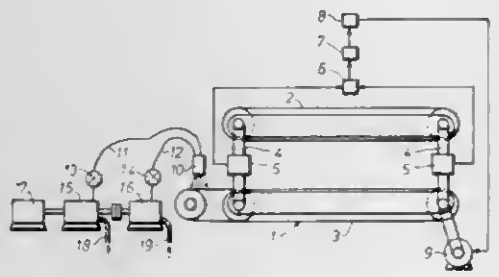
Heinz Kisteneich, Birlinghoven, and Ferdinand Proksa, Bergisch-Neukirchen, both of Germany, assignors to Maschinenfabrik Hennecke GmbH, Leverkusen, Germany

Filed May 16, 1969, Ser. No. 825,283

Claims priority, application Germany, May 24, 1968, P 17 78 693.5

Int. Cl. B29f *1/06*

U.S. Cl. 425—141 **9 Claims**



In the production of foamed articles wherein the foam producing reaction occurs between the belts of a double belt conveyor and the double belt conveyor serves as a mold, the pressure of the foaming reaction of the belts is sensed and, to obtain a uniform structure in the product, the feed rate of the components reacting to from the foam, per unit area of the belt, is correspondingly varied.

3,706,517

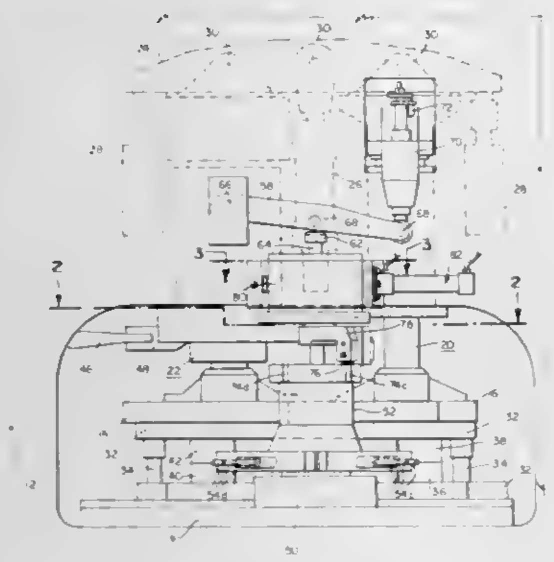
TURRET INDEXING MEANS

Theodore C. Wheaton, III, Ocean City, and Walter Panas, Millville, both of N.J., assignors to Wheaton Industries, Millville, N.J.

Filed Jan. 6, 1971, Ser. No. 104,359

Int. Cl. B29d *23/03*

U.S. Cl. 425—324 B **11 Claims**



A reliable, rapid turret indexing means having particularly desirable decelerative characteristics, which means is easily combined with simple turret engagement and disengagement movements, and which means is especially adapted for transferring radially disposed core rods between work stations in an injection blow molding machine. This indexing means comprises a crank arm pivotally mounted for movement about the turret axis between first and second limit positions and connected to the driving end of a linear link member the other end of which is driven through a linear path parallel to the crank arm at the second of its limit positions. A driving means, preferably a hydraulic cylinder, is also provided to exert compressive force on the linear link member to propel the crank arm from its first limit position toward its second limit position and to return the crank arm to its first position.

3,706,518

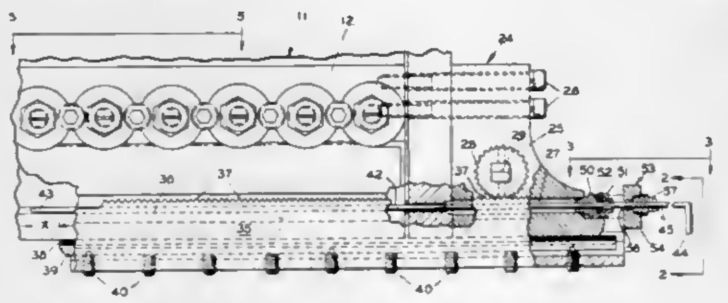
EXTRUSION DIE DECKLE MEANS

William S. Bunte, Somerville, and Lino E. DeGasperis, Clinton, both of N.J., assignors to Egan Machinery Company

Continuation-in-part of Ser. No. 108,459, Jan. 21, 1971, Pat. No. 3,694,132. This application June 17, 1971, Ser. No. 154,138

Int. Cl. B29d *7/04*

U.S. Cl. 425—381 **9 Claims**



An extrusion die having a discharge orifice in the form of a relatively long narrow slot and adapted to extrude a film or sheet of a flowable plastic material. The die is equipped with external deckle means adjustable positioned along the outer end of the discharge orifice and internal deckle means adjustable positioned along the inner end of the discharge orifice. The external and internal deckle means are adjustable in unison or separately, as desired, along corresponding ends of the discharge orifice. The die and the external and internal deckle means are so constructed and arranged as to effectively regulate and control both the width and the thickness of a plastic film or sheet that is extruded from the die.

3,706,519

DEVICE FOR PROVIDING HOLLOW PLASTIC BODIES, AND ESPECIALLY PLASTIC PIPES, WITH A REINFORCED SLEEVE-END PROVIDED WITH A BEAD

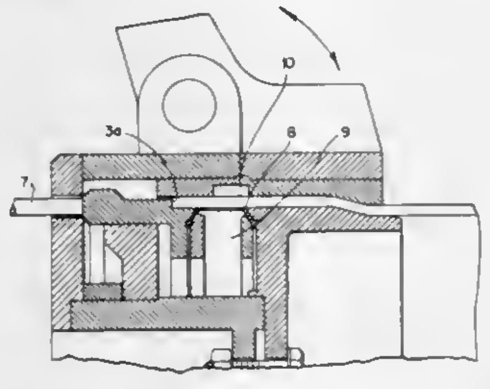
Guenter Soethje, Rehau/Bayern, Germany, assignor to Rehau Plastiks of Canada Limited, Montreal, Quebec, Canada

Filed Sept. 29, 1970, Ser. No. 76,464

Claims priority, application Germany, Oct. 6, 1969, P 19 50 270.6

Int. Cl. B29c *17/07*

U.S. Cl. 425—389 **2 Claims**



Apparatus for providing beaded sleeve ends on plastic pipes comprising an outer mould part defining a grooved outer mould surface and an inner mould part defining an inner mould surface. The inner mould part includes an expanding mandrel and an upsetting ring joined by a flexible ring for forming a bead in the grooved surface. The upsetting ring has a shoulder for engaging the end surface of the pipe and moving the pipe end axially inwardly to provide additional plastic material during the bead forming operation.

3,706,520

APPARATUS AND METHOD FOR HEATING SHAFT FURNACES WITH FUEL GAS

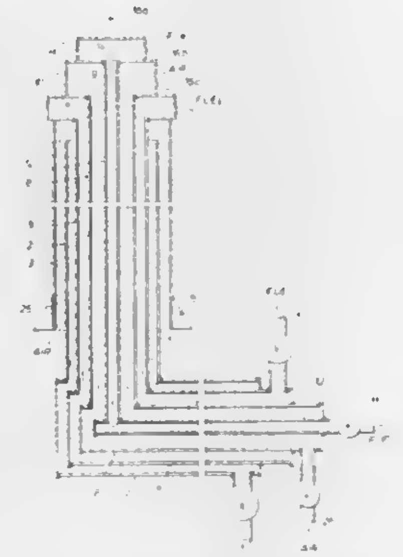
Werner Grimm; Karl H. Olschewski, and Rolf E. Sack, all of Hamburg, Germany, assignors to Shell Oil Company, New York, N.Y.

Filed Aug. 20, 1971, Ser. No. 173,464

Claims priority, application Germany, Aug. 28, 1970, P 20 42 838.0

Int. Cl. F23k *1/00*

U.S. Cl. 431—10 **3 Claims**



An improved fuel gas burner for vertical shaft furnaces has separately controllable fuel and air supply means for controlling combustion in addition to primary fuel and air supply means for supplying the main portion of these combustion gases.

3,706,521

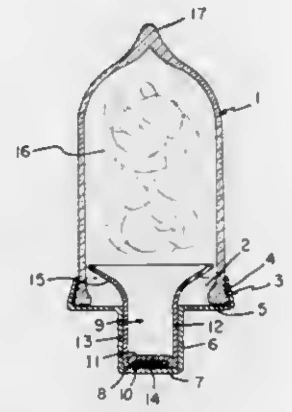
FLASHLAMP

Bernard Kopelman, Salem; Warren H. Hay, Beverly, both of Mass., assignors to Sylvania Electric Products Inc.

Continuation of Ser. No. 662,755, Aug. 23, 1967, abandoned. This application April 6, 1971, Ser. No. 131,802

Int. Cl. F21k *5/02*

U.S. Cl. 431—93 **3 Claims**



A percussive-type flashlamp has a glass envelope, a metal base sealed to one end and having a cup portion extending from it, with an anvil fitted into said cup by crimping or the like, the anvil having a cylindrical portion terminating at one end in a flat annular rim seated at the flat bottom of the cup and having a concave portion to form an enclosed cavity with said flat bottom of the cup. This construction provides a rigid anvil which will hold firm against the action of the firing pin, and which forms a cavity for a percussive charge, the opposite flat portion of the cavity being held with a precise spacing between them. The end of the cylindrical portion of the anvil terminates in a flaring shield which spreads out to the inner diameter of the envelope to protect the metal base from molten metal particles, or agglomerates of particles, from the foil of shredded metal, for example of zirconium, with which the envelope is filled. There is also a filling of oxygen at high pressure in the envelope, which is sealed.

3,706,522

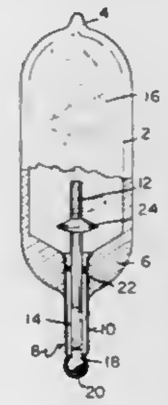
PHOTOFLASH LAMP AND METHOD OF PROVIDING DEFLECTOR-SHIELD THEREFOR

John W. Shaffer, Williamsport, Pa., assignor to Sylvania Electric Products, Inc.

Filed Dec. 28, 1970, Ser. No. 101,633

Int. Cl. F21k *5/02*

U.S. Cl. 431—93 **3 Claims**



A percussion-type photoflash lamp in which the primer comprises a metal tube sealed in and extending from one end of the lamp envelope and a wire anvil supported in and substantially coaxial with the tube. The wire anvil has a coating of fulminating material near the end therefor disposed in the tube and a metallic deflector-shield bead press-forged thereon near the other end thereof which is disposed inside the lamp envelope. The method of providing the deflector-shield bead on the anvil comprises: positioning an annular metallic member coaxially upon the wire anvil, and applying pressure to both shape the annular member and clinch it securely to the anvil.

3,706,523

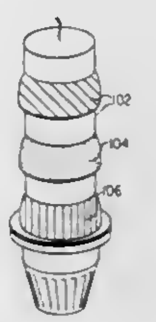
RESISTAGE CANDLE DEVICE

John H. Kumm, 511 Heavitree Lane, Severna Park, Md.

Filed Nov. 16, 1970, Ser. No. 89,939

Int. Cl. F23q *2/32*

U.S. Cl. 431—126 **1 Claim**



A candle device, which has similar characteristics to a color coded electrical resistor, is provided with a plurality of colored bands each signifying a different number in accordance with the international color code arrangement. The candle wick symbolizes the wire connection at the end of the resistor. The numerical information identified in the color-bands on the surface of the candle device by mere visual observation thereof, indicates a number, for example, the numerical age of a person at a birthday party.

CHEMICAL

3,706,524

PROCESS FOR THE DYEING OR PRINTING OF TEXTILE FIBRE MIXTURES USING SIMULTANEOUSLY CATIONIC AND ANIONIC DYESTUFF

Hermann Flensberg, Weil on the Rhine, Germany, and Felix Frey, Rieben, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,842

Claims priority, application Switzerland, Mar. 24, 1969, 4,382/69

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 A **11 Claims**

A process for the simultaneous dyeing or printing of textile fibre mixtures with cationic and anionic dyestuff is disclosed which comprises impregnating or printing the textile fibre mixture, at temperatures below the absorption temperature of the dyestuffs, with an optionally thickened solution containing at least one cationic and at least one anionic dyestuff, sufficient acid and buffer salt for the purpose of maintaining a pH-value of the solution of between 3 and 7, at least 0.5 g./l. of sulphated or sulphonated compound as anion-active auxiliary, and at least 0.5 g./l. of an amide of aliphatic monocarboxylic acids containing from 8 to 20 carbon atoms, or of mixtures of such fatty acids with primary or secondary amines containing at least one lower hydroxyalkyl group, and/or of a water-soluble condensation product from 1 equivalent of fatty acids having from 8 to 20 carbon atoms or from mixtures of such fatty acids with from 1 to 3 equivalents of a di- and/or trialkanolamine, and, optionally, further auxiliaries, and finishing the dyeing or print by a moist heat treatment. Thereby, the textile fibre mixtures are dyed or printed very evenly, in one shade or in several shades, with good fastness properties and without the so-called "sandwich-effect."

3,706,525

WATER SWOLLEN CELLULOSE DYEING WITH HIGH MOLECULAR WEIGHT DISPERSE DYE IN A GLYCOL ETHER SOLUTION

John Blackwell, Kennett Square, Pa., William Henry Gumprecht, Penns Grove, N.J., and Roy Emerson Starn, Jr., West Chester, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 778,809, Nov. 25, 1968. This application Mar. 8, 1971, Ser. No. 122,227

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 C **45 Claims**

A process for dyeing water swellable cellulosic materials, or mixture or blends thereof with synthetic materials, which process comprises contacting said cellulosic material in any sequence with water in sufficient amount to swell the cellulose, a preformed dye of low water solubility, and a dye solvent which is an ethylene glycol or a polyethylene glycol, e.g. diethylene glycol monomethyl ether, is at least partly miscible with water, and boils above about 150° C. at atmospheric pressure, provided that at some stage during the process the interior of the swollen cellulose is contacted with a solution of the dye in aqueous dye solvent or dye solvent.

3,706,526

PROCESS FOR TREATING CELLULOSIC MATERIAL WITH FORMALDEHYDE AND SULFUR DIOXIDE

Ronald Swidler, Pasadena, and Katherine W. Wilson, Newport Beach, Calif., assignors to Cotton Incorporated, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 706,792, Feb. 20, 1968. This application Dec. 6, 1971, Ser. No. 205,399

Int. Cl. D06m *1/16, 13/14*

U.S. Cl. 8—115.7 **13 Claims**

Cellulosic materials such as cotton fabrics are treated at high temperatures with formaldehyde and sulfur dioxide in the presence of moisture to improve their dimensional stability, crease resistance, and smooth drying characteristics.

3,706,527

TREATMENT OF KERATINOUS FIBRES AND FABRICS WITH POLYTHIOLS

Bryan Dobinson, Duxford, and Kenneth Winterbottom, Whittlesford, England, assignors to Ciba-Geigy AG

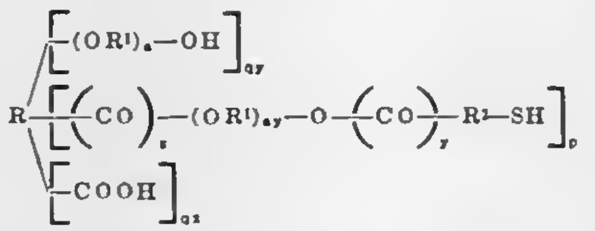
No Drawing. Filed Aug. 25, 1970, Ser. No. 66,903

Claims priority, application Great Britain, Sept. 2, 1969, 43,478/69

Int. Cl. D06m *3/06, 13/20, 13/26*

U.S. Cl. 8—127.5 **19 Claims**

A process for modifying keratinous materials by using a polythiol ester of the formula



$$R\begin{cases}\left[-(OR^1)_a-OH\right]_{qy}\\ \left[\left(CO\right)_x-(OR^1)_{ay}-O-\left(CO\right)_y-R^2-SH\right]_p\\ \left[-COOH\right]_{qx}\end{cases}$$

wherein

R represents a hydrocarbon radical, containing a chain of at least 3 and at most 60 carbon atoms,

R^1 represents an alkylene group containing at least 2 and at most 6 carbon atoms,

R^2 represents a hydrocarbon radical,

a, x, and y in each of the p chains are individually chosen from the group comprising zero and 1, with the proviso that x and y are unequal,

p is an integer of at least 3 and at most 6,

q is chosen from the group comprising zero and positive integers of at least 1 and at most 3,

$(p+q)$ is at most 6,

optionally in combination with other polymeric polymercaptanes, aminoplasts, epoxy resins, acrylic resins, acrylamide or polyisocyanates. The polymers cure on the fibre. The keratinous materials are rendered resistant to shrinkage, and durable press characteristics are imparted to them. The treated material retain their dimension and shape when washed in machines and have good recovery from wrinkling.

3,706,528

MODIFYING KERATINOUS TEXTILES AND FIBRES WITH MERCAPTAN POLYESTERS

Bryan Dobinson, Duxford, Paul Hope, Great Shelford, and Kenneth Winterbottom, Whittlesford, England, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Dec. 2, 1970, Ser. No. 94,553

Claims priority, application Great Britain, Dec. 5, 1969, 59,661/69

Int. Cl. D06m *3/02*

U.S. Cl. 8—128 A **7 Claims**

A process for modifying textiles and fibres of keratinous material, in particular a process for rendering the material resistant to shrinkage and for imparting durable press characteristics to the material is provided. This process comprises treating the material with an ester containing at least two mercaptan groups per molecule, obtainable by reaction of a monomercaptodicarboxylic acid or its anhydride, a substance containing at least two alcoholic hydroxyl groups or one 1,2-epoxide group, and, optionally a substance containing at least one mercaptan group; and curing the ester on the material.

3,706,529

SACCHARINE ASSISTED BASIC DYEING OF NYLON

Egon H. Hacklander, Spartanburg, S.C., and Julian J. Hirshfeld and Bertie J. Reuben, Decatur, Ala., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 613,763, Feb. 3, 1967. This application Apr. 3, 1970, Ser. No. 25,583

Int. Cl. D06p *5/06*

U.S. Cl. 8—172 **12 Claims**

The dyeing of nylon with basic dyes is improved through the addition of from about 1 to 10 grams per liter of saccharine to a dyebath containing a basic dye and maintained at a temperature within the range of from about 150° to about 212° F.

3,706,530

PROCESS FOR THE DYEING OF TEXTILE MATERIAL WITH DYE CARRIER OF PREDOMINANTLY HIGHER BOILING ALKYL BENZENES

Hans-Peter Baumann, Munchenstein, Basel-Land, and Robert Christian Keller, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed June 1, 1970, Ser. No. 42,578

Claims priority, application Switzerland, July 1, 1969, 10.049/69

Int. Cl. D06p *1/68, 5/00*

U.S. Cl. 8—174 **5 Claims**

This invention relates to a process for dyeing or printing polyester fibres in the form of loose fibre, yarn or piece goods using disperse dyes in the presence of carriers which contain at least 30% by weight of alkylbenzenes.

3,706,531

PROCESS FOR THE MANUFACTURE OF SODIUM SULPHATE

Giorgio Cozza, Gabriele Bottai, and Filippo Barilli, Milan, Italy, assignors to Societa Italiana Resine S.p.A., Milan, Italy

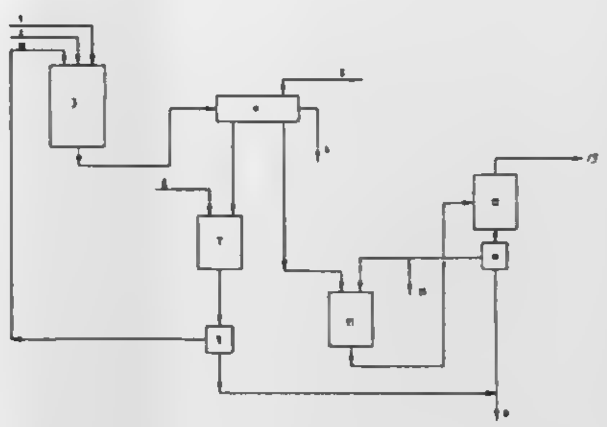
Filed Dec. 7, 1970, Ser. No. 95,744

Claims priority, application Italy, Dec. 23, 1969, 26,203/69

Int. Cl. C01d *5/00;* **C01q** *49/02*

U.S. Cl. 423—551 **4 Claims**

Sodium sulphate is made from a solution of the ferrous sulphate by product of titanium dioxide manufacture, by precipitating iron hydroxide with sodium hydroxide, removing the iron hydroxide, precipitating part of the sodium sulphate formed in the solution by adding more sodium hydroxide and recycling the residual liquor to the iron hydroxide precipitation stage.



3,706,532

METHOD FOR DETERMINING ZINC CONCENTRATION IN AQUEOUS MEDIUMS

Charles A. Noll, Philadelphia, Pa., assignnr to Betz Laboratories, Inc., Trevase, Pa.

Filed Aug. 20, 1971, Ser. No. 173,663

Int. Cl. G01n *31/22, 33/18*

U.S. Cl. 23—230 R **14 Claims**

The present disclosure is directed to a method for determining the zinc concentration in an aqueous medium. More specifically, the method is directed for use to aqueous mediums which contain contaminated and perhaps interfering metal ions, such as the cations of aluminum, iron and copper. According to the method, the sample of the aqueous medium is acidified, treated with a buffered complexing agent to complex any aluminum and iron ions present, treated with an organo-sulfur compound which will complex with any copper ions present and discriminate against any zinc ions present. An indicator compound which will react with the zinc to produce a color has been added to the aqueous medium and the color intensity of the resulting solution is ascertained. The color intensity is then compared with the color intensity of known quantities of zinc and the indicator compound, and the concentration of the zinc is ascertained accordingly.

3,706,533

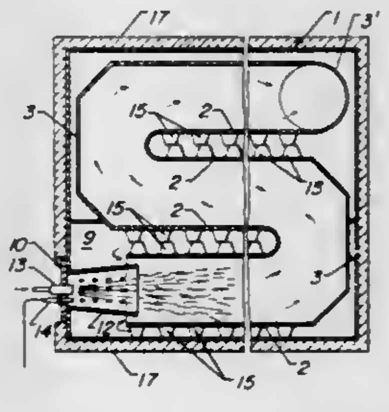
THERMAL INCINERATION UNIT

Gerald L. Brewer, Norwalk, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 28, 1970, Ser. No. 102,056

Int. Cl. F23g *7/06;* **F23j** *5/06*

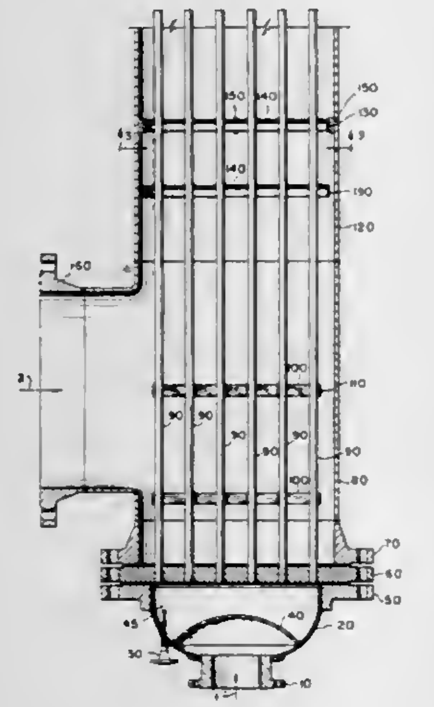
U.S. Cl. 23—277 C **4 Claims**



A fume incinerating unit having a multiple section, tubular-form combustion chamber, where the sections are connected in a serpentine manner and positioned within a fume receiving housing in a manner whereby the fumes will pass over and around the plurality of sections in a heat exchange relationship therewith. The unit is particularly adapted for use with wire enameling-drying ovens where the fumes from the plurality of coated wires can pass laterally into the housing for the incinerator unit and transversely across the plurality of tubular sections comprising the combustion chamber.

3,706,534
MIXING NOZZLE FOR GASES

Cornelis M. Verheul, Amsterdam, Netherlands, and Charles V. Sternling, Walnut Creek, Calif., assignors to Shell Oil Company, New York, N.Y.
Filed Nov. 3, 1970, Ser. No. 86,431
Int. Cl. C07d *1/06;* **B01j** *1/00*
U.S. Cl. 23—284 **6 Claims**

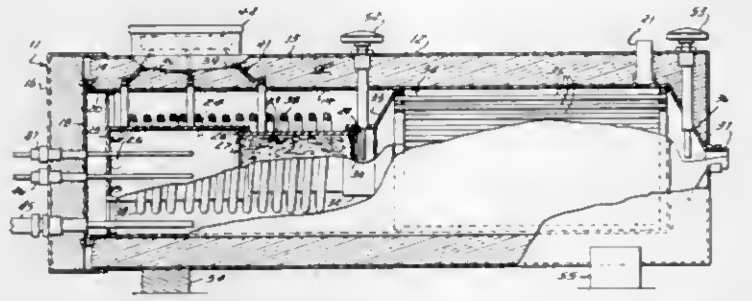


Intimate mixing of two gaseous streams is effected in an apparatus which comprises a casing containing (a) at one end, a first inlet for the introduction of the first gaseous stream; (b) a second inlet in the side of the casing downstream from the first inlet, through which the second gaseous stream is admitted; (c) an outlet downstream of the second inlet; (d) an imperforate partition positioned between the first and second inlets; (e) at least one perforated partition positioned between the second inlet and the outlet; and (f) a number of tubes, supported by and passing through at one end, the imperforate partition, and at the other end, said perforated partition.

3,706,535
CARBON MONOXIDE BURNER FOR UNDERSEA HABITATS

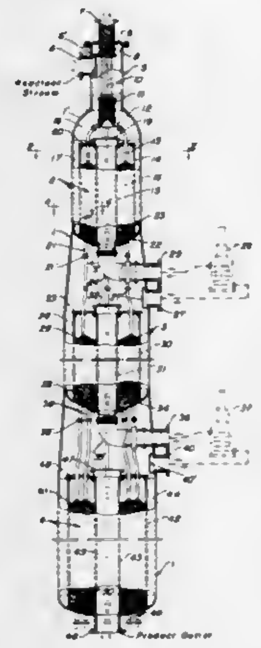
Lawrence B. Taylor; Raymond L. Bentz, and Robert B. Porter, all of Panama City, Fla., assignors to The United States of America as represented by the Secretary of the Navy
Filed Nov. 23, 1970, Ser. No. 92,097
Int. Cl. B01j *9/04*
U.S. Cl. 23—288 J **11 Claims**

Disclosed herewith is a burner system for removing carbon monoxide and other spurious impurities from gaseous atmospheres intended to be breathed by human beings while they are living and working in enclosed pressurized chambers or habitats located undersea or within other environments requiring life-support equipment. Included therein is a burner a burner system is disclosed as having a boiler-tube type heat exchanger for preheating the gaseous atmospheres supplied thereto for purification and for cooling the purified portions thereof immediately prior to their being exhausted into the habitat thereby. An atmospheric gas conduction passageway is operatively associated with said heat exchanger, and a compartment containing an oxidizing catalyst is disposed with respect thereto, so as to receive the atmospheric gas flowing through said passageway and supply it to the cooling portion of said heat exchanger. A heater is disposed for simultaneously heating said passageway and said catalyst, and a thermally insulated housing encapsulates all of the aforesaid components in order to contain them as a unit that is suitable for being located within said habitat. An instrumented temperature control system is also employed to sense and control the temperature of said passageway, and a blower is employed to supply the atmospheric gas to be purified to said burner at quantities and pressures required for any given operational circumstances.



3,706,536
MULTIPLE-STAGE STACKED REACTOR SYSTEM FOR MOVING BED CATALYST PARTICLES

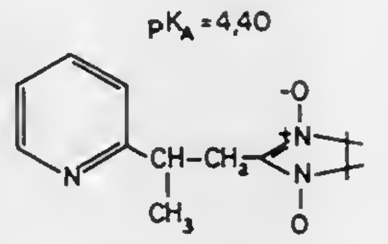
Arthur R. Greenwood, Niles, Walter W. Heinze, Chicago, Edward Schnitta, Bensenville, and David M. Boyd, Clarendon Hills, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed May 10, 1971, Ser. No. 141,514
Int. Cl. B01j *9/12*
U.S. Cl. 23—288 G **9 Claims**



A plurality of superposed reactor sections, with each having an annular-form catalyst section, are provided within a partitioned vertically elongated chamber such that catalyst particles can readily move by gravity from the upper section down through the lowermost section. Uniformly spaced apart small diameter catalyst transfer conduits provide for the downward movement of catalyst into and out of the chamber, as well as between adjacent sections in a manner to substantially preclude reactant stream flow between reactor sections through such conduits. Also, a preferred construction utilizes special flat faced, wedge-wire, to form the screening for retaining the catalyst in the annular-form catalyst zones and the flat-faced wires forming the screening are positioned vertically such that downwardly moving catalyst will not have to rub over a rough surface and be subjected to attrition.

3,706,537
FREE RADICAL pH INDICATORS

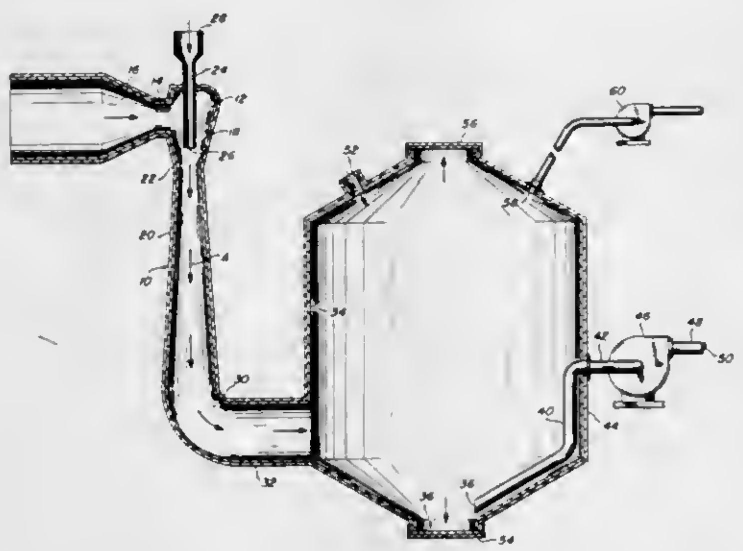
Jan Becher, Grindlose, Denmark, and Edwin F. Ullman, Atherton, Calif., assignors to Synvar Associates, Palo Alto, Calif.
Continuation-in-part of abandoned application Ser. No. 794,008, Jan. 27, 1969. This application Feb. 22, 1971, Ser. No. 117,669
Int. Cl. G01n *21/08, 33/16*
U.S. Cl. 23—230 R **5 Claims**



Acidity determinations are made from variations in electron spin resonance (ESR) spectra with compounds having an asymmetric center bonded through a methylene group to an organic functionality having an unpaired electron. Accurate determination of acidity can be made by comparing the spectrum of the sample being measured to a standard.

3,706,538
SMOKE ABATEMENT APPARATUS

Frank D. Chew, 4320 N. 63rd Ave.,
Phoenix, Ariz. 85033
Filed Dec. 23, 1970, Ser. No. 101,038
Int. Cl. B01j *1/20, 1/00;* **B01d** *47/10*
U.S. Cl. 23—284 **4 Claims**



A smoke abatement apparatus and method wherein smoke is introduced into the inlet of a converging diverging venturi while a nozzle emits a high velocity jet stream of wetting fluid into the converging inlet of said venturi to aspirate and scrub said smoke for emulsifying it during passage through said venturi; and wherein a tank communicates with the diverging outlet of said venturi to collect emulsified materials from said smoke; said venturi and said tank being provided with a lead interior to resist corrosive elements of said smoke; said apparatus also including means for admitting acidic or base materials, together with a foaming agent into said tank, for reaction with said base or acid materials of said smoke, said foaming agent also tending to collect non-condensables and/or non-soluble material from said smoke; exhaust pump means for removing said non-condensable and non-soluble materials from said tank; and another means adapted and disposed for pumping emulsified material and fluid from a lower sump portion of said tank.

3,706,539
TANTALUM CLAD NIOBIUM

Melvin A. Hagan, 6961 Crest Rd., Palos Verdes Peninsula, and Roy I. Batista, 509 Avenida Mirola, Palos Verdes Estates, both of Calif.
Continuation-in-part of Ser. No. 809,039, March 20, 1969, Pat. No. 3,579,808. This application Aug. 5, 1970, Ser. No. 61,459
Int. Cl. B32b *15/00*
U.S. Cl. 29—195 **2 Claims**

A composite metal article is made by applying tantalum metal sheet to the surface of niobium metal and the two metals are diffusion bonded in a protective environment. The bonded metals may be cold worked to produce the final fabricated article. The final article is coated with an aluminide or a silicide coating.

3,706,540
ARTIFICIAL FUEL LOG MACHINE

Milton W. Stanton, Route 2, Orofino, Idaho
Filed Aug. 31, 1970, Ser. No. 68,436
Int. Cl. C10l *5/22;* **B30b** *11/00*
U.S. Cl. 44—2 **6 Claims**

An apparatus for forming compressed fuel logs from shredded waste paper impregnated with oil. The apparatus includes an upwardly open receiving chamber within which a charge of partially compressed material is received, the material being directed to the receiving chamber by an upright chute. A lateral compression ram moves the charged material from the receiving chamber to a compression chamber and reduces the width of the charge. The perpendicular compression ram reduces the length of the charge within the compression chamber. The finished log is discharged through a release door in the compression chamber during retraction of the two rams.

3,706,541
ANTIKNOCK LIQUID HYDROCARBON FUEL CONTAINING ORGANIC NITROGEN CONTAINING COMPOUNDS

Stamoulis Stournas, Trenton, El-Ahmadi I. Heiba, Princeton, and Ralph M. Dessau, Highland Park, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed July 23, 1971, Ser. No. 165,709
Int. Cl. C10l *1/22*
U.S. Cl. 44—63 **13 Claims**

Liquid hydrocarbon fuels are provided whose antiknock properties are improved by adding thereto a small amount of an aminofulvene.

3,706,542
FUEL GAS FOR CUTTING OPERATIONS

James Harris Gilks, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Oct. 13, 1970, Ser. No. 80,470
Int. Cl. B23k *7/00;* **C10l** *3/00*
U.S. Cl. 48—197 FM **5 Claims**

A fuel gas containing low molecular weight hydrocarbons and being substantially free of hydrocarbons containing more than 4 carbon atoms and including proportions, on volume bases, of methyl acetylene and/or allene within the range of from 5 to 39%, propylene within the range of from 30 to 90%, and propane within the range of from 0 to 30%.

3,706,543

METHOD FOR PRODUCING TUBULAR RADIOACTIVE LIGHT SOURCES

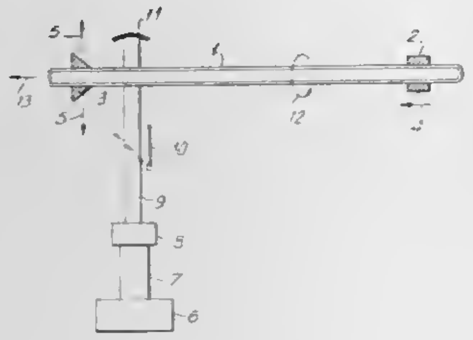
Oscar Thuler, Bern, Switzerland, assignor to Canrad Precision Industries, Inc., New York, N.Y.

Filed June 11, 1969, Ser. No. 832,273

Claims priority, application Switzerland, Aug. 22, 1968, 12639/68

Int. Cl. C03b *21/06*

U.S. Cl. 65—105 **6 Claims**



According to the invention, the process for making tube-shaped, radioactive light sources is characterized by the fact that a glass tube containing a Luminophor and a radioactive gas, is subdivided successively into glass tube sections intended for use as radioactive light sources, by means of a laser beam. This is accomplished with a closely localized lazer beam so that a sufficient quantity of glass is drawn from the sidewalls to form end walls, to devide the sealed tube and simultaneously seal the ends of the two tubes produced without loss of radioactive gas therein.

3,706,544

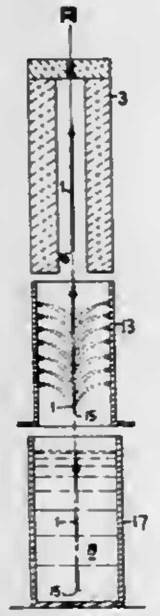
METHOD OF LIQUID QUENCHING OF GLASS SHEETS

Edmund R. Michalik, West Mifflin, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed July 19, 1971, Ser. No. 163,878

Int. Cl. C03b *27/00*

U.S. Cl. 65—116 **11 Claims**



An improved method for thermally tempering glass sheet by liquid quenching is disclosed. The improvement comprises a preliminary strengthening of the marginal edges of the glass sheet such that the glass sheet is better able to withstand the subsequent thermal shock of liquid quenching. The preliminary strengthening is accomplished by cooling the body of the glass sheet between marginal edges at a rate greater than the rate at which the edges are cooled. This minimizes the tensile stresses that are normally associated with the edges during liquid quenching.

In a preferred embodiment, the invention is directed to an improvement in the dip-quenching process for thermally tempering glass in which the edge which initially contacts the quenching liquid is put in compression prior to immersing the glass in the quenching liquid.

3,706,545

FOLIAR SPRAYS

Kenneth Russell Gray, Lloyd Eugene Van Blaricom, Franklin Willard Herrick, and Harvey Rudolph Deweyert, Shelton, Wash., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 818,823, Apr. 23, 1969. This application Aug. 27, 1970, Ser. No. 67,598

Int. Cl. C05f *11/00*

U.S. Cl. 71—1 **37 Claims**

Foliar sprays are provided for overcoming iron deficiency in iron chlorotic tropical and sub-tropical evergreen trees. The sprays comprise non-toxic, water soluble polyols, ethers of these polyols and mixtures thereof in conjunction with organic iron sources.

3,706,546

METHOD OF CULTIVATING TOBACCO AND AQUEOUS SOLUTION TO BE USED THEREFOR

Shiro Higase, Hatano-shi, Japan, assignor to Ishihara Sangyo Kaisha, Ltd., Nishi-ku, Osaka, and The Japan Monopoly Corp., Minato-ku, Tokyo, Japan

No Drawing. Filed Oct. 16, 1969, Ser. No. 867,093

Claims priority, application Japan, Oct. 16, 1968, 43/74,954

Int. Cl. A01n

U.S. Cl. 71—78 **11 Claims**

Method for cultivating tobacco by applying to the flowers and flower buds thereof, as well as the portions of the upper plant to which they are attached, an aqueous composition containing at least one of maleic hydrazide, its alkanolamine salts and its sodium salts and at least one of N-1-naphthylphthalamic acid, its alkali metal salts and its ammonium salt. Such application results in removal of such flowers and flower buds without the disadvantages associated with mechanical topping operations.

3,706,547

COMBATING WEEDS WITH THIENYL THIOCYANATES

Natu R. Patel, Shawnee Mission, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Sept. 14, 1970, Ser. No. 72,189

Int. Cl. A01n *9/18*

U.S. Cl. 71—90 **2 Claims**

5 - chloro- and 5 - methyl - 2 - thienyl thiocyanates, made by reaction of the corresponding substituted thiophenes with thiocyanogen, are useful as post-emergent herbicides, particularly to combat such undesired vegetation as pigweed and wild mustard.

3,706,548

N-CYCLOALKYL-2,3,6-TRICHLOROBENZYLIDENE-IMINES AND THEIR USE AS HERBICIDES

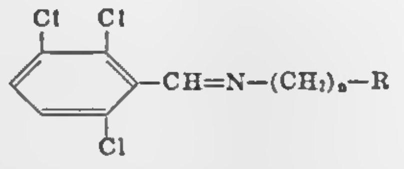
Edmund J. Rumanowski, Dover, N.J., assignor to Tenneco Chemicals Inc.

No Drawing. Original application Oct. 18, 1967, Ser. No. 676,052, now Patent No. 3,637,851, dated Jan. 25, 1972. Divided and this application Sept. 23, 1970, Ser. No. 74,903

Int. Cl. H01n *9/206*

U.S. Cl. 71—121 **20 Claims**

Compounds having the structural formula



wherein *n* represents an integer in the range of zero to four and R represents a monocyclic or bicyclic aliphatic group are effective selective herbicides. Illustrative of these herbicidal compounds are N-cyclohexyl-2,3,6-trichlorobenzylideneimine, N-cyclohexylmethyl - 2,3,6 - trichlorobenzylideneimine, and N-cycloheptyl-2,3,6-trichlorobenzylideneimine.

3,706,549

METHOD FOR REFINING PIG-IRON INTO STEEL

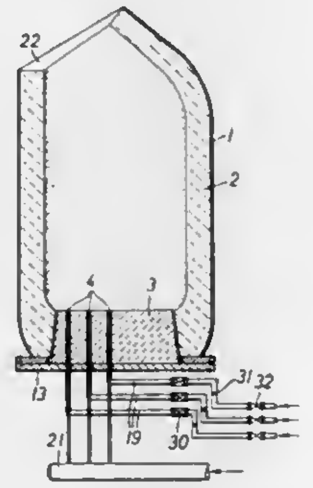
Helmut Knuppel, Sulzbach-Rosenberg, Karl Brotzmann, Sulzbach-Rosenberg Hutte, and Hans-Georg Fassbinder, Sulzbach-Rosenberg, Germany, and Guy Savard and Robert Lee, Montreal, Quebec, Canada, assignors to Eisenwerk-Gesellschaft Maximilianshutte m.b.H., Sulzbach-Rosenberg Hutte, Germany

Filed Feb. 20, 1969, Ser. No. 800,892

Claims priority, application Germany, Feb. 24, 1968, P 15 83 968.6; Aug. 13, 1968, P 17 58 816.8; Jan. 14, 1969, P 19 01 563.5; Jan. 30, 1969, P 19 04 382.4, P 19 04 383.5

Int. Cl. C21c *5/34*

U.S. Cl. 75—60 **16 Claims**



Pig-iron is refined into steel by blowing oxygen and a protective screen of an encasing gas through injecting means located at or near the bottom of a converter containing a melt of molten metal. The encasing gas while protecting the injecting means, allows it to be consumed at substantially the same rate as the bottom of the converter so that the injecting means is not left projecting from the bottom of the converter. Desirably, the oxygen jet is circular in cross-section and the encasing gas is in the form of a concentric jet.

A converter for carrying out the method is made up of a pear-shaped sheet-steel casing having a refractory lining and an inserted bottom provided with nozzles in the form of metal tubes for the oxygen and encasing gas. Preferably, a substantial portion (for example about half) of the converter bottom is free of nozzles. The nozzles can be arranged in groups and there can be rows running parallel with the tilting axis of the converter. The nozzles may also be arranged to cause circulation of the molten metal in the converter. The nozzles can be constructed to provide for swirling movement of the encasing gas. Examples of encasing gas which may be used are furnace-mouth gas, coke-oven gas, natural gas and other gases containing hydrocarbons.

3,706,550

METHOD FOR PRODUCING A METAL DIE OR MOLD

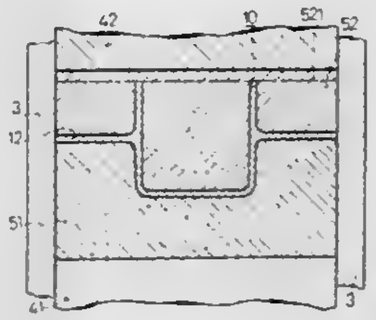
Hanji Umehara; Takashi Kimura, and Hiroshi Hamamoto, all of Nagoya, Japan, assignors to Kabushiki Kaisha Toyoto Chuo Kenkyusha, Nagoya-shi, Aichi-ken, Japan

Filed Sept. 15, 1970, Ser. No. 72,380

Claims priority, application Japan, Sept. 22, 1969, 44/75691

Int. Cl. B22f *3/26*

U.S. Cl. 75—200 **23 Claims**



A method for producing a metal die or mold including the steps of placing a layer of sintering powder, such as iron, copper, tungsten carbide or titanium carbide, in a frame or box, placing in contact with the sintering powder a pattern made of an infiltrant metal, such as copper, lead, cobalt, nickel, iron or alloys thereof, having a lower melting point than that of the sintering powder, the pattern corresponding in configuration to that of the cavity surface of the desired die, heating the powder together with the pattern in the frame to sintering temperature, whereby to sinter the powder and infiltrate the infiltrant metal forming the pattern into the powder, and cooling so as to obtain a hardened sintered mold having a surface whose configuration complements that of the pattern surface.

3,706,551

ELECTROCONDUCTIZED ORGANIC INSULATING MATERIAL

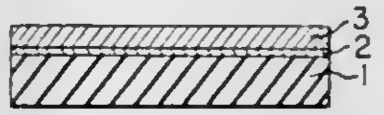
Shinichiro Nagashima and Kaichi Tsuchiya, Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 26, 1970, Ser. No. 22,789

Claims priority, application Japan, Mar. 27, 1969, 44/23,365; Mar. 28, 1969, 44/23,616, 44/23,617; Apr. 1, 1969, 44/24,686

Int. Cl. G03g *5/09*

U.S. Cl. 96—1.5 **3 Claims**

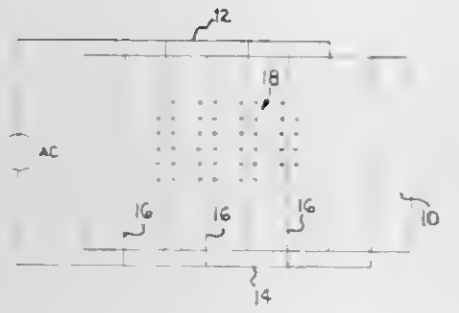


An organic insulating material, e.g. film, is exposed to a radiation of a wave length below 4000 A. to impart an increased electroconductivity to the surface. The resulting organic insulating material having the electrostatically electroconductized layer is useful for preparing a photosensitive member suitable for electrophotography.

3,706,552

ELECTRODE CONFIGURATION FOR AC PIP ELECTROPHOTOGRAPHY

John D. Grier, Temperance, Mich., and Maclin S. Hall, Okemos, Mich., assignors to Owens-Illinois, Inc.
Division of Ser. No. 812,275, April 1, 1969. This application Dec. 28, 1970, Ser. No. 101,764
Int. Cl. G03g *17/00, 13/22*
U.S. Cl. 96—1.4 **2 Claims**



A persistent internal polarization (PIP) electrophotography printing or copying system uniquely adapted to be used in combination with alternating current wherein a pair of electrodes, each including a plurality of elements disposed in spaced array alternating with each other in the same plane, are utilized in combination with a PIP layer such that an alternating current electric field may be simultaneously applied to the PIP layer while permitting light radiation to reach the PIP layer. In the specific practice, the pair of electrodes are positioned on top of or embedded in the surface of the PIP layer which is to be toned; that is, the top surface.

3,706,553

TRANSFER OF IMAGES TO A NONCONDUCTIVE SUBSTRATE

Elsie L. Menz, 22 Palisade Park,
Rochester, N.Y. 14620
Filed Dec. 22, 1969, Ser. No. 886,838
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.4 **9 Claims**

A method of transferring insulating image material containing a static charge from an image bearing surface to an electrically non-conductive image receiving surface by means of coulombic attraction and the rearrangement of electrical charges.

3,706,554

PHOTOCONDUCTIVE COMPOSITION

Charles J. Fox and William A. Light, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Mar. 24, 1971, Ser. No. 127,822
Int. Cl. G03g *5/06*
U.S. Cl. 96—1.6 **9 Claims**

High-speed heterogeneous photoconductive compositions are provided which contain tritolylamine photoconductor in a polymeric binder material which contains a particulate discontinuous phase containing a combination of a pyrylium dye and a polymeric material having an alkylidene diarylene moiety in a recurring unit. These compositions are suitable for the formation of electrophotographic elements which can be prepared by forming said compositions on a suitable conductive support.

3,706,555

ORGANIC PHOTOCONDUCTORS SPECTRALLY SENSITIZED WITH MEROCYANINE DYES CONTAINING A TRIAZOLO- OR TETRAZOLO-[1,5-a]PYRIMIDIN-7(6H)-ONE NUCLEUS

Donald W. Heseltine and Carl H. Eldredge, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Aug. 11, 1971, Ser. No. 170,972
Int. Cl. G03g *5/02, 5/06*
U.S. Cl. 96—1.6 **21 Claims**

Organic photoconductors are spectrally sensitized with merocyanine dyes which feature a triazolo- or tetrazolo [1,5-a]pyrimidin-7(6H)-one nucleus.

3,706,556

METHOD FOR PREVENTING COLOR MIXING IN MULTIPLE LAYER-TYPE REVERSAL COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS

Tadashi Nagae, Yasushi Oishi, and Jun Hayashi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed July 17, 1970, Ser. No. 56,006
Claims priority, application Japan, July 17, 1969, 44/56,670
Int. Cl. G03c *7/16*
U.S. Cl. 96—22 **6 Claims**

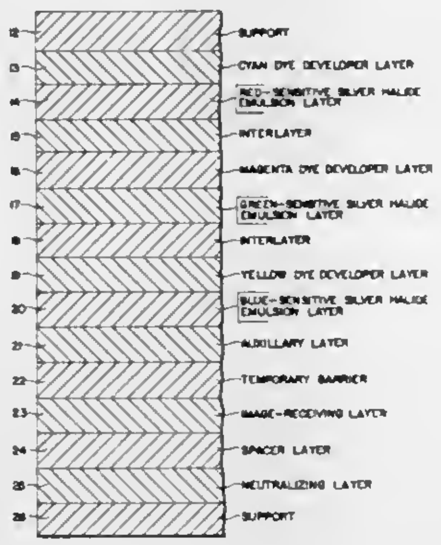
A method for preventing color mixing in a coupler-in-developer type multiple layer reversal color photographic light-sensitive material having coated on a support a red-sensitive emulsion layer, a green-sensitive emulsion layer, and a blue-sensitive emulsion layer, comprising incorporating at least one diffusion resistant magenta coupler in a green-sensitive emulsion layer of the color photographic light-sensitive material and developing said color photographic material with three color developing solutions containing diffusing couplers for the red-sensitive emulsion layer, the green-sensitive emulsion layer and the blue-sensitive emulsion layer, respectively, is disclosed.

3,706,557

COLOR DIFFUSION TRANSFER FILM UNIT CONTAINING A TEMPORARY BARRIER FOR DEVELOPER RESTRAINERS

Lester H. Arond, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation-in-part of application Ser. No. 99,544, Dec. 18, 1970. This application Apr. 28, 1971, Ser. No. 138,237
Int. Cl. G03c *1/40, 5/48, 7/00*
U.S. Cl. 96—29 D **39 Claims**

Film units including a negative component containing at least one light-sensitive silver halide layer and associated dye image-providing material and a positive component containing at least a dyeable stratum, the positive component further including a development restrainer disposed in the dyeable stratum and/or in an associated layer, particularly such film units adapted for forming color transfer images viewable without separation, wherein a layer is disposed between the development restrainer and the negative component, which layer is so constituted as to prevent substantial migration of the development restrainer to the negative component during the shelf life of the film but which will permit such migration upon application of an aqueous alkaline fluid.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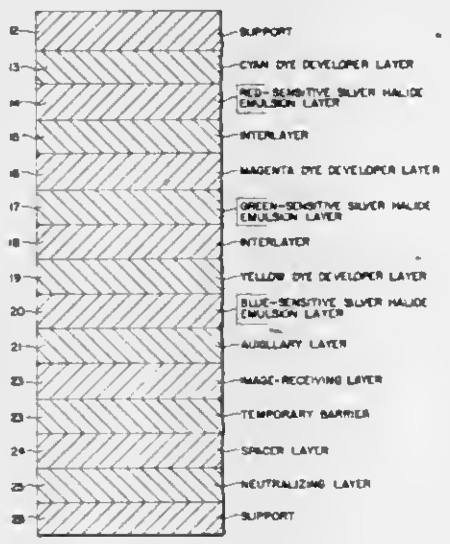
SUPPORT
CYAN DYE DEVELOPER LAYER
RED-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE-SENSITIVE SILVER HALIDE EMULSION LAYER
AUXILLARY LAYER
TEMPORARY BARRIER
IMAGE-RECEIVING LAYER
SPACER LAYER
NEUTRALIZING LAYER
SUPPORT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SUPPORT
CYAN DYE DEVELOPER LAYER
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INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN-SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE-SENSITIVE SILVER HALIDE EMULSION LAYER
AUXILLARY LAYER
IMAGE-RECEIVING LAYER
TEMPORARY BARRIER
SPACER LAYER
NEUTRALIZING LAYER
SUPPORT

3,706,558

PHOTOGRAPHIC METHOD FOR PRINTING VIEWING SCREEN STRUCTURE INCLUDING TREATMENT OF EXPOSED COATING BEFORE DEVELOPMENT

Harry Robert Frey, Lancaster, Pa., assignor to RCA Corporation
No Drawing. Filed Mar. 25, 1971, Ser. No. 128,193
Int. Cl. G03c *5/04*
U.S. Cl. 96—27 E **10 Claims**

Photographic method comprises (a) applying to a supporting surface for a viewing-screen structure a coating comprised of an organic binder and a dichromate photosensitizer for the binder, (b) exposing the coating to a pattern of actinic radiation, at least a portion of said coating being underexposed after completion of exposure, (c) wetting the exposed coating with a dilute aqueous solution of a mild reducing agent, such as hydroquinone, (d) and flushing the wet coating with an aqueous solvent to remove the unexposed portions of the coating while retaining the underexposed portions of the coating in place.

3,706,559

METHODS FOR MAKING POSITIVE FULL-COLOR DYE-TRANSFER PRINTS

Robert H. Sprague, Chelmsford, Mass., assignor to Itek Corporation, Lexington, Mass.
Filed Feb. 27, 1969, Ser. No. 802,954
Int. Cl. G03c *5/24*
U.S. Cl. 96—48 PD **9 Claims**

Methods are disclosed for making positive full-color dye-transfer prints by imagewise exposure, to a color negative, of photographic imaging media comprising a finely-divided photoconductor as the photosensitive agent. The exposed imaging media are developed, in the presence of a reducible metal ion, with couplers and developers forming cyan, magenta, or yellow dye images in radiation-exposed portions thereof. These dye images combine to reproduce the original image in a full-color print.

3,706,560

IMAGE RECORDING MATERIAL CONTAINING TITANIUM DIOXIDE, AND ZINC OXIDE IN MINOR AMOUNT AND THE USE THEREOF

Clark F. Grain, Framingham, Mass., assignor to Itek Corporation, Lexington, Mass.
No Drawing. Filed July 21, 1970, Ser. No. 56,944
Int. Cl. G03c *5/24, 1/00*
U.S. Cl. 96—48 **21 Claims**

An improved titanium dioxide photoreceptor includes a minor amount of zinc oxide. It has been found that preferably an amount of up to about 10% zinc oxide in a titanium dioxide or other photoconductor layer more than doubles the photosensitivity. The improved layer is well suited to a known photolytically initiated process.

3,706,561

COMPOSITIONS FOR MAKING BLIXES

Rowland G. Mowrey and Keith H. Stephen, Rochester, and Eugene F. Wolfarth, Pittsford, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Mar. 23, 1970, Ser. No. 23,022
Int. Cl. G03c *5/32, 5/38*
U.S. Cl. 96—60 BF **14 Claims**

Compositions containing a sufficient amount of (a) a water-soluble complex of a ferric ion with a pentadentate or a hexadentate primary ligand to produce, when dissolved in water, a solution containing from about 0.4 mole/liter to about 2.0 moles/liter and (b) a sufficient amount of a water-soluble monodentate secondary ligand, such as, a thiocyanate, a borate, boric acid, a fluoride or a thiourea so that the mole ratio of the thiocyante to (a) is at least 5:1, the mole ratio of the borate, boric acid or fluoride to (a) is at least 1:1 and the mole ratio of the thiourea to (a) is at least 3:1 are advantageously used to prepare blix solutions for removing silver and silver halide in color-developed photographic processing.

3,706,562

PHOTOGRAPHIC MATERIALS AND PROCESSES FOR DEVELOPING PHOTOGRAPHIC COMPOSITIONS

Arthur H. Herz, Donald M. Burness, and Edward J. Seus, all % Eastman Kodak Company, Rochester, N.Y. 14650
No Drawing. Continuation of abandoned application Ser. No. 671,998, Oct. 2, 1967. This application Apr. 26, 1971, Ser. No. 137,614
Int. Cl. G03c *5/30*
U.S. Cl. 96—66.3 **22 Claims**

Photographic compositions and elements comprising a zwitterionic compound and a cationic and/or a nonionic development modifier. In one aspect, this invention relates to a process comprising developing a photographic image in the presence of a zwitterionic compound and a cationic or a non-ionic development modifier. In another aspect, this invention relates to a photographic developer composition comprising a photographic developing agent, a zwitterionic compound, and a cationic or a nonionic development modifier.

3,706,563

LIGHT-SENSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIAL

Rintaro Ushiyama, Hachioji-shi, Tokyo; Osakazu Sugino, Machida-shi, Tokyo; Shui Sato, Hachioji-shi, Tokyo; Eiichi Sakamoto, Hanno-shi, Saitama-ken; Hiroshi Yamada, and Shoji Kikuchi, both of Hachioji-shi, Tokyo, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

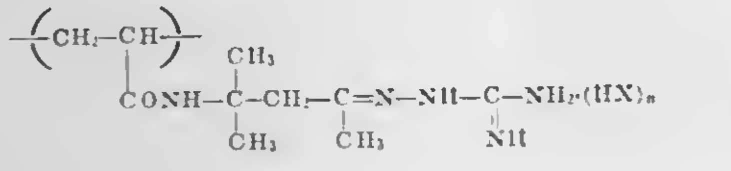
Filed March 19, 1971, Ser. No. 126,327

Claims priority, application Japan, March 20, 1970, 45/23142

Int. Cl. G03c *1/84*

U.S. Cl. 96—84 A **3 Claims**

A new polymer compound having the guanidyketimine structural unit of the formula



$$-\left(CH_2-\underset{\displaystyle \underset{}{CONH}-\underset{CH_3}{\overset{CH_3}{\overset{|}{\underset{|}{C}}}}-CH_2-\underset{CH_3}{\underset{|}{C}}=N-NH-\underset{NH}{\underset{\|}{C}}-NH_2\cdot(HX)_n}{CH}\right)-$$

wherein X is an acid radical and *n* is 1 or 2 has been synthesized. The said compound is useful as a mordant in a light-sensitive silver halide photographic material in order to prevent undesired migration of an acidic dye contained in a certain layer of the said photographic material. This greatly enhances sharpness to the image obtained from the said photographic material.

3,706,564

PROCESS FOR FORMING SILVER HALIDE CRYSTALS IN THE PRESENCE OF AMPHIPHILIC COPOLYMERS

Kenneth Robert Hollister, Pittsford, Ernest John Perry, Rochester, and Glen Marshall Dappen, Webster, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 28, 1970, Ser. No. 84,920

Int. Cl. G03c *1/04*

U.S. Cl. 96—114 **6 Claims**

Copolymers are disclosed which are soluble in aqueous media, as well as in organic solvents. In one aspect, these polymers comprise (1) units of (N,N-dialkylamino)alkyl acrylates and (2) units of alkyl acrylates. In another aspect, silver halide grains are formed in the presence of amphiphilic polymers in an aqueous medium, coagulated and then redispersed in an organic solvent for coating on a support.

3,706,565

PHOTOGRAPHIC COMPOSITIONS CONTAINING AN ADMIXTURE OF ORGANIC AND INORGANIC SILVER SALTS

Ronald Harris Ericson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 28, 1970, Ser. No. 84,924

Int. Cl. G03c *1/04, 1/72*

U.S. Cl. 96—114 **8 Claims**

Photographic compositions are disclosed which comprise an admixture of an organic silver salt and an inorganic silver salt wherein the crystals of said inorganic silver salt have been formed in the presence of an amphiphilic copolymeric silver halide peptizer. In certain embodiments, the amphiphilic copolymer comprises units of a (N,N-dialkylamino)alkyl acrylate. In another aspect, a process is disclosed for forming a photographic composition which comprises (1) forming inorganic silver salt crystals in a liquid medium in the presence of an amphiphilic copolymer which is a silver halide peptizer and (2) mixing said inorganic silver salt crystals with an organic silver salt in an organic liquid medium.

3,706,566

PHOTOGRAPHIC EMULSION CONTAINING OPTICALLY DYE-SENSITIZED SILVER HALIDE GRAINS OF LESS THAN 0.2 MICRON

Keisuke Shiba, Tohru Sueyoshi, Akira Sato, Seiiti Kubodera, and Motohiko Tsubota, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Feb. 24, 1970, Ser. No. 13,774

Claims priority, application Japan, Mar. 7, 1969, 44/17,261

Int. Cl. G03c *1/08*

U.S. Cl. 96—120 **12 Claims**

A photographic silver halide emulsion in which at least 95% of the silver halide grains are less than 0.2 micron or in which the mean grain size of the silver halide grains is less than 0.18 and which contains a sensitizing dye having an oxidation potential of less than 0.90 volt is disclosed.

3,706,567

SUPERSENSITIZED PHOTOGRAPHIC EMULSIONS

Gary L. Hiller, Hilton, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Nov. 17, 1970, Ser. No. 90,435

Int. Cl. G03c *1/14*

U.S. Cl. 96—126 **6 Claims**

Light-sensitive photographic silver halide emulsions containing symmetrical or unsymmetrical cyanine or mercocyanine imidazolo[4,5-b]quinoline dyes, and as super-sensitizers therefor, colorless derivatives of bis(s-triazin-2-ylamino)stilbene disulfonic acids.

3,706,568

PHOTOGRAPHIC DIFFUSION TRANSFER PRODUCT AND PROCESS

John A. Haefner, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 6, 1971, Ser. No. 131,835

Int. Cl. G03c *5/54*

U.S. Cl. 96—29 R **17 Claims**

A receiving sheet for use in a diffusion transfer process comprises a support having an image receiving layer and having between the support and receiving layer, a layer comprising colloidal size inorganic particulate material such as silica, alumina, etc. The image receiving layer can be a nucleated layer for use in black and white diffusion transfer.

3,706,569

SILVER HALIDE EMULSION CONTAINING SILVER ETHYNYLCYCLOPENTANOL COMPLEX TO REDUCE DESENSITIZATION OF OPTICAL SENSITIZING DYE INCORPORATED THEREIN

Paul B. Gilman, Jr., and Jon D. Bass, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Dec. 4, 1970, Ser. No. 95,420

Int. Cl. G03c *1/08*

U.S. Cl. 96—134 R **11 Claims**

Light-sensitive photographic silver halide emulsions are provided which contain (1) a photographic spectral sensitizing dye having a polarographic cathodic halfwave potential more positive than about —1.80 volts, said dye being employed in the emulsion at a concentration which results in at least about 0.3 log *E* desensitization of a test portion of the emulsion, when the test portion of the emulsion is coated on a support, sensitometrically exposed and developed for 6 minutes at 20° C. in Kodak D–19 developer; and (2) an organic silver complex in an amount effective to reduce the desensitization caused by the spectral sensitizing dye. Photographic emulsions in accordance with this invention exhibit higher speeds in the spectrally sensitized region (i.e., higher minus blue speeds) than prior art emulsions containing lower concentrations of spectral sensitizing dye. In addition, use of the higher dye concentrations in accordance with the present invention results in emulsions which exhibit sensitivity to longer wavelength radiation than prior art emulsions having lower dye concentrations.

3,706,570

SPECTRALLY SENSITIZED NEGATIVE EMULSION CONTAINING SILVER HALIDE GRAINS OF LESS THAN 0.18 MICRON

Yoshiyuki Nakazawa, Tohru Sueyoshi, Akira Sato, and Yashiharu Nakamura, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed May 18, 1970, Ser. No. 38,485

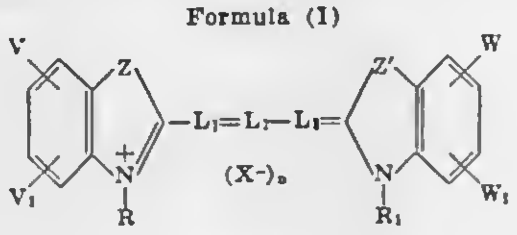
Claims priority, application Japan, May 17, 1969, 44/38,248

Int. Cl. G03c *1/18*

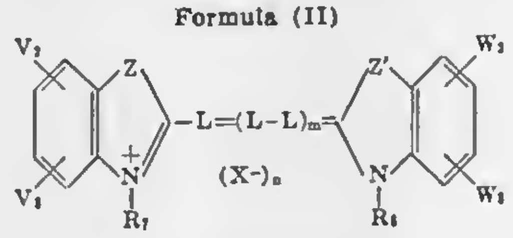
U.S. Cl. 96—137 **10 Claims**

A silver halide photographic light-sensitive emulsion wherein the silver halide crystals have a mean grain size of less than 0.18 micron, or wherein at least 95% of the crystals have a mean grain size of less than 0.2 micron and wherein at least one of the sensitizing dyes represented by the following formulae are incorporated in such an emulsion in an amount of from 1 to 150 mg. per 1 kg. of the emulsion:

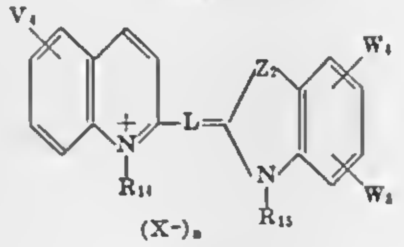
Formula (I)



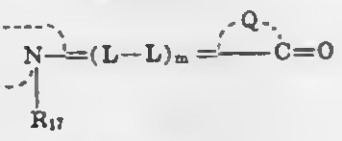
Formula (II)



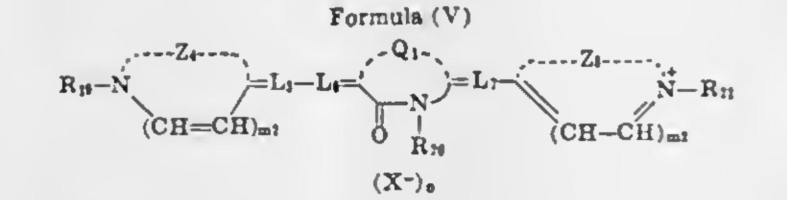
Formula (III)



Formula (IV)



Formula (V)



3,706,571

BLOOD SEPARATION PROCESS

Emmanuel J. Dufault, Pittsford, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed July 20, 1970, Ser. No. 56,428

Int. Cl. A23j *1/06;* **A23k** *1/04*

U.S. Cl. 99—21 **9 Claims**

A continuous process for coagulating and separating blood solids from a liquid. The liquid is passed under pressure through a vessel in which the liquid is heated by steam injection to a temperature above about 190° F. but below its boiling point. The heated liquid is retained under pressure in the vessel for at least five seconds and then is discharged through a pressure reducer to a separator wherein the coagulated blood solids are extracted from the liquid.

3,706,572

PROCESS FOR AGGREGATING PRELIGHTENED COFFEE COMPOSITIONS

William J. Einstman, Port Chester, and George B. Ponzoni, Spring Valley, N.Y., and Richard J. Leonard, Wayne, N.J., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Aug. 19, 1970, Ser. No. 65,344

Int. Cl. A23f *1/08*

U.S. Cl. 99—71 **5 Claims**

Prelightened, soluble coffee agglomerates are prepared by grinding powder comprising soluble coffee solids and coffee lightener solids to a particle size between about 90 microns and 150 microns and then agglomerating the ground powder. The coffee products produced in this manner have both a commercially acceptable appearance in glass jars and a good brew appearance in the cupped beverage.

3,706,573

FRIED RICE PRODUCT AND PROCESS FOR PRODUCING SAME

Raymond C. Tolson, Sr., Napa, and Raymond C. Tolson, Jr., Woodland, Calif., assignors to G.T. Products, Inc., Woodland, Calif.

No Drawing. Filed June 24, 1970, Ser. No. 49,507

Int. Cl. A23l *1/10, 1/18*

U.S. Cl. 99—80 R **5 Claims**

A fried rice food product is produced by feeding raw rice into a hot (350–420° F.) oil bath. The rice is fried therein for a period of from 5 to 20 seconds after which the rice is immediately removed from the hot oil bath and the excess oil adhering to the rice grains is drained therefrom while the rice cools to room temperature.

3,706,574

ROASTING OF SUBDIVIDED COFFEE BEANS

James P. Mahlmann, Wayne, N.J., and Joseph F. Coogan III, Tarrytown, and Gene Alfred Mazzaferro, Richmond Hill, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Mar. 18, 1970, Ser. No. 20,796

Int. Cl. A23f *1/02, 1/10*

U.S. Cl. 99—69 **4 Claims**

Blends of green coffee beans are subdivided to permit roasting by conventional means to produce flavors substantially the same as those of blends of whole roasted beans. The subdivided green beans may be decaffeinated prior to roasting.

3,706,575

LACTALBUMIN PHOSPHATE AS A REPLACEMENT FOR EGG WHITE

Sharon Ann Broadhead, nee Rulon, Rye, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 606,029, Dec. 30, 1966. This application Sept. 9, 1969, Ser. No. 856,476

Int. Cl. A23j *3/02*

U.S. Cl. 99—114 **29 Claims**

Undenatured lactalbumin phosphate has been found to be an effective low cost replacement for egg white in food compositions partially or totally. Particular compositions useful in food formulations include egg white and undenatured lactalbumin phosphate, sugar and lactalbumin phosphate and food formulations normally containing egg white in which all or a portion of the egg white has been replaced by lactalbumin phosphate.

3,706,576

PROCESS FOR PREPARING EDIBLE FAT COMPOSITIONS CONTAINING TRIGLYCERIDES DERIVED FROM C_{16}, C_{18}, C_{20}, AND C_{22} FATTY ACIDS

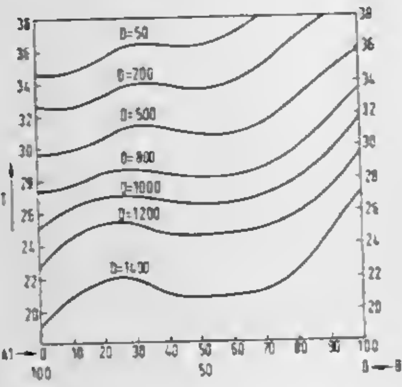
Brian Leonard Caverly, Meopham, and John Barry Rossell, St. Albans, England, assignors to Lever Brothers Company, New York, N.Y.

Continuation of abandoned application Ser. No. 775,728, Nov. 14, 1968. This application Aug. 9, 1971, Ser. No. 170,382

Claims priority, application Great Britain, Nov. 20, 1967, 52,780/67

Int. Cl. A23d *5/00*

U.S. Cl. 99—118 R **14 Claims**



An edible unrandomised fat blend prepared from hardened oils and containing from 10 to 50% of a component A whose triglycerides have a C_{16} and C_{18} acid content of at least 90%, of which from 10 to 45% is saturated acid, and from 50 to 90% of a component B whose triglycerides have a C_{20} and C_{22} acid content of from 30 to 75% and not more than 20% saturated acid, both components having a C_{18} monoethenoic radical in at least 85% of the glyceride 2-positions and a trans index of between 40 and 75, shows interaction of the components resulting in improvement of melting characteristics which make the blend suitable as a replacement for lauric fats.

3,706,577

SULFUR-CONTAINING FLAVORING COMPOSITIONS AND PROCESSES THEREFOR

Ira Katz, Elberon, William John Evers, Long Branch, and Christopher Giacino, Califon, N.J., assignors to International Flavors and Fragrances, Inc.

No Drawing. Filed Mar. 16, 1970, Ser. No. 20,148

Int. Cl. A23l *1/22, 1/26*

U.S. Cl. 99—140 R **14 Claims**

Foodstuff, flavor augmenting and flavor imparting compositions are provided containing a quantity of bis-(thienyl) sulfide sufficient to alter the organoleptic characteristics of said composition.

3,706,578

ALL-RAPESEED OIL SHORTENINGS

Patrick J. Bence, Hamilton, Ontario, Canada, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Sept. 30, 1970, Ser. No. 77,007

Int. Cl. A23d *5/00*

U.S. Cl. 99—118 R **8 Claims**

A stable rapeseed oil shortening based on a blend of separately hydrogenated hardstock and softstock. The hardstock has an iodine value within the range of 0 to 20, and the softstock has an iodine value of at least 85. Because the shortening is crystallized in the beta polymorphic phase, it is stable over a wide range of temperatures.

ERRATUM

For Class 106—178 see:
Patent No. 3,706,700

3,706,579

CERMET PROTECTIVE COATING

Harold J. Michael, Columbus, Ohio, assignor to North American Rockwell Corporation

No Drawing. Continuation-in-part of application Ser. No. 833,698, June 16, 1969. This application Sept. 4, 1970, Ser. No. 69,914

Int. Cl. C03c *5/00*

U.S. Cl. 106—1 **10 Claims**

A novel protective coating composition for application to metals by firing in an oxidizing environment at a temperature in the general range of 1250° F. to 1600° F., and essentially consisting of aluminum, a special mill addition having both refractory compound and reducible compound constituents, and a special homogeneous glass frit, obtains improved resistance of the metals to weathering and to corrosion by alkaline or acid solution attack under atmospheric conditions.

3,706,580

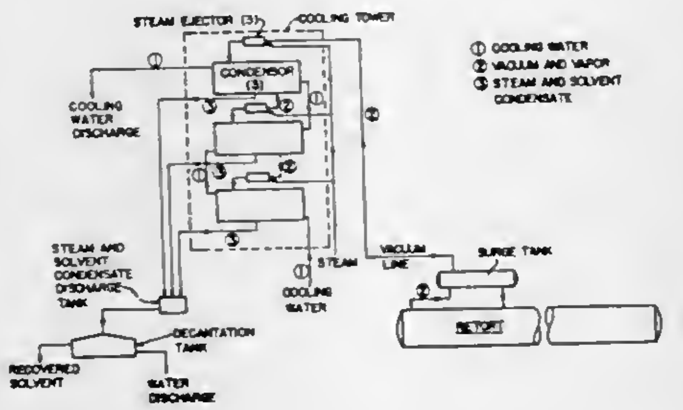
WOOD TREATING COMPOSITION

Charles D. Hudson, Seattle, Wash., assignor to Wyckoff Company, Seattle, Wash.

Filed May 25, 1970, Ser. No. 41,140

Int. Cl. B27k *3/40;* **C09d** *5/14*

U.S. Cl. 106—15 AF **2 Claims**



A wood preservative composition which substantially eliminates formation of pentachlorophenol crystals on the surface of the treated wood and results in increased paintability of the treated wood over compositions previously used consists of polypropylene glycol and a thermoplastic hydrocarbon resin derived from high temperature cracking of petroleum added to a solution of pentachlorophenol in a narrow boiling range mineral spirits solvent. Minor amounts of dioctylphthalate may be added which, along with the polypropylene glycol, prevent the formation of visible pentachlorophenol crystals on the surface of the treated product. Wood or other cellulosic materials are impregnated with the composition under pressure and the solvent carrier extracted and recovered from the wood before discharge of the wood from the treating chamber by a combination of heat and vacuum. The treated product, on removal from the treating chamber, is dry and clean to the touch with no "blooming" or formation of visible pentachlorophenol crystals on the surface of the wood.

3,706,581

SOIL GROUTING PROCESS AND COMPOSITION

Anthony James Whitworth, Scarborough, Ontario, Canada, William Arthur Lees, Chandlers Ford, England, and Stephen Yi-Sun Tung and Ernest Anthony Hajto, Scarborough, Ontario, Canada, assignors to The Borden Company, New York, N.Y.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,147

Int. Cl. E02d *3/12*

U.S. Cl. 61—36 **21 Claims**

A process for stabilizing soil comprises impregnation with an alkaline aqueous gel-forming composition consisting essentially of (a) a polyphenolic material such as a vegetable tannin extract and (b) a precalculated amount of a gelling agent dispersible in said composition and containing a complexing element selected from silicon, chromium^{VI}, vanadium and molybdenum. The method is surprisingly effective in the absence of formaldehyde and has the advantage of eliminating obnoxious fumes.

3,706,582

GLASS FRIT-CERAMIC POWDER COMPOSITION

Edward Meyer, Russell, Pa., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Sept. 20, 1968, Ser. No. 761,164

Int. Cl. C04b *33/00*

U.S. Cl. 106—39 R **1 Claim**

Disclosed are techniques for fabricating metal-ceramic articles wherein a hermetic seal is desired between the metal-ceramic jointure. The technique involves utilization of a powdered ceramic containing a binding material which is compressed in a mould around the metal part or parts to be incorporated therein. The green part so formed exhibits superior strength and the article is much easier to handle for subsequent firing. Also disclosed is a glass-ceramic powder composition ideally suited to this process, together with methods for treating the metal parts to insure a hermetic seal.

3,706,583

THERMAL SHOCK RESISTANT HAFNIA CERAMIC MATERIAL

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Lynn D. Lineback, 2612-B Noble Road, and Charles R. Manning, 4812 Connell Drive, both of Raleigh, N.C.

Filed Oct. 14, 1971, Ser. No. 189,375

Int. Cl. C04b *35/00*

U.S. Cl. 106—39 R **18 Claims**

Ceramic hafnia artefacts having high thermal shock resistance are provided by incorporating tungsten or molybdenum particles in a yttria-, magnesia-, or calcia-stabilized hafnia matrix. The mix is sintered by hot pressing to form the ceramic article which has a high fracture strength relative to its elastic modulus and thus has an improved thermal shock resistance. The hafnia is preferably stabilized to about 50 percent and the tungsten or molybdenum particles are preferably elongate, having a length/thickness ratio of at least 2/1. Tungsten or molybdenum wire pieces are suitable.

3,706,584

COMPOSITIONS USEFUL IN THE PRODUCTION OF PAPER PRODUCTS AND BASED UPON NOVEL STARCH DERIVATIVES

Richard W. Cescato, Chicago, Ill., assignor to CPC International Inc.

No Drawing. Original application Dec. 30, 1966, Ser. No. 608,720, now Patent No. 3,654,263, dated Apr. 4, 1972. Divided and this application May 25, 1970, Ser. No. 48,674

Int. Cl. C08b *27/02*

U.S. Cl. 106—214 **32 Claims**

Covers paper coating compositions and processes for making them, utilizing as a binder an oxidized cationic starch. The oxidized cationic starch is prepared by first reacting starch with a reagent that introduces a positive electric charge into the starch molecule, to a degree of substitution of from about 0.01 to about 0.1 with cationic-type substituents. This derivatized starch is then oxidized with a hypochlorite-type oxidizing agent, simultaneously to thin the starch molecule and to introduce carboxyl groups in sufficient quantity that the ratio of the percentage of the carboxyl groups by weight, dry basis, to the degree of substitution with the cationic-type substituent, is at least 1 to 1.

3,706,585

METHOD FOR PRODUCING PEARLESCENT BASIC LEAD CARBONATE

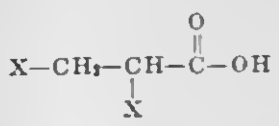
Frank J. Eckert, Morrisville, Pa., and David R. Meldrum, Englishtown, N.J., assignors to Cities Service Company, New York, N.Y.

Filed Oct. 22, 1970, Ser. No. 83,185

Int. Cl. C09c *1/14*

U.S. Cl. 106—291 **16 Claims**

A pearlescent pigment consisting of hexagonal crystalline platelets of basic lead carbonate is produced by bubbling a diluted stream of carbon dioxide gas into an aqueous solution of a basic lead salt which is derived from the reaction of lead monoxide with an acid. The acid that is reacted with the lead monoxide can be nitric acid, but more preferably will have the general formula:



$$X-CH_2-\underset{\displaystyle X}{\underset{|}{CH}}-\overset{\displaystyle O}{\overset{\|}{C}}-OH$$

wherein X is a member from the group consisting of hydrogen, methyl, and halogen. The carbon dioxide stream that is bubbled into the salt solution can be diluted with any suitable gas that is substantially nonreactive with the basic lead salt, e.g. air, nitrogen, or one of the inert gases, thus providing control over the rate and extent of crystal initiation and growth. The resulting basic lead carbonate pigment can be incorporated into plastics, lacquers and the like to provide articles having the appearance of natural pearl.

3,706,586

METHOD OF PRODUCING A PEARLESCENT BASIC LEND CARBONATE PIGMENT

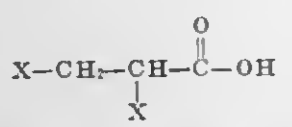
David R. Meldrum, Englishtown, N.J., and Frank J. Eckert, Morrisville, Pa., assignors to Cities Service Company, New York, N.Y.

Filed Dec. 11, 1970, Ser. No. 97,351

Int. Cl. C09c *1/00, 1/14*

U.S. Cl. 106—291 **14 Claims**

A pearlescent pigment consisting of hexagonal platelets of basic lead carbonate is produced by bubbling carbon dioxide gas into an aqueous solution of a basic lead salt which is derived from the reaction of lead monoxide with an acid. The acid that is reacted with the lead monoxide can be nitric acid, but more preferably will have the general formula:

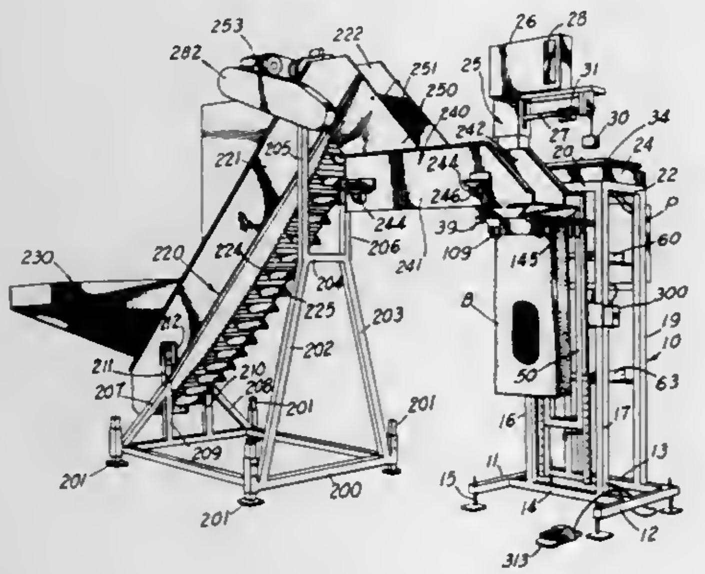


$$X{-}CH_2{-}\underset{X}{\underset{|}{CH}}{-}\overset{O}{\overset{\|}{C}}{-}OH$$

wherein X is a member from the group consisting of hydrogen, methyl and halogen. Reaction of the carbon dioxide with the basic lead salt is carried out in the presence of dimethylsulfoxide (DMSO) which is dissolved in the aqueous reaction medium, thus facilitating control over the rate and extent of crystal initiation and growth. The resulting basic lead carbonate pigment can be incorporated into plastics, lacquers, and the like to provide articles having the appearance of natural pearl.

3,706,587
AUTOMATIC FILLING AND WEIGHING APPARATUS

Nelson R. Henry, 583 Willivee Drive,
Decatur, Ga. 30033
Filed Dec. 24, 1970, Ser. No. 101,269
Int. Cl. G01g *13/02*
U.S. Cl. 177—1 **12 Claims**



Automatic filling and weighing mechanism having a weighing station with support for suspending a manually installed receptacle, such as a bag, in a fixed position, in combination with a conveyor and drive mechanism for driving the conveyor at two different prescribed speeds; namely, a relatively high bulk filling speed. One of the two weighing mechanisms determines when the receptacle is substantially filled with articles fed from the conveyor and the other weighing mechanism determines when the receptacle is completely filled to a prescribed weight. A control mechanism in combination with the first weighing mechanism causes a shifting of the conveyor from high speed to low speed. When the prescribed weight for the receptacle has been achieved a control, associated with the second weighing mechanism, automatically stops the conveyor. When the conveyor is stopped the bag is manually removed. A foot actuated control switch determines when the conveyor is again actuated.

ERRATUM

For Class 117—226 see:
Patent No. 3,706,695

3,706,588
METHOD OF FIXING ELECTROSTATICALLY PRODUCED IMAGES

Howard G. Shimola, Lakewood, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 18, 1971, Ser. No. 107,539
Int. Cl. C03g *13/20, 15/20*
U.S. Cl. 117—21 **1 Claim**

An electrostatically produced, toned image is fixed to the photoconductive surface by contact with fluid at elevated temperatures.

3,706,589
METHOD FOR TEMPORARILY PROTECTING THE SURFACES OF AN ARTICLE

Tadanori Fukuda and Masao Takahashi, Otsu-shi, Shoji Ogihara, Tokorozawa-shi, and Masato Sekiya, Tokyo, Japan, assignors to Toray Industries, Inc., Honda Motor Company, Ltd., and Fujijura Kasei Company, Ltd., all of Tokyo, Japan, fractional part interest to each
No Drawing. Filed June 15, 1970, Ser. No. 46,541
Claims priority, application Japan, June 19, 1969, 44/48,050, 44/48,051
Int. Cl. B44d *1/14*
U.S. Cl. 117—6 **4 Claims**

Surface protective compositions consisting essentially of a mixture of inorganic and/or organic powder and a dispersant-binder of wax and/or synthetic resin emulsion with water serving as the main solvent, and a method for temporary surface protection of articles wherein the above composition is applied onto the surface to be protected, and further water-insoluble plastic coating is formed thereon.

3,706,590
FUNCTIONAL SURFACE COATING COMPOSITIONS FOR CELLULOSIC MATERIAL

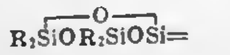
Ronald C. Moyer, North Kingstown, R.I., and Melville W. Uffner, Media, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
No Drawing. Original application Dec. 15, 1969, Ser. No. 885,314, now Patent No. 3,664,987, dated May 23, 1972. Divided and this application Jan. 31, 1972, Ser. No. 222,360
Int. Cl. B44d *1/02*
U.S. Cl. 117—111 B **8 Claims**

Functional surface coating compositions, prepared by blending a mixture of a fluorine-containing phosphate material and a non-fluorine-containing material in aqueous medium, impart solvent, grease and oil resistance to cellulosic materials.

3,706,591
METHOD FOR PREPARING ORGANOPOLYSILOXANE ELASTOMERS

Siegfried Nitzsche, Jurgen Burkhardt, and Karl-Heinrich Wegehaupt, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany
No Drawing. Original application Sept. 24, 1969, Ser. No. 860,788, now Patent No. 3,629,359. Divided and this application Nov. 9, 1970, Ser. No. 88,205
Claims priority, application Germany, Sept. 25, 1968, P 17 94 219.7
Int. Cl. C03c *17/30*
U.S. Cl. 117—124 F **6 Claims**

Linear, liquid organopolysiloxanes are vulcanized and cured to form elastomers employing polycyclicdiorganopolysiloxanes containing at least one group of the formula



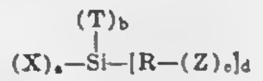
$$R_2\overbrace{SiOR_2SiOSi}^{O}{=}$$

where R is a monovalent hydrocarbyl or substituted hydrocarbyl radical and an acid catalyst. The silicone rubber so produced adheres firmly to siliceous substrates and may be used to form laminates of glass.

3,706,592
ADHESION PROMOTING AGENTS

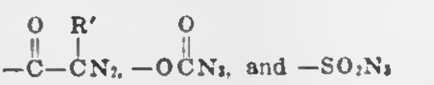
J. Brent Thomson, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Application Sept. 30, 1969, Ser. No. 862,531, which is a continuation-in-part of abandoned application Ser. No. 789,974, Dec. 31, 1968. Divided and this application July 30, 1971, Ser. No. 167,799
Int. Cl. C03c *25/02, 17/30;* **B32b** *17/04*
U.S. Cl. 117—72 **18 Claims**

Disclosed are nitrogen containing silane compounds of the formula



$$(X)_a{-}\overset{(T)_b}{\overset{|}{Si}}{-}[R{-}(Z)_c]_d$$

where R is an organic radical, X is selected from halo, hydroxy, alkoxy, aryloxy, organo oxycarbonyl, azido, amine, and amide radicals; T is selected from alkyl, cycloalkyl, aryl, alkaryl, and aralkyl radicals; *a* is an integer from 1 to 3; *b* is an integer from 0 to 2; *c* is an integer from 1 to 10; *d* is an integer from 1 to 3; and *a*+*b*+*d* equals 4; and Z is selected from



$$-O-\overset{O}{\overset{\|}{C}}-\overset{R'}{\overset{|}{C}}N_2,\ -O\overset{O}{\overset{\|}{C}}N_3,\ \text{and}\ -SO_2N_3$$

where R′ is selected from hydrogen, alkyl, cycloalkyl, aryl and —COOR″ radicals; where R″ is selected from alkyl, cycloalkyl, and aryl radicals. Also disclosed is a process to promote the adhesion of polymers to siliceous materials, metals, metal oxides, and other polymers using the said silane compounds. In particular, there is disclosed a process of improving the adhesion of tire cord to rubber tire stock using the said silane compounds. The cross-linking of polymers with the silane compounds is also disclosed.

3,706,593
IMAGE-RECEIVING MATERIAL FOR TRANSFER IMAGES

Shizuo Miyano, Keishiro Kido, Asaji Kondo, and Eiichi Mizuki, Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 9, 1969, Ser. No. 883,496
Claims priority, application Japan, Dec. 10, 1968, 43/90,349
Int. Cl. B44d *5/00*
U.S. Cl. 117—127 **11 Claims**

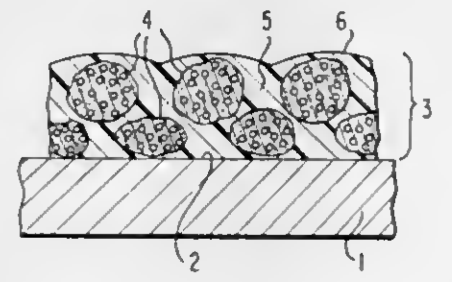


Image-receiving material for transfer images, more particularly, image-receiving material for printing or photographic transfer images, which is produced by applying microcapsules having walls of hydrophilic polymer film and containing transparent or semi-transparent particles to a support having a metallic gloss which reflects the light well.

3,706,594
FIBROUS SUBSTRATE TREATED WITH COPOLYMERS OF FLUOROALKYL ETHERS AND MALEIC ANHYDRIDE

William L. Wasley, Berkeley, and Allen G. Pittman, El Cerrito, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture
Filed Feb. 22, 1971, Ser. No. 117,777
Int. Cl. D06m *15/16*
U.S. Cl. 117—139.5 A **20 Claims**

Fluoroalkyl allyl (or methallyl) ethers are copolymerized with maleic anhydride. The copolymer products are useful for many purposes, including application to fibrous materials to provide both soil repellency and soil releasability.

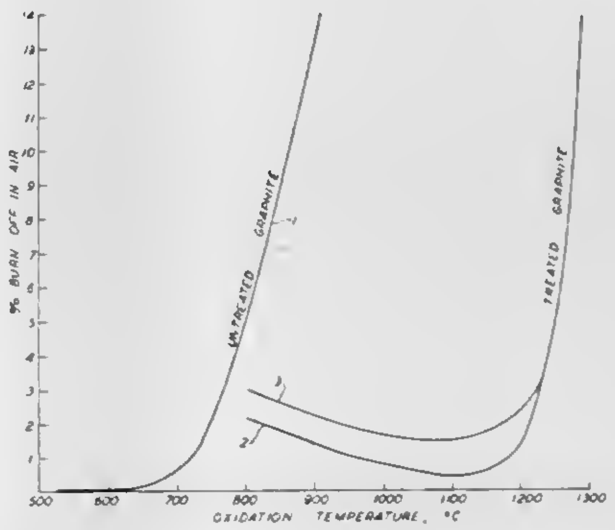
3,706,595
METHOD OF APPLYING A RESIN BINDER TO A SUBSTRATE

Arthur H. Drelich, Plainfield, and Bobby R. Bowman, East Brunswick, N.J., assignors to Johnson & Johnson
No Drawing. Filed Jan. 22, 1971, Ser. No. 109,026
Int. Cl. B44d *1/44;* **C08h** *19/00*
U.S. Cl. 117—38 **13 Claims**

Methods of controlling the migration of resin binders in the manufacture of bonded nonwoven fabrics from fibrous webs comprising the use of a resin binder composition comprising: (1) a synthetic resin; (2) a water soluble, polymeric, carboxylic thickener; and (3) a metal ammine, complex coordination compound capable of releasing ions of said metal to control the total migration of the resin binder during its deposition on the fibrous web.

3,706,596
PROCESS AND COMPOSITION FOR THE MANUFACTURE OF OXIDATION RESISTANT GRAPHITE ARTICLES

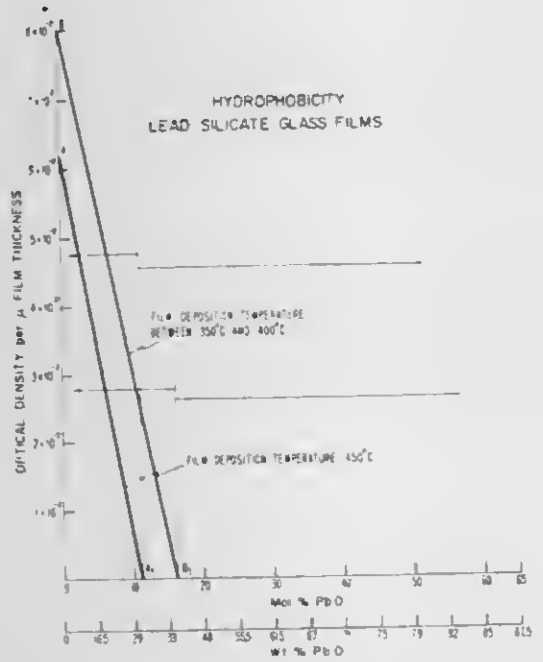
Rudolph W. Wallouch, Lewiston, N.Y., assignor to Airco, Inc., New York, N.Y.
Filed Dec. 24, 1970, Ser. No. 101,218
Int. Cl. B44d *1/02, 1/20*
U.S. Cl. 117—169 A **8 Claims**



Increased oxidation resistance properties are enabled in a graphite article by a process according to which the said article is impregnated with an aqueous colloidal dispersion of particulate silica and with a solution of methyl alcohol containing boric oxide and phosphorous pentoxide in the form of methyl borate and methyl phosphate esters. Following said impregnation the article is dried, and—where high temperature use (up to 1200° C.) is contemplated—fired to 1100° C. in an inert atmosphere. In addition to the process set forth, the graphite products resulting therefrom are claimed, as is the impregnant per se.

3,706,597
GLASS VAPOR DEPOSITION ON SURFACES OF SEMICONDUCTOR ELEMENTS

Pei-Ching Li, Hopewell Junction, and Paul J. Tsang, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 23, 1970, Ser. No. 91,639
Int. Cl. C23c *11/08*
U.S. Cl. 117—201 **6 Claims**



A process for vapor deposition of glass films on semiconductor materials which comprises heating the semiconductor material in an atmosphere mixture of organo silicon, organo lead, oxygen and nitrogen.

3,706,598
SOLID, GLASS-LIKE STARCH HYDROLYSATES HAVING HIGH DENSITIES

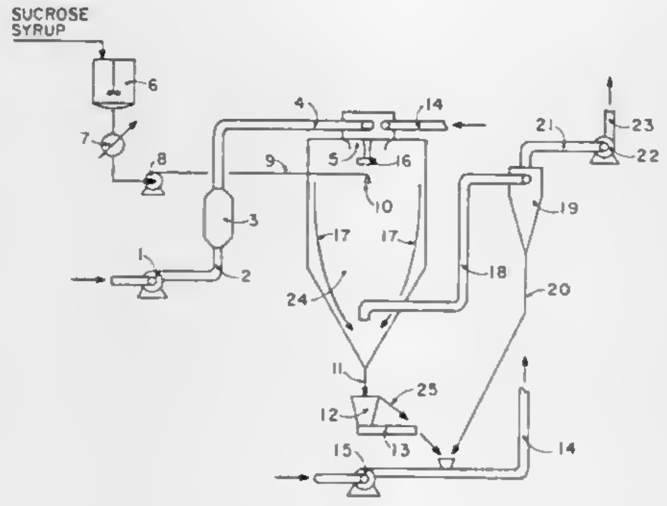
Peter K. Carrell, La Grange, Ill., assignor to CPC International Inc.
No Drawing. Filed July 15, 1970, Ser. No. 55,627
Int. Cl. C13l *1/08*
U.S. Cl. 127—29 **7 Claims**

Solid, glass-like starch hydrolysate products having a dextrose equivalent of from about 10 to about 25, a water content of less than 15% by weight and a bulk density of at least about 40 pounds per cubic foot are produced by concentrating a hydrolyzed starch conversion liquor, heating the liquor in a plate heat exchanger, superheating minute droplets of the liquor and cooling to solidification.

3,706,599
SUGAR DRYING METHOD

Edward T. Woodruff, Woodbine, Md., and Viggo S. Andersen, Hackettstown, N.J., assignors to W. R. Grace & Co., New York, N.Y.
Filed May 3, 1971, Ser. No. 139,664
Int. Cl. C13f *1/02*
U.S. Cl. 127—62 **10 Claims**

In a process for drying droplets of sucrose-containing solution in a current of heated air and in the presence of 0.5 to 4.0 parts by weight of separately introduced recycled product solids per part by weight of solids in said solution the improvement which comprises controlling the average particle size of the recycled product solids at about 200 microns or less and dispersing the recycled fine-sized solids at the outer periphery of the drying zone as an enveloping solids-bearing atmosphere around the solution droplets. Apparatus is disclosed for carrying out the process including a spray drying chamber, a centrally located liquid atomizer, drying air inlet and outlet conduits, solids product collection means, means for deagglomerating product solids, and means for recycling product solids to the drying chamber and introducing them tangentially as an enveloping curtain of solids adjacent the walls of the drying chamber.



3,706,600
STRIPPING OF COATED TITANIUM ELECTRODES FOR RE-COATING

Nicholas William James Pumphrey, and Keith Graham Moss, hoth of the Heath, Runcorn, Cheshire, England, assignors to Imperial Chemical Industries Limited, London, England
Filed June 18, 1971, Ser. No. 154,611
Claims priority, application Great Britain, June 26, 1970, 31,048/70
Int. Cl. C22b *11/00;* **C23g** *1/28*
U.S. Cl. 134—3 **10 Claims**

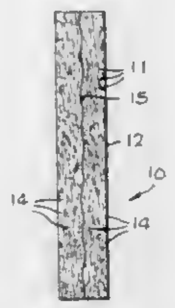
Stripping a coating comprising a platinum group metal oxide from a titanium support member of a coated titanium electrode ready for re-coating, by immersing the electrode in molten alkali metal hydroxide containing a small amount of alkali metal hydride, washing the treated electrode in water and then, preferably, dipping in hot dilute mineral acid.

3,706,601
METHOD OF PRODUCING AN ELECTRODE WITH A POLYMER BINDER BY ROLLING

Murray P. Strier, Niagara Falls, N.Y., and Joseph S. Smatko, Santa Barbara, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Jan. 28, 1970, Ser. No. 6,409
Int. Cl. H01m *35/02*
U.S. Cl. 136—20 **18 Claims**

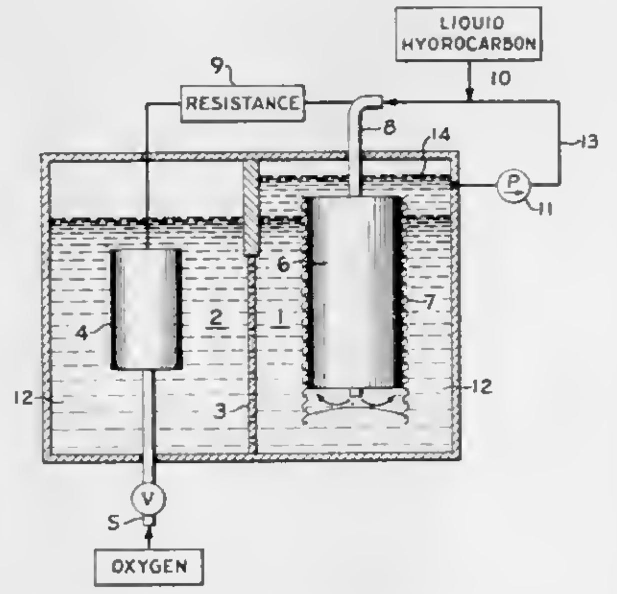
Method for producing a battery electrode, particularly a zinc electrode, of improved strength and stability, and which has a porous cellular structure, by mixing an aqueous dispersion of electrode material such as zinc oxide, with an aqueous

dispersion of a latex type polymer such as a fluorocarbon polymer, e.g., polytetrafluoroethylene, casting a film of such mixture, drying the film, sintering the dried film, and rolling such sintered film, to form a fibrous polymer structure binding the particles of electrode material. The resulting sintered and rolled film can be employed per se as an electrode, e.g., a zinc electrode, or such film can be ground and the ground particles then compacted to form an electrode.



3,706,602
FUEL CELL ELECTRODE STRUCTURE UTILIZING CAPILLARY ACTION

George T. Miller, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.
Continuation-in-part of application Ser. No. 673,202, Oct. 5, 1967. This application Dec. 18, 1969, Ser. No. 886,166
Int. Cl. H01m *21/04*
U.S. Cl. 136—120 FC **11 Claims**



A fuel electrode is provided by wrapping or pressing a hydrophobic, porous sheet of fiber or paper, upon which a catalyst is deposited, into contact with an electrically conductive base or support. In use, a liquid fuel, substantially insoluble in the electrolyte moves by capillary action or wicks between the electrode base and the hydrophobic, porous sheet of material to contact the catalyst at the electrolyte, catalyst, fuel interface, generating electrical current.

ERRATA

For Classes 136—175 and 136—178 see:
Patents Nos. 3,706,616 and 3,706,617

3,706,603
METAL COATINGS COMPRISING HEXAVALENT CHROMIUM, TRIVALENT CHROMIUM, SILICA OR A SILICATE AND AN ALKALI METAL CATION

Clifford A. Vessey, Harrogate, Colin Albon, Knaresborough, and Kenneth Holker, Harrogate, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, England
No Drawing. Continuation-in-part of abandoned application Ser. No. 731,714, May 24, 1968. This application Apr. 12, 1971, Ser. No. 133,409
Claims priority, application Great Britain, June 14, 1967, 27,489/67; Nov. 27, 1967, 53,816/67
Int. Cl. C23f *7/26, 11/04;* **H01b** *3/02*
U.S. Cl. 148—6.2 **18 Claims**

The invention provides an aqueous composition for providing metals with electrical and/or corrosion resistance having a pH of 2.0 to 4.0 and dissolved or uniformly dispersed therein: (a) a hexavalent chromium compound; (b) a trivalent chromium compound; (c) a soluble or insoluble colloidally dispersable silica and/or silicate in a total amount of at least 0.5 grams per 100 ml. of the composition; and (d) an alkali metal cation, the weight ratio of hexavalent chromium to total chromium (each determined on a CrO_3 basis) being between 0.5:1 and 0.75:1, the total chromium content being at least 0.5 g. chromium (calculated as CrO_3) per 100 ml. of the composition, and the weight ratio of hexavalent chromium (calculated as CrO_3) to alkali metal (calculated as the hydroxide) being between 5:1 and 100:1, the said aqueous composition being free from reducing agents for hexalent chromium. The invention also provides a method for preparing cured coatings on metal by applying said aqueous composition to a metal surface and curing thereon.

3,706,604
PROCESS FOR THE COATING OF METAL

Elmer H. Plaxton, Bloomfield Hills, Mich., assignor to Oxy Metal Finishing Corporation, Warren, Ohio
No Drawing. Continuation-in-part of application Ser. No. 789,005, Dec. 31, 1968, which is a continuation-in-part of applications Ser. No. 378,946, June 29, 1964, and Ser. No. 378,982, June 29, 1964. This application Jan. 20, 1971, Ser. No. 108,200
Int. Cl. C23f *7/10, 7/14, 7/18*
U.S. Cl. 148—6.16 **8 Claims**

An improved process for coating metal wherein a phosphate or oxalate conversion coating composition is applied to an aluminum, zinc or ferrous metal surface to form a substantially dry, uniform phosphate or oxalate conversion coating, a portion of which is water-soluble. An organic containing reducing and/or esterifying fixing or immobilizing coating composition containing hexavalent chromium is then applied which reacts out the water-soluble portion of the conversion coating to produce water-insoluble phosphate or oxalates and form a substantially dry, uniform composite coating. This process eliminates the need for rinsing procedures.

3,706,605
SUPERPLASTIC LEAD ALLOYS

Dale E. Newbury, Shamokin, and Raymond David Prengaman, Coraopolis, Pa., assignors to St. Joe Minerals Corporation, New York, N.Y.
No Drawing. Filed Oct. 5, 1970, Ser. No. 78,177
Int. Cl. C22c *11/00, 11/02;* **C22f** *1/12*
U.S. Cl. 148—11.5 R **9 Claims**

Superplastic lead alloys can be prepared by casting an age hardenable lead alloy; fully age hardening the casting; and thereafter severely working or deforming the fully age hardened casting by extruding it at a low exit surface temperature of from about 120° F. to about 250° F.

3,706,606

THERMOMECHANICAL TREATMENT PROCESS FOR HEAT TREATABLE ALUMINIUM ALLOYS

Ettore Di Russo, and Mario Conserva, both of Novara, Italy, assignors to Societa per L'Esercizio dell 'Istituto Sperimentale del Metalli Leggeri S.p.A, Milan, Italy

Filed April 14, 1970, Ser. No. 28,514

Claims priority, application Italy, Feb. 10, 1970, 20,399 A/70

Int. Cl. C22f *1/04*

U.S. Cl. 148—12.7 3 Claims

Heat treatable aluminum alloys of increased mechanical strength are produced by submitting the alloy to a solution and quenching treatment followed by a combination of plastic deformations and precipitation hardening, including a first aging treatment at a temperature not higher than 200°C, a plastic deformation and then a further aging at a temperature not lower than the first, the combination for deformations and hardenings being a cycle repeatable on the alloy.

3,706,607

CHEMICAL FOAMING OF WATER-BEARING EXPLOSIVES

Joseph D. Chrisp, Hagerstown, Md., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 21, 1971, Ser. No. 108,646

Int. Cl. C06b *19/00;* C06d *5/00*

U.S. Cl. 149—2 20 Claims

Making foamed semisolid colloidal dispersions of water-bearing blasting agents containing an inorganic oxidizing salt, e.g., ammonium nitrate, fuel, water, and separately incorporating into the mix each component of a two-component foaming agent composition comprising (a) a hydrazine or derivative thereof, and (b) an oxidizing agent that aids in decomposing said hydrazine(s).

3,706,608

COMBUSTION TAILORING OF SOLID PROPELLANTS BY OXIDIZER ENCASEMENT

Robert L. Geisler, Lancaster, Calif., assignor to the United States of America as represented by the Secretary of the Air Force

Filed March 24, 1970, Ser. No. 24,894

Int. Cl. C06b *19/02*

U.S. Cl. 149—6 3 Claims

Solid rocket fuel particles such as aluminum, beryllium, magnesium, or boron are encased in an oxidizer by crystallizing the oxidizer onto the fuel particles. Encasement of the fuel particles before binding with a binder matrix enhances the combustion efficiency of the propellant.

3,706,609

TNT COMPOSITION CONTAINING A CELLULOSIC RESIN WHICH IS FREE FROM OILY EXUDATION UPON STORAGE

H. William Voigt, Jr., Stanhope, N.J.; Lawrence W. Pell, West Orange, N.J., and Jean P. Picard, Morristown, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed Dec. 29, 1970, Ser. No. 102,541

Int. Cl. C06b *9/04*

U.S. Cl. 149—18 7 Claims

A castable high explosive composition of the 2, 4, 6-trinitrotoluene (TNT) variety containing a cellulosic resin having a thermoplastic nature.

A method of incorporating a thermoplastic resin of the cellulosic variety into a castable high explosive composition containing TNT by initially coating such cellulosic resin on the surface of a finely divided solid explosive and then uniformly dispersing the latter throughout the castable composition.

3,706,610

COMPOSITE POLYSULFIDE PROPELLANT CURED WITH A MONOFUNCTIONAL MERCAPTAN

Harry R. Ferguson, Morrisville, Pa., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Nov. 7, 1962, Ser. No. 236,171

Int. Cl. C06d *5/06*

U.S. Cl. 149—19 10 Claims

Solid composite propellants based on cured polysulfide polymers are improved in elasticity and resistance to mechanical shock by using a monofunctional mercaptan as the curing agent. The curing step is conducted in a mold of the desired shape.

3,706,611

METHOD OF MAKING PYROTECHNIC COMPOSITION CONTAINING A POLYSULPHIDE POLYMER

Garth W. Hastings, Caringbah, New South Wales, Australia, assignor to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

No Drawing. Filed Aug. 26, 1965, Ser. No. 482,945

Int. Cl. C06b *15/00*

U.S. Cl. 149—44 5 Claims

1. The process of producing a plastic pyrotechnic composition made up of a polysulphide liquid polymer, a rubber-forming agent, a light-producing metal powder, an inorganic oxidising agent and a colouring agent which comprises the steps of:

(a) mixing said light-producing powder with said liquid polymer in a sealed mixer heated to 100° C. under a very low pressure,
(b) stirring the mixture until adequate wetting is obtained,
(c) mixing in two-thirds of the oxidising and colouring agents,
d) stirring the mixture until adequate wetting is again obtained,
(e) mixing in the remainder of the oxidising and colouring agents premixed with said rubber-forming agent,
(f) stirring until mixing is complete.

3,706,612

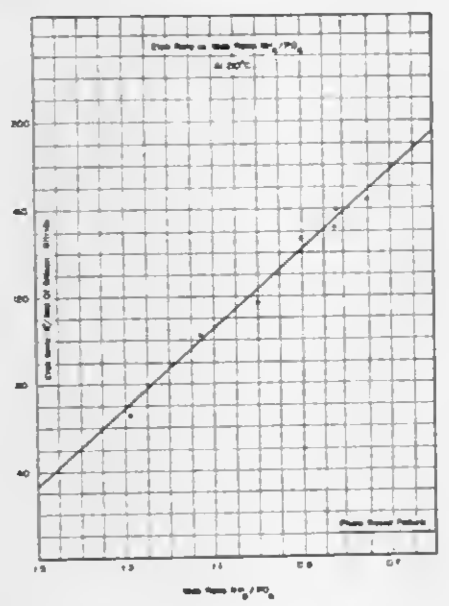
PROCESS FOR ETCHING SILICON NITRIDE

Myron D. Palmer, Pleasant Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 16, 1968, Ser. No. 745,292

Int. Cl. H01l *7/50*

U.S. Cl. 156—17 9 Claims



A process for etching silicon nitride which comprises contacting a silicon nitride substrate with fused ammonium hydrogen phosphate at a temperature in the range of about 190° C. to 235° C. The preferred mole ratio of NH_4 to PO_4 is 0.8 to 1.5. The process finds particular applicability in etching a silicon nitride substrate which has been masked with a photo-resist.

3,706,613

METHOD FOR PRODUCING COMPOSITE SHEETS COMPOSED OF POLYMERIC FIBERS AND ELASTIC MATERIAL

Masamichi Toki, Otsu-shi, Toyohiko Hikota, Kyoto-shi, and Miyoshi Okamoto, Otsu-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Jan. 13, 1969, Ser. No. 790,808

Claims priority, application Japan, Jan. 13, 1968, 43/1,698

Int. Cl. B29c *27/00*

U.S. Cl. 156—85 38 Claims

A composite sheet substance having the similar appearance and physical properties to the genuine leather is manufactured by means of using fibrous material composed of a plurality of fine fibers or filament and an elastic polymer surrounding the fine fibers. A bonded fibrous material composed of fibrous component (A component) containing a plurality of fine fibers or filaments and another component of bonding agent (B component) bound the above-mentioned fine fibers or filaments in a bundle. Further a sheet composed of the bonded fibrous material is made. The A component has different dissolving property by solvent from the B component. Next the above-mentioned sheet is involved with a polymer (C component) having a different solvent dissolving property from the A and B components. The B component is taken out from the product of the involving treatment by means of dissolving into a solvent having particular ability for dissolving the B component only. Next a substance mainly composed of an elastic polymer (D component) is impregnated into the sheet after taking out the B component, further the C component is taken out from the sheet by means of dissolving into a solvent having particular ability for only dissolving the C component after the abovementioned impregnating treatment, and finally the composite sheet substance of the purpose is produced. In the abovementioned manufacturing steps, the similar results can be obtained by applying the different combination of the steps to the genuine leather, in other words the operating order of the taking out operation of the B component and the impregnation operation of the elastic polymer (D component) can be changed.

3,706,614

FABRICATION OF COMPOSITE MATERIAL BY UNITING THIN FIBER COATED POLYMERIZABLE PLASTIC SHEETS

Milton E. Kirkpatrick, Palos Verdes Peninsula; Jo L. Reger, Los Angeles, and Karl P. Staudhammer, Gardena, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed March 21, 1968, Ser. No. 714,901

Int. Cl. B32b *31/12*

U.S. Cl. 156—151 1 Claim

Micron-size elongated particles or fibers of high strength material are dielectrophoretically deposited on a thin substrate or low strength material so that the fibers are aligned parallel to each other in a layer of micron-size thickness. A multiplicity of such fiber coated substrates are laminated bonding to form an integral structure.

3,706,615

COMPOSITE TUBE AND A METHOD OF PRODUCING THE SAME USING THE FILAMENT WINDING PROCESS

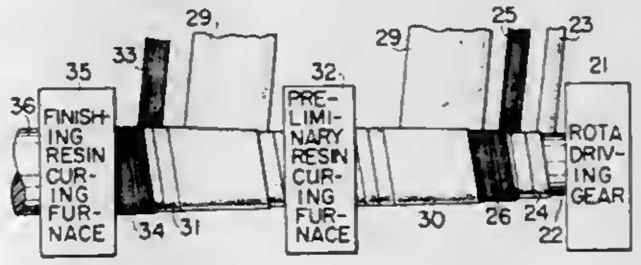
Shigeru Nishiyama, Suita, Hiroshi Kusano, Ashiya, Yoshiro Nagai, Osaka, and Satoshi Miura, Nishinomiya, Japan, assignors to Kubota Iron & Machinery Works, Ltd., Osaka, Japan

Filed Feb. 27, 1970, Ser. No. 15,114

Claims priority, application Japan, June 4, 1969, 44/44,251, 44/44,252, 44/44,253

Int. Cl. F16r *9/08;* B65b *81/00*

U.S. Cl. 156—169 11 Claims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FINISHING RESIN CURING FURNACE
PRELIMINARY RESIN CURING FURNACE
ROTA DRIVING GEAR
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A method of producing a filament-wound composite tube, which comprises winding glass fiber threads impregnated with a thermosetting resin on the outer surface of a mandrel, forming a sheet material comprised of paper or cloth or the like having a coating thereon of a thermosetting resin or a mixture of a thermosetting resin and additives such as sand, successively winding the resulting sheet material onto the outer surface of the wound glass fiber threads to thereby form a number of layers of sheet material, and winding an outer layer of glass fiber threads impregnated with a thermosetting resin onto the exterior surface of the intermediate sheet material is disclosed. A composite tube produced by the filament-winding process comprising inner and outer layers of glass fiber threads impregnated with a thermosetting resin, and then an intermediate layer comprised of the sheet material which is in turn comprised of paper or cloth or the like having a coating thereon of a thermosetting resin or a mixture of a thermosetting resin and additives such as sand, is also disclosed.

3,706,616

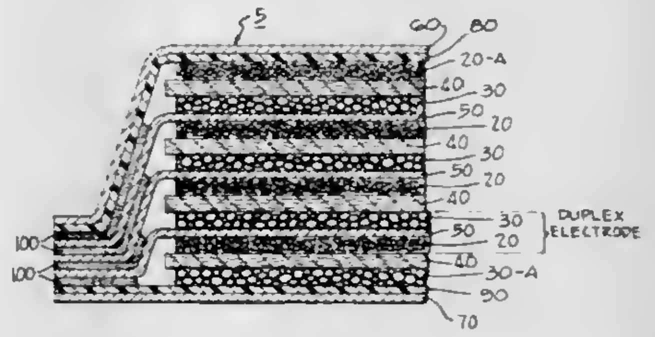
DUPLEX ELECTRODE CONSTRUCTION USING CONTINUOUS METAL CARRIER STRIP HAVING AT LEAST ONE NONREACTIVE METAL SIDE

Bernard C. Bergum, Monona, and John A. Youngquist, Madison, both of Wis., assignors to ESB Incorporated

Filed Dec. 21, 1970, Ser. No. 100,237

Int. Cl. H01m *31/00*

U.S. Cl. 136—175 10 Claims



Duplex electrodes are constructed by placing intermittent deposits of positive and negative electrodes on opposite sides of a continuous metal carrier strip having two nonreactive metal sides. In another embodiment, duplex electrodes are constructed by placing intermittent deposits of positive electrodes on the only nonreactive side of the bimetal carrier strip, with the reactive side of the bimetal strip functioning as the negative electrode in the duplex electrode. The duplex electrodes are assembled into multicell batteries. The assembly preferably occurs while the duplex electrodes are structurally and electrically connected by the continuous metal carrier strip; the carrier strip is then subsequently cut between duplex electrodes to obtain structurally and electrically unconnected batteries. Alternatively, the carrier strip may be cut between duplex electrodes before those electrodes are assembled into multicell batteries.

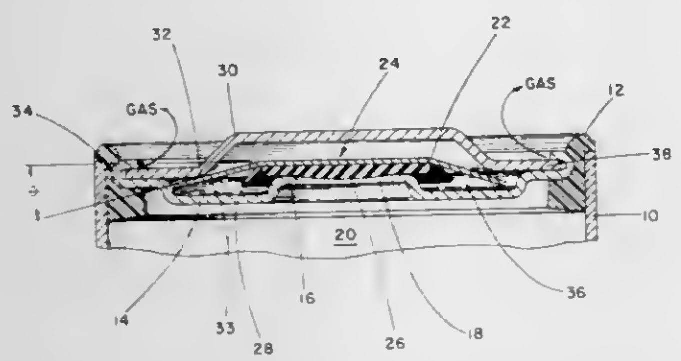
The metal carrier strip may comprise: (1) a unimetal which is nonreactive to the positive and negative electrodes and to the electrolyte within the battery; (2) a bimetal in which the metal adjacent the positive electrode is nonreactive with respect to that electrode and the metal adjacent the negative electrode is nonreactive with respect to that electrode; (3) a trimetal whose outer two layers are nonreactive as in (2); and, (4) a bimetal or trimetal in which the metal adjacent the positive electrode is nonreactive with respect to that electrode and in which the other metal functions as the negative electrode in the battery. The particular metals employed will depend upon the electrochemical system used in the battery.

3,706,617

RESEALABLE SAFETY VALVE

Robert E. Stark, Littleton, and Toshio Uba, Denver, both of Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed Nov. 23, 1970, Ser. No. 92,100
Int. Cl. H01m *1/06*
U.S. Cl. 136—178 **11 Claims**



An integral low profile cell closure equipped with resealable safety valve means is disclosed having a cover, an apertured seat centrally enclosed within the cover, elongated resilient sealing means bearing on the seat, and a top cover bearing on the resilient means at a position outwardly spaced from the bearing positions formed with the seat. The cover and top cover are secured together at their respective marginal portions, effected by crimping the cover around the top cover, for instance, to provide a large cross-sectional escape path for gas released through the valve.

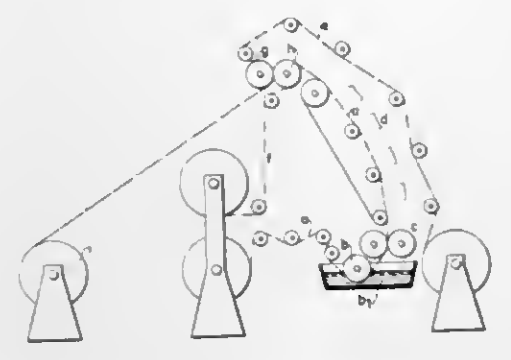
3,706,618

METHOD OF MANUFACTURING A FABRIC-LIKE MATERIAL

Leif Ramon Persson, Solbacken, Billingsfors, Sweden, assignor to AB Billingsfors-Langed, Billingsfors, Sweden

Filed Feb. 2, 1968, Ser. No. 702,699
Claims priority, application Sweden, Feb. 16, 1967, 2,146/67
Int. Cl. B32b *29/02*
U.S. Cl. 156—179 **6 Claims**

Fabric-like materials are made by impregnating fibrous material, such as a non-woven fabric or tissue paper, with an adhesive plastic elastomer in an aqueous dispersion. The water in the dispersion is removed, and at least one side of the resulting layer is covered with stretchable tissue paper.



3,706,619

METHOD OF BONDING WOOD AND OTHER MATERIALS WITH RAPID-CURING ADHESIVES USING A PRIMER COMPOSITION

Harlan G. Freeman, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Filed May 5, 1969, Ser. No. 822,009
Int. Cl. C09j *5/04*
U.S. Cl. 156—315 **6 Claims**

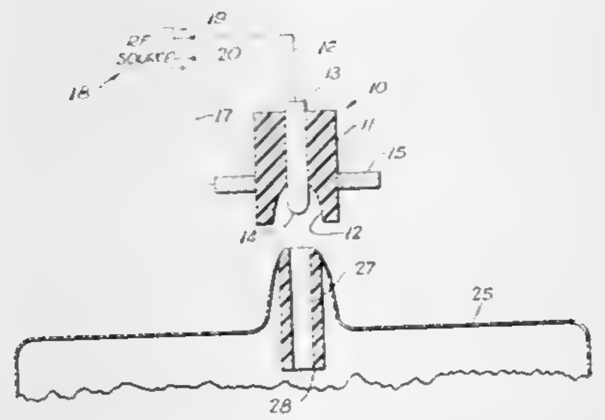
Wood and wood products are adhesively bonded together or to other materials using adhesives which cure at ambient temperature. To obtain good bond strength the surfaces to be bonded are first coated with a relatively dilute resinous primer, the primer being a phenol-resorcinol-formaldehyde resin or an epoxidized phenolic Novolac. The primers are dispersed or dissolved in a suitable carrier vehicle such as water or, in the case of the epoxide, an organic solvent. Room temperature setting adhesives based on resorcinol or amine-modified condensation resins are spread over one or both of the primed surfaces and the surfaces brought together to form a glue line therebetween.

3,706,620

METHOD AND APPARATUS FOR FORMING THE END OF A PLASTIC TUBE AND SEALING THE TUBE WITHIN A FLEXIBLE CONTAINER

Edward G. Dykstra, East Aurora, N.Y., assignor to Ethylox Products, Inc.,, Buffalo, N.Y.

Filed March 13, 1970, Ser. No. 19,224
Int. Cl. B29c *27/04*
U.S. Cl. 156—221 **3 Claims**



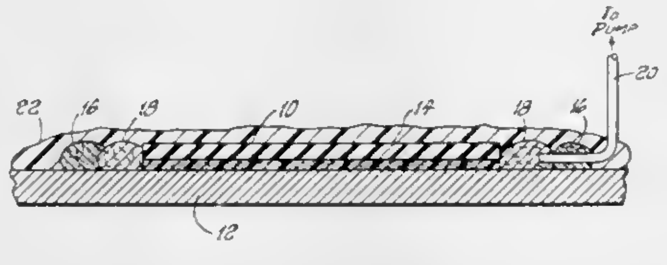
Apparatus for joining the end of a hollow, elongated plastic member to a plastic sheet member and jointly molding the same including a molding member of dielectric material, preferably Teflon, having a rounded cavity in a surface thereof. A first, mandrel-shaped electrode is supported in the molding member and extends into the cavity. A second, outer electrode encircles the molding member and cavity. The plastic members are positioned so that the end to be formed is in the cavity, in contact with the wall thereof, and a high frequency electric current, in the range of about 25–27 megacycles, is passed through the molding member and plastic members whereupon the members are jointly formed into a rounded tip.

3,706,621

VACUUM PROCESS FOR APPLICATION OF SHEET COATINGS

Joseph Z. Lichtman, Brooklyn, N.Y., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 7, 1970, Ser. No. 1,085
Int. Cl. B29c *17/00*
U.S. Cl. 156—285 **5 Claims**



A process for applying erosion resistant coverings to surfaces of structures exposed to cavitation comprising the following steps:

1. Pretreating a surface of the covering material which is in the form of a thin sheet, to improve its adhering properties;
2. Pretreating the surface of the material to be protected (substrate) to improve its adhering properties;
3. Heating the surface of the substrate;
4. Coating said cleaned surfaces with an adhesive of the epoxy-resin-type;
5. Applying the coated surface of the covering to the coated surface of the substrate;
6. Maintaining, preferably by evacuation, close contact between the covering, adhesive and substrate while the adhesive cures.

3,706,622

METHOD OF ADHERING URETHANE FOAMS

Donald J. Rush, Grandview, Mo., assignor to Butler Manufacturing Company, Kansas City, Mo.

Filed Jan. 22, 1970, Ser. No. 5,134
Int. Cl. C09j *7/00*
U.S. Cl. 156—306 **3 Claims**

A method of adhering rigid urethane foam to itself and to various substrates, such as paper and metal, by means of carefully controlling heat and pressure. The polyurethane foams capable of adhesion are those which allow a post cure at elevated temperature subsequent to their original formation.

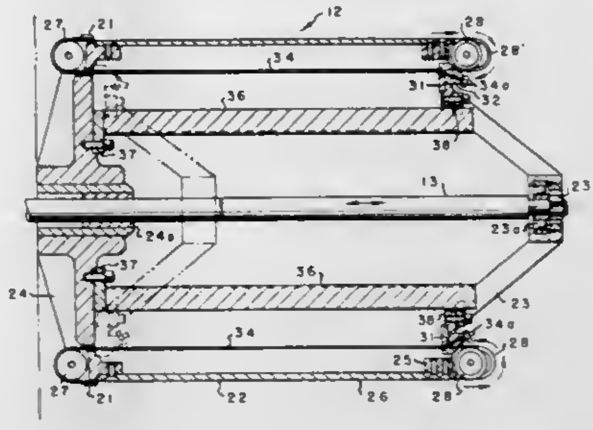
3,706,623

AUTOMATIC BELT DOFFER

Norman E. Klein, Inman, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Sept. 4, 1969, Ser. No. 855,220
Int. Cl. B29h *17/14, 17/16*
U.S. Cl. 156—394 **5 Claims**

A method for removing an endless belt from a surface which comprises moving a forward portion of the surface which is in contact with the endless belt in a direction toward the axis of the surface, peeling the forward portion of the surface from the belt and advancing the endless belt off the end of the surface. Also, apparatus for removing an endless belt from a drum.

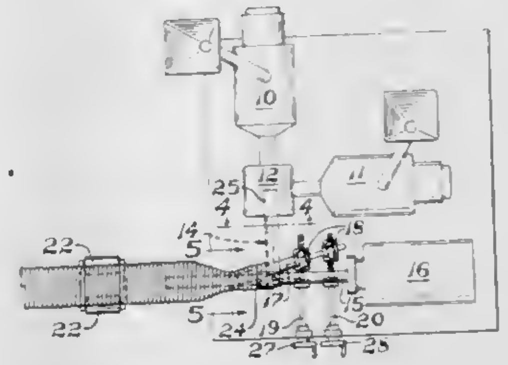


3,706,624

APPARATUS FOR MAKING PLASTIC HOSE

William R. Rinker, Cuyahoga Falls, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.

Filed Jan. 21, 1969, Ser. No. 792,496
Int. Cl. B29d *27/00*
U.S. Cl. 156—432 **14 Claims**



An apparatus for making continuous reinforced plastic hose by extruding a ribbon of heated plastic, with portions having compositions of different stiffness, winding the ribbon in a continuous helix over two spaced rotating mandrels, and uniting adjacent pitches of the helix during the winding to form a continuous tube. In one embodiment, The mandrels are mutually skewed with one mandrel being power-rotated and the other free to rotate. In that embodiment, the hose is axially advanced by the axial component of rotation of the skewed mandrels. Another embodiment provides for winding of the ribbon over parallel mandrels with the free mandrel having longitudinally sequentially reciprocating slats to axially advance the tubing.

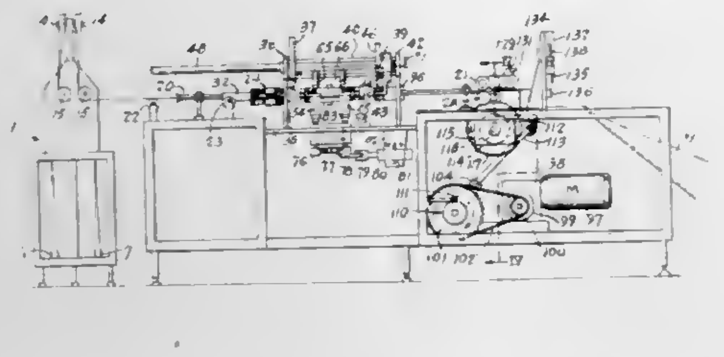
3,706,625

MACHINE FOR FABRICATING BAG HANDLES

Elwyn David Jones, Beloeil, and Edward Kenneth Rowley, Beloeil Station, both of Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada

Filed Feb. 11, 1971, Ser. No. 114,535
Claims priority, application Canada, Oct. 7, 1970, 095086
Int. Cl. B31b *1/14;* **B32b** *31/18;* **B29c** *27/02*
U.S. Cl. 156—517 **6 Claims**

A machine for attaching handles to components of carrying bags. The machine forms loop handles from a length of heat-sealable strip and heat-seals the ends of the handle loop to a rectilinear heat-sealable strip. The handle assembly so formed



is available for heat-sealing to the open edge of a carrying bag. The rectilinear strip serves to attach the handle to the bag and to strengthen the open end of the bag.

3,706,626

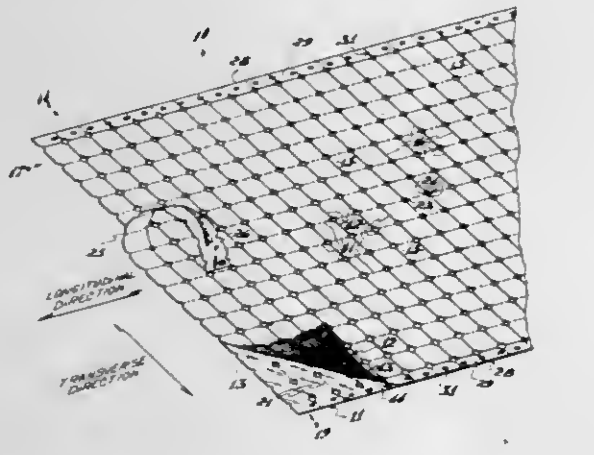
PRESSURE SENSITIVE LABELS

Thomas M. Smith and Walter D. Gregory, Dayton, Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Continuation of abandoned application Ser. No. 60,013, July 31, 1970. This application June 29, 1971, Ser. No. 157,913

Int. Cl. B32b *7/06, 3/16;* **C09j** *7/02*

U.S. Cl. 161—37 **12 Claims**



A sheet of pressure sensitive labels adapted for use in a machine that is computer operated to print prices and other desired information on the individual labels of the sheet. The sheet of labels is backed by a stratum of glassine backing material and, with the exception of the two side edges of the sheet, the labels completely cover the backing. The labels are arranged in longitudinal and transverse rows with each label in juxtaposition to those labels at its sides and at its ends. Further, the labels in transverse rows are completely severed from the labels of adjacent transverse rows by lines of slitting. The backing is partially severed by lines of perforations along the same transverse line beneath the slitting. On the other hand, the labels of the longitudinal rows are only partially severed, as by lines of perforations from those labels at their sides, and the backing is not severed at all along these longitudinal lines of partial label separation. As a result, transverse strips of labels with backing thereon can be torn easily from the sheet, after pricing information has been printed thereon, for application of the individual labels to merchandise as the backing is stripped from the labels of the transverse strip.

3,706,627

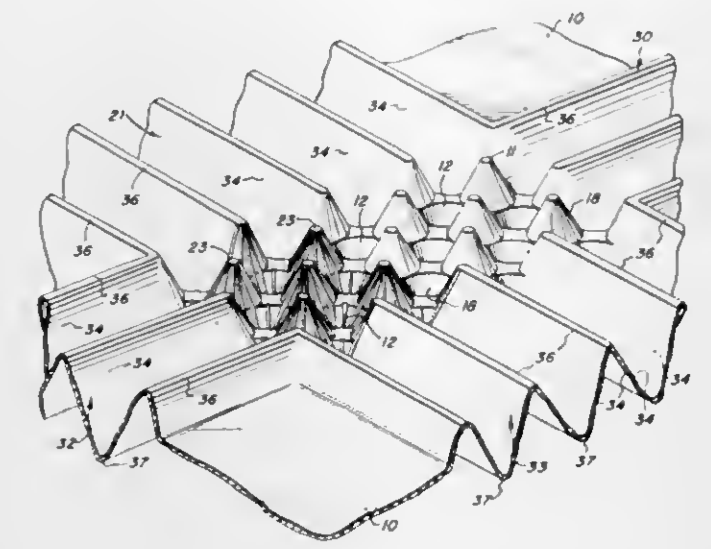
STRESS ORIENTED CORRUGATIONS

Christian Arne, Chicago, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed June 7, 1971, Ser. No. 150,568

Int. Cl. B32b *1/00, 3/28*

U.S. Cl. 161—131 **6 Claims**



A sheet having a center section of alternating depending and extending frusto-conical elements and one-way corrugations extending away from said center section to the edges of the sheet.

3,706,628

EXTRUDED FLEXIBLE SEALING STRIP

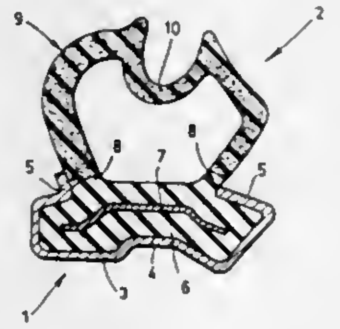
Roberto Azzola, Turin, Italy, assignor to Salag S.p.A. Industria Articoli Gomma, Cirie, Turin, Italy

Filed Dec. 29, 1970, Ser. No. 102,314

Claims priority, application Italy, Jan. 14, 1970, 67,092/70; Nov. 26, 1970, 70,958/70

Int. Cl. B32b *3/26, 5/18*

U.S. Cl. 161—159 **15 Claims**



A flexible sealing strip comprising extrusion-bonded sealing and anchoring sections of cellular rubber and solid rubber, respectively, includes a reinforcing strip of stamped sheet metal embedded in the anchoring section; the reinforcing strip consists of a series of transversely extending, alternately wide and narrow bars forming therebetween alternately wide and narrow gaps, the bars being interconnected by pairs of oppositely obliquely directed bridging pieces the roots of which on the wide bars are closer to the longitudinal axis of the reinforcing strip than the roots on the narrow bars.

3,706,629

DRAINAGE IMPROVEMENT IN PAPER PULP SUSPENSIONS CONTAINING LIGNIN RESIDUES

Edgar E. Moore, Midland, and William A. Foster, Mapleton, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 23, 1970, Ser. No. 57,782

Int. Cl. D21h *3/38, 3/18, 3/16*

U.S. Cl. 162—168 **13 Claims**

Drainage is improved in a cellulosic pulp suspension containing soluble lignin residues by the addition to the suspension of a high molecular weight water-soluble anionic polymeric polyelectrolyte and alum in a quantity greater than that normally used.

3,706,630

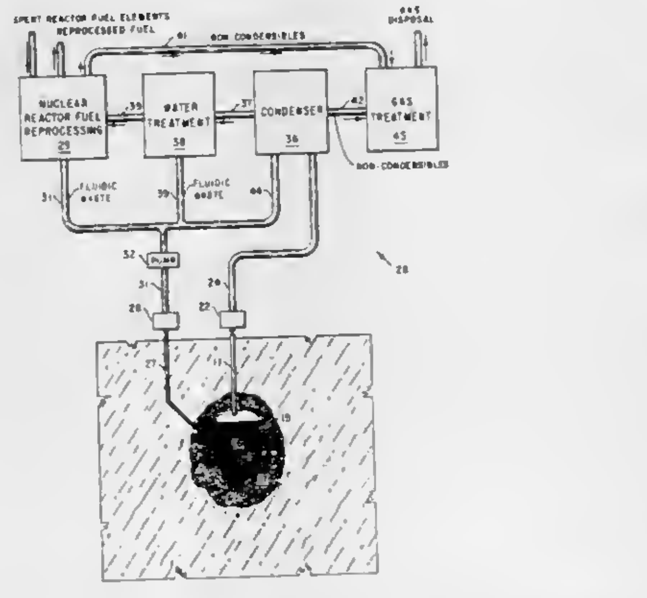
NUCLEAR CHIMNEY RADIOACTIVE WASTE DISPOSAL

Jerry J. Cohen, Livermore, and Arthur E. Lewis, Los Altos, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed May 12, 1971, Ser. No. 142,715

Int. Cl. G21f *9/24*

U.S. Cl. 176—87 **11 Claims**



Aqueous fluidic forms of radioactive wastes are introduced into lower portions of a nuclear chimney wherein water is vaporized therefrom by radioactive decay heat and concentrated wastes are accumulated therein. High level wastes, low level wastes including particulates filtered from the steam and portions of the condensed steam serving as a coolant are introduced over an extended period of time in amounts proportioned to maintain chimney contents at a low temperature level. When sufficient wastes have accumulated input of coolant and radioactive waste is terminated and the cavity may be sealed after vapor output terminates. Radioactive heat output then is employed to melt the chimney contents and rock adjacent to the chimney portions so as to incorporate the radioactive materials into the molten rock. After radioactive heat output diminishes to a level insufficient to offset heat diffusion into the formation the molten mass solidifies permanently trapping the residual radioactivity in an insoluble matrix.

3,706,631

STERILIZATION OF PROTEIN-CONTAINING FLUIDS

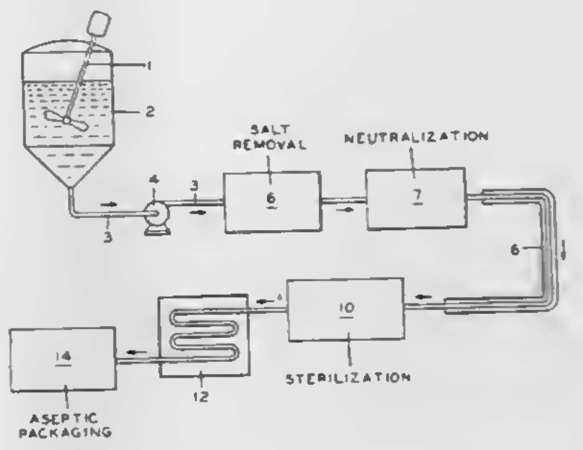
John D. Falk, 601 Grove Ave., Corning, Iowa 50841

Filed Oct. 8, 1970, Ser. No. 79,162

Int. Cl. A61k *23/02*

U.S. Cl. 195—1.8 **37 Claims**

A process for sterilization of a fluid which contains protein constituents, without coagulating said protein constituents, and the resultant product. The salts in said fluid are reduced which lowers the pH of the fluid. The fluid is pH adjusted with a basic solution, following which



the fluid is sterilized by exposing the fluid to an energy source which raises the temperature of the fluid to the sterilizing temperature range for that fluid.

3,706,632

MANUFACTURE OF LUBE OIL CONTAINING OVERBASED SULFURIZED CALCIUM ALKYLPHENOLATE

Frederic F. Day and George E. Emery, Port Arthur, Tex., and James G. Dadura, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Oct. 19, 1970, Ser. No. 82,190

Int. Cl. C10m *1/38, 1/54*

U.S. Cl. 252—42.7 **5 Claims**

Method of preparing a lubricating oil composition containing a partially hydrolyzed overbased sulfurized calcium alkylphenolate detergent of antioxidant and skin forming resistant properties and of reduced viscosity and improved filterability comprising first contacting a sulfurized normal calcium alkylphenolate with a calcium alkoxyalkoxide while simultaneously blowing the reaction mixture with nitrogen gas at a rate of between about 0.25 and 0.6 s.c.f.h./gallon of reaction mixture, subsequently stripping the reaction mixture with said gas at a rate of between about 0.25 and 0.6 s.c.f.h./gallon of resultant mixture and then second contacting the stripped mixture with water while simultaneously blowing during said second contacting the stripped mixture with said gas at a rate of between about 0.1 and 0.2 s.c.f.h./gallon of stripped mixture.

3,706,633

PREPARATION OF WATER-INSOLUBLE ENZYME DERIVATIVES

Ephraim Katchalski and Leon Goldstein, Rehovot, Yehuda Levin, Tel-Aviv, and Shmaryahu Blumberg, Rishon le Zion, Israel, assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 10, 1970, Ser. No. 27,423

Int. Cl. C07g *7/02*

U.S. Cl. 195—63 **11 Claims**

Water-insoluble, enzymatically-active compositions comprise dialdehyde starch, an active enzyme, and an alkylene diamine binding said enzyme to said starch. The compositions are prepared by condensing dialdehyde starch with alkylene diamine, reducing and diazotizing the resulting polymeric product to produce a polymeric polydiazonium salt, and thereafter coupling the enzyme to said polydiazonium salt.

3,706,634

ELECTROCHEMICAL COMPOSITIONS AND PROCESSES

Xavier Kowalski, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 15, 1971, Ser. No. 199,028

Int. Cl. C23b *5/02, 5/46*

U.S. Cl. 204—46 **11 Claims**

An electrically conductive medium for the electrodeposition of metals is described which comprises an aqueous solution of a composition comprising (1) a complex consisting of a metal ion and an ethylenediamine tetra(methylene phosphonate) ligand, (2) a complex consisting of a metal ion and a 1-hydroxy, ethylidene-1,1-diphosphonate ligand, and (3) a complex consisting of a metal ion and an amino tri(methylene phosphonate) ligand.

3,706,635

ELECTROCHEMICAL COMPOSITIONS AND PROCESSES

Xavier Kowalski, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 15, 1971, Ser. No. 199,036

Int. Cl. C23b *5/02, 5/46*

U.S. Cl. 204—46 **9 Claims**

An electrically conductive medium for the electrodeposition of metals is described which comprises an aqueous solution of a composition comprising (1) a complex consisting of a metal ion and an ethylenediamine tetra(methylene phosphonate) ligand, and (2) a complex consisting of a metal ion and a 1-hydroxy, ethylidene-1,1-diphosphonate liquid.

3,706,636

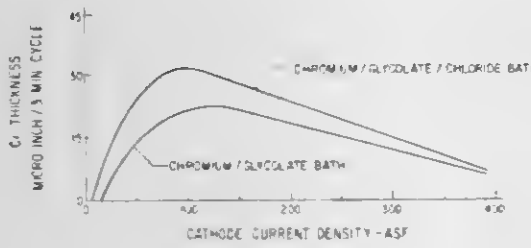
PREPARING PLATING BATH CONTAINING CHROMIC COMPOUND

John Edwin Bride, Mentor, Ohio, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del.

Filed Feb. 19, 1971, Ser. No. 116,890

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **17 Claims**



A bright decorative chromium plate of good appearance and durability is electrodeposited from a bath prepared from a solution containing trivalent chromic-compound. More particularly the bath is made from a preformed complex, or such complex is made in situ, and is a water-soluble trivalent chromic compound containing carboxylic acid constituents and halogen constituents. The prepared bath provides for excellent plating speed in the low current density region thus offering enhanced chromium thickness in recessed and difficult to plate areas.

3,706,637

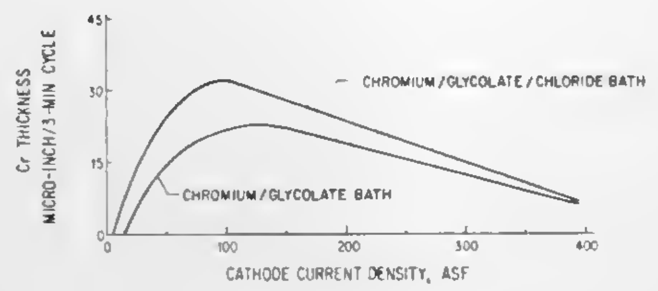
CHROMIUM PLATING BATH CONTAINING CHROMIC COMPOUND

John Edwin Bride, Mentor, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 19, 1971, Ser. No. 116,891

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **13 Claims**



A bright decorative chromium plate of good appearance and durability is electrodeposited from a bath containing a solution of chromic-compound. More particularly the bath contains a solution of a complex, water-soluble trivalent chromic compound containing carboxylic acid constituents and halogen constituents. The bath provides for excellent plating speed in the low current density region thus offering enhanced chromium thickness in recessed and difficult to plate areas.

3,706,638

CHROMIUM PLATING BATH FOR ROTARY RECEPTACLE PLATING

John Edwin Bride, Mentor, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,071

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **4 Claims**

Desirable electrodeposition of bright chromium plate can be made on a substrate contained in a rotary receptacle immersed in a chromic plating medium. The medium contains a complex, water-soluble chromic compound for plating, which compound contains carboxylic acid constituents and halogen constituents. The plate obtained on the substrate within the rotary receptacle shows desirable, uniform chromium coverage over an extensive bright range.

3,706,639

REJUVENATED CHROMIUM PLATING MEDIUM CONTAINING CHROMIC COMPOUND

John Edwin Bride, Mentor, and Francis Huba, Painesville, Ohio, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,091

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **16 Claims**

Bright decorative chromium plate can be obtained from chromium plating baths containing a chromic-compound for plating with such compound having at least carboxylic acid constituents and further exhibiting ready water solubility. Rejuvenation of such baths, with a sulfite component, will provide continued desirable plating performance, particularly in the low current density chromium plating range. Typically, only very minor amounts of such sulfite component, for example provided by addition to the bath or by formation in situ, are needed to insure extended high performance operating life of the thus chemically rebalanced trivalent chromium plating bath.

3,706,640

CHROMIUM PLATING FROM AN ORGANIC/AQUEOUS MEDIUM

James R. Brannan, Mentor, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,102

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **8 Claims**

Deposition of bright, decorative chromium plate is obtained from a chromium plating medium that is a homogeneous liquid blend of water with dipolar organic compound. The medium contains a complex, water-soluble trivalent chromic compound for plating that contains carboxylic acid constituents and halogen constituents and exhibits ready water solubility. The chromium deposits from such a medium exhibit enhanced plating coverage.

3,706,641

CHROMIUM PLATING WITH CHROMIC COMPOUND AND ORGANIC ADDITIVE

Francis Huba, Painesville, and John Edwin Bride, Mentor, Ohio, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,103

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **13 Claims**

Deposition of bright decorative chromium plate with a chromium plating medium containing trivalent chromic compound is enhanced in the high current density area by addition to the medium of a minor amount of an organic additive. Such media most typically contain a chromic-compound also having at least carboxylic acid constituents and further exhibiting ready water solubility. The organic additives employed will enhance the chromium rate of deposition from such baths in the high current density area as well as plate thickness without deleterious effect to plating characteristics at the low current density region. Typically, only very minor amounts of polar aprotic substances and ethers and thioethers will provide such effect.

3,706,642

PREPARATION OF CHROMIUM PLATING BATH

James R. Brannan, Mentor, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,135

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **12 Claims**

Deposition of bright, decorative chromium plate is obtained from a chromium plating medium prepared as a homogeneous liquid blend of water with dipolar organic compound. The medium is also made from a complex, water-soluble trivalent chromic compound for plating that contains carboxylic acid constituents and halogen constituents and exhibits ready water solubility. The medium thus provided can yield chromium deposits exhibiting enhanced plating coverage.

3,706,643

CHROMIUM PLATING BATH CONTAINING CHROMIC COMPOUND AND ORGANIC COMPONENT

Francis Huba, Painesville, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,163

Int. Cl. C23b *5/06*

U.S. Cl. 204—51 **11 Claims**

Deposition of bright decorative chromium plate from chromium plating media containing chromic compound, is enhanced in the low current density area, especially after working, by the presence in the medium of minor amounts of organic substance. The medium contains trivalent chromic-compound for plating which has at least carboxylic acid constituents and further exhibits ready water solubility. Such organic substance is exemplified by phenol, cresols, xylenols, resorcinol, urea, melamine, acrylamide, and aniline. Typically, only very minor amounts of such substances need be present in the medium.

3,706,644

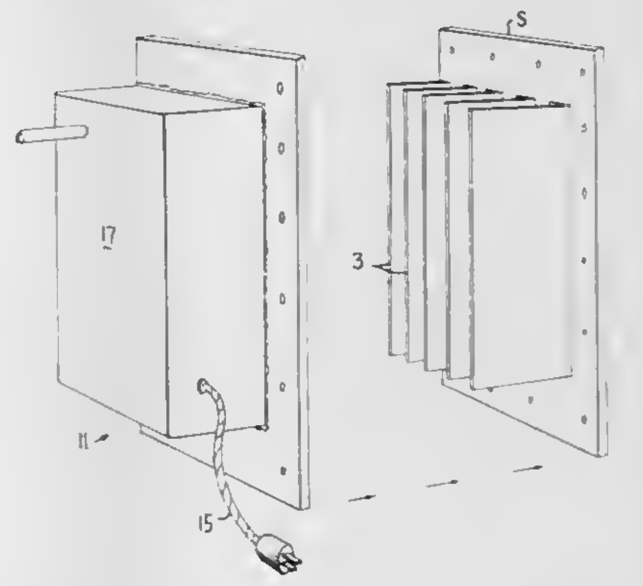
METHOD OF REGENERATING SPINEL SURFACED ELECTRODES

Aleksandrs Martinsons, Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of abandoned application Ser. No. 60,060, July 31, 1970. This application Mar. 8, 1971, Ser. No. 121,692

Int. Cl. B01r *3/04;* **C01d** *1/06*

U.S. Cl. 204—98 **32 Claims**



A method is disclosed for treating electrodes, particularly after extended periods of use. This method is particularly useful for electrodes having spinel surfaces on electroconductive valve metal substrates, but may also be used for any electrode having an oxide surface on a valve metal substrate.

3,706,645

PROCESS INCLUDING PHOTOLYTIC ENHANCEMENT FOR ANODIC DISSOLUTION OF A GALLIUM ARSENIDE WAFER

Howard G. Lasser, Springfield, Va., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Sept. 30, 1971, Ser. No. 185,358

Int. Cl. H01k *7/52*

U.S. Cl. 204—143 GE **8 Claims**

A photolytic process is used to enhance chemical or electrochemical anodic dissolution of one side of a p-type gallium arsenide wafer. Photons from a laser source are focused over 50% of the one side of the gallium arsenide wafer by means of fiber optics. The photons pass through a transparent container filled with a liquid electrolyte in which the wafer is totally immersed during the process. An incandescent light source completely floods the other side of the wafer that is opposite the one side. The other side of the wafer is made passive to the electrolyte by applying film, such as silicon dioxide thereto.

3,706,646

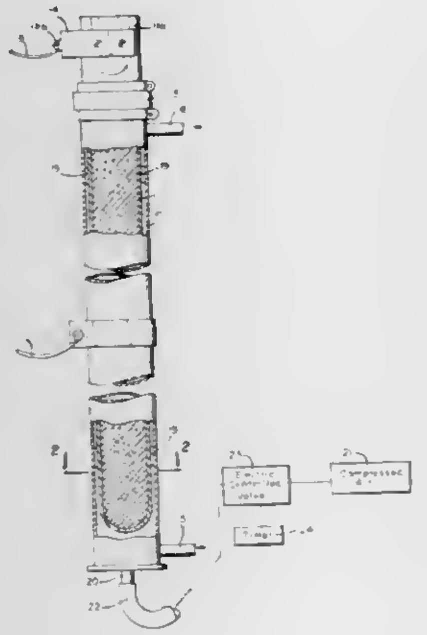
METHOD FOR REMOVING SOLIDS BUILD-UP FROM CATHODES OF ELECTROLYTIC CELL

Fred D. Gibson, Jr., 4546 Carriage Lane, Las Vegas, Nev.; Raymond C. Rhees, 657 6th Street, Boulder City, Nev.; James I. Gilson, 806 Park Lane, Henderson, Nev., and Bruce B. Halker, 147 Ivy, Henderson, Nev.

Filed Oct. 28, 1970, Ser. No. 84,779

Int. Cl. C02b *1/82*; **C02c** *5/12*; **B01k** *3/00*

U.S. Cl. 204—149 **8 Claims**



Apparatus and method for removing solids which build up on the cathode of an electrolytic cell, particularly an electrolytic cell used in the treatment of waste water such as sewage or industrial wastes. The cell preferably comprises a metallic hollow tube which may form the cathode, and a lead dioxide-coated anode disposed within, but electrically insulated from, the encircling cathode. The electrolyte flows through the cell in the space between the anode and encircling cathode. In the electrolytic treatment of organic and inorganic waste materials, various chemical deposits, particularly including calcium and magnesium salts of orthophosphate and carbonate as well as calcium and magnesium hydroxide tend to become deposited on the cathode surface and soon prevent proper cell operation. Such deposits are removed periodically by injecting pressurized air into the cell at preselected time intervals. During periods of air injection, a predetermined minimum amount of air is injected dependent upon the rate of liquid flow through the cell.

3,706,647

METHOD OF MAKING CYCLOHEXANOL AND CYCLOHEXANONE BY OXIDATION OF CYCLOHEXANE

Heimo Hardung-Hardung and Horst Corsepius, Frankfurt am Main, and Hansdieter Hofmann, Petterweil, Germany, assignors to Vickers-Zimmer Aktiengesellschaft Planung und Bau Von Industrieanlagen, Frankfurt am Main, Germany

Filed July 14, 1969, Ser. No. 841,309

Claims priority, application Germany, Aug. 28, 1968, P 17 93 249.9

Int. Cl. B01j *1/10*

U.S. Cl. 204—162 HE **14 Claims**

Process for the oxidation of cyclohexane to cyclohexanol and cyclohexanone wherein the oxidation reaction takes place in liquid phase in the presence of ionizing rays below about 170° C. and at elevated pressure. Improved yields of 86–88% in a conversion range of 5 to 9% are obtained.

3,706,648

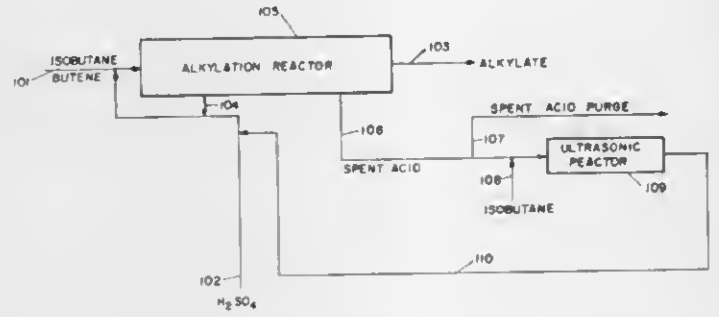
REGENERATION OF SPENT ALKYLATION ACID

Hugh P. Hebert, Trenton, and Arnold H. Pelofsky, E. Brunswick, both of N.J., assignors to Cities Service Oil Company, Tulsa, Okla.

Filed Oct. 28, 1970, Ser. No. 84,683

Int. Cl. B01j *1/10*; **B07c** *3/24*

U.S. Cl. 204—162 S **2 Claims**



Disclosed in a process by which consumption of sulfuric acid alkylation catalyst is decreased and alkylate yield is increased by reacting the hydrocarbon contaminats contained within spent alkylation acid with an isoparaffin to yield alkylate and sulfuric acid. Ultrasonic energy is utilized to obtain intense mixing to promote the reaction of the contaminats with the isoparaffin in the acid phase. The resulting dispersion is more stable that emulsions obtained from mechanical mixing and affords a high surface area between the hydrocarbon and acid phases for increased alkylate formation and acid regeneration.

3,706,649

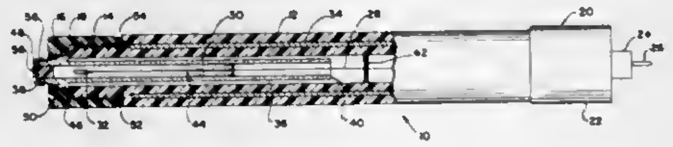
ELECTROCHEMICAL ELECTRODE

Richard E. Cosgrove, Los Angeles, and Irwin H. Krull and Charles A. Mask, Garden Grove, Calif., assignors to Beckman Instruments, Inc.

Filed June 29, 1970, Ser. No. 50,746

Int. Cl. G01n *27/46*

U.S. Cl. 204—195 M **19 Claims**



An electrochemical electrode for measuring the ion concentration or activity of solutions. The ion sensitive barrier of the electrode contains a macrocyclic compound, mineral oil, and a sufficient amount of a compound lipid to render the barrier substantially solid. Preferably, an aromatic component is included in the barrier to provide long term stability of the barrier. The macrocyclic compound is preferably valinomycin when the electrode is to be utilized for selectively measuring the potassium ion activity of solutions, and is preferably nonactin when the electrode is to be utilized for selectively measuring the ammonium ion activity of solutions.

3,706,650

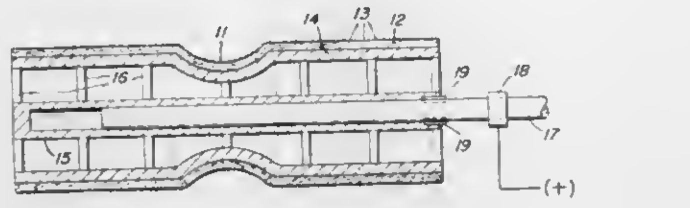
CONTOUR ACTIVATING DEVICE

Steve Eisner, Schenectady, N.Y., assignor to Norton Company, Troy, N.Y.

Filed March 26, 1971, Ser. No. 128,240

Int. Cl. B23p *1/00*

U.S. Cl. 204—217 **5 Claims**



A rotatable activating device for contacting and activating a contoured surface during the electrodeposition thereon of a metal coating. The device has an outer surface composed of a non-conductive, porous, compressible, fluid-entrapping and circulating, fixed hard particle-supporting media contoured to complement the contours of the surface to be activated and an internal complete or partial core of a conductive material.

3,706,651

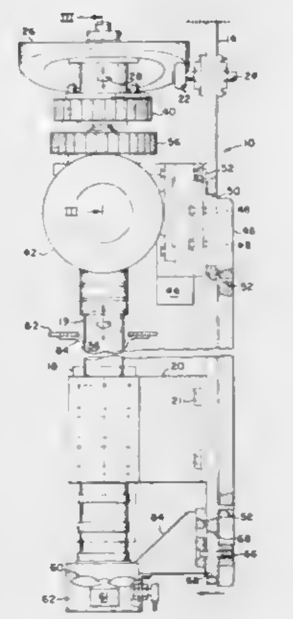
APPARATUS FOR ELECTROPLATING A CURVED SURFACE

James M. Leland, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 30, 1970, Ser. No. 102,723

Int. Cl. C23b *5/68*

U.S. Cl. 204—218 **6 Claims**



Apparatus for electroplating a curved surface of a workpiece wherein a relative rotatable and reciprocable motion is provided between the anode and the surface to be plated for controlling variations in plating thickness, with the rotary motion being precessed to provide a constant phase shifting to cancel out plating irregularities. The anode is fabricated of a plurality of longitudinally spaced annular segments, with means to independently control the current to each segment.

3,706,652

SEPARABLE PLASMA TORCH APPARATUS

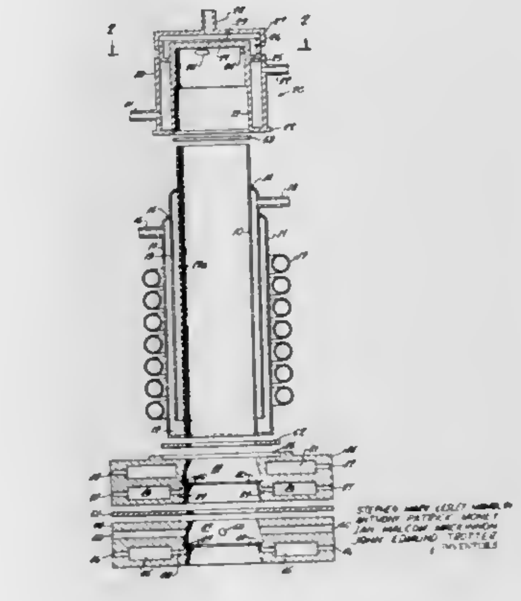
Stephen Mark Lesley Hamblyn, Long Ditton, Anthony Patrick Money, Surbiton, Ian Malcolm Mackinnon, Kingston-upon-Thames, and John Edmund Trotter, Hampton, England, assignors to United States Borax & Chemical Corporation, Los Angeles, Calif.

Filed Oct. 14, 1970, Ser. No. 80,691

Claims priority, application Great Britain, May 20, 1970, 24,495/70

Int. Cl. B01k *1/00*

U.S. Cl. 204—312 **11 Claims**



Plasma torch apparatus having separable parts such as separable inlet head and/or feed device. Preferably the head and base are made of brass.

3,706,653

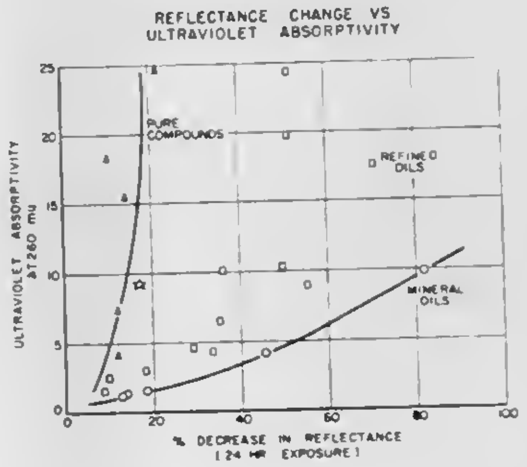
LIGHT-COLORED HIGHLY AROMATIC OIL AND PROCESS OF PREPARATION

Ivor W. Mills, Media, Glenn R. Dimeler, West Chester, and Merritt C. Kirk, Jr., Thornton, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 636,493, May 5, 1967. This application Oct. 27, 1969, Ser. No. 874,087

Int. Cl. C10g *39/00*

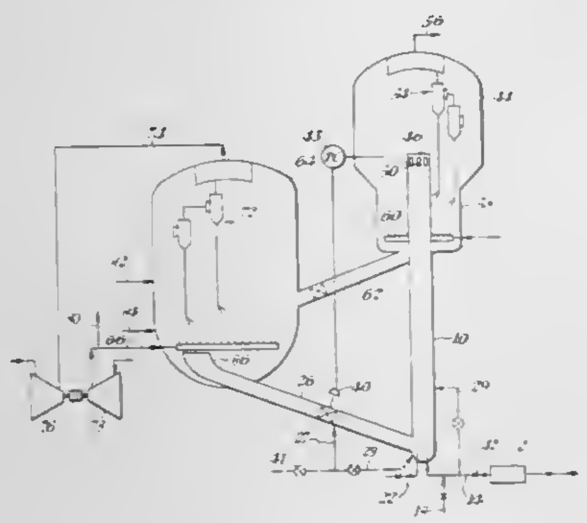
U.S. Cl. 208—64 **12 Claims**



A novel light-stable rubber process oil containing 45–85 percent of aromatic hydrocarbons is obtained in high yield from a 40–10,000 SUS (at 100° F.) naphthenic distillate by a two-step aromatization process. In the first step, with a sulfactive catalyst, the sulfur and nitrogen in the oil are greatly reduced and the aromatic content increases. In the second step, with Ni or noble metal catalyst, the aromatic content is further increased and the product oil has good color stability when aged in the presence of ultraviolet light. Oils produced by the process are especially useful when compounded with natural rubbers and synthetic elastomeric polymers (e.g., neoprene, GRS) which exhibit improved processability and physical properties when compounded with oils of high aromaticity.

3,706,654
FLUID CATALYTIC CRACKING PROCESSES AND MEANS

Millard C. Bryson, Conway, and Joel D. McKinney, Indiana Township, Beaver County, Pa., and James R. Murphy, Huntington Station, N.Y., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Nov. 12, 1969, Ser. No. 875,830
Int. Cl. C10g *11/14*
U.S. Cl. 208—74 **25 Claims**

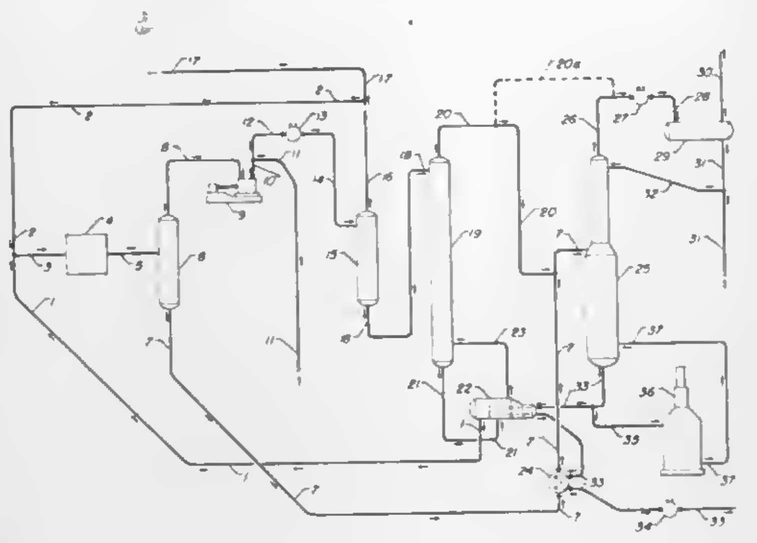


A process for cracking a principal hydrocarbon charge (such as a furnace oil or gas oil) capable of being cracked to gasoline in the presence of a fluidized cracking catalyst, said process comprising the steps of maintaining a predetermined range of temperatures within said catalyst stream, adding a naphtha diluent (gasoline type hydrocarbon) to said catalyst stream, controlling the partial pressure of said charge in said stream by maintaining a given ratio of said diluent to said charge, and adding said diluent to said catalyst stream at a point having a higher temperature than that at which said charge is added so that a significant proportion of each of said naphtha and said charge is cracked by said catalyst. An exemplary cracking plant is provided for effecting the process as outlined. Methods are provided for the upgrading of virgin and cracked naphthas and for enhancing the olefinic yields therefrom.

3,706,655
LPG AND HIGH PURITY HYDROGEN RECOVERY PROCESS

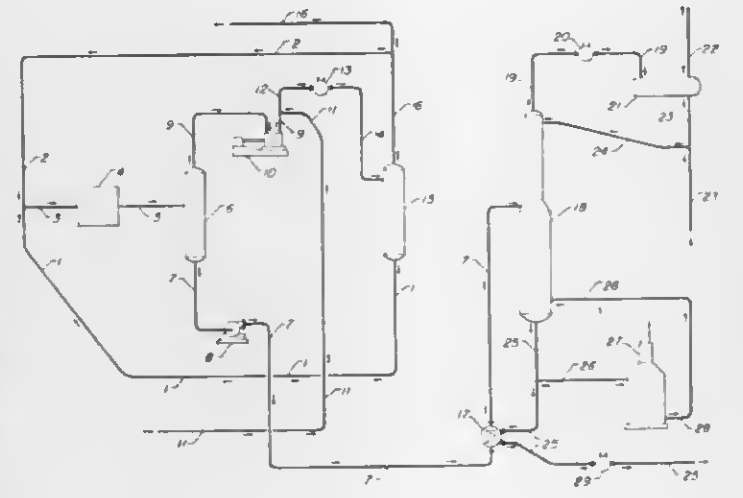
James D. Weith, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed June 11, 1971, Ser. No. 152,326
Int. Cl. C10g *5/04, 35/08, 39/00*
U.S. Cl. 208—82 **10 Claims**

Process for separating the effluent from a hydrocarbon conversion zone, i.e., reforming, by admixing fresh feed with a gaseous stream removed from a low pressure separator to produce a high purity hydrogen stream and maximize LPG recovery. The LPG absorbed in the feedstock is removed before the feedstock is converted.



3,706,656
LPG AND HIGH PURITY HYDROGEN RECOVERY PROCESS

James D. Weith, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed June 11, 1971, Ser. No. 152,327
Int. Cl. C10g *5/04, 35/08, 39/00*
U.S. Cl. 208—82 **9 Claims**



Process for separating the effluent from a hydrocarbon conversion zone, i.e., reforming, by admixing fresh feed with a gaseous stream removed from a low pressure separator to produce a high purity hydrogen stream and maximize LPG recovery. The feedstock, containing absorbed hydrocarbons, is passed directly to the hydrocarbon conversion zone and the LPG is recovered from the low pressure separator liquid.

3,706,657
HYDRODESULFURIZATION OF CRUDE AND RESIDUAL OILS AT REDUCED SPACE VELOCITY

John A. Paraskos and Allen E. Somers, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Dec. 31, 1970, Ser. No. 103,198
Int. Cl. C10g *23/02*
U.S. Cl. 208—216 **18 Claims**

A process for hydrodesulfurizing a crude oil or a residual oil comprises passing the oil and hydrogen over an HDS catalyst, with the HDS catalyst cycle being limited by the maximum temperature that the reactor metals can withstand at the process pressure. As the hydrodesulfurization proceeds, metals from the feed oil are deposited on the catalyst until maximum possible metals loading on the catalyst is reached. As the process proceeds, a continual temperature rise is required to achieve the required sulfur removal until the maximum or constraint temperature is reached. According to this invention, it has been found that by maintaining the space velocity at a sufficiently low value the catalyst experiences maximum metals loading before the constraint temperature is reached so that full catalyst life is utilized.

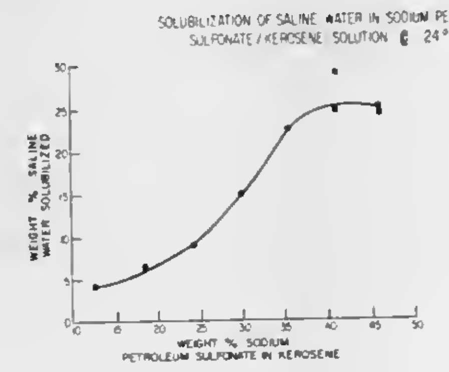
3,706,658
HYDROCRACKING OF NITROGEN CONTAINING FEEDSTOCKS

Robert H. Hass, Fullerton, and Cloyd P. Reeg, Orange, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Filed Aug. 21, 1970, Ser. No. 66,147
Int. Cl. C10g *13/02, 13/04, 13/06*
U.S. Cl. 208—111 **19 Claims**

Hydrocarbons containing substantial amounts of organonitrogen compounds are subjected to hydrocracking, hydrofining, hydrogenation and the like in the presence of hydrogen over a catalyst comprising alumina and combinations thereof with silica, zirconia, magnesia and the like, such as aluminosilicates, with or without active metal components, in the presence of controlled minor amounts of water followed by the discontinuance of water addition. Further advantage is realized by cycling water addition and deletion to promote even higher average system activities.

3,706,659
BRINE SALT CONCENTRATION REGULATION USING MICELLAR DISPERSIONS

John A. Davis, Jr., Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio
Filed Nov. 27, 1970, Ser. No. 93,201
Int. Cl. B01d *12/00*
U.S. Cl. 210—21 **27 Claims**



The concentration of salts of various brines is modified to obtain an aqueous solution of desired salt concentration by contacting the brines with a micellar dispersion to form a microemulsion upper phase and an aqueous bottom phase. A less concentrated salt solution will be contained in the resulting microemulsion than will be in the aqueous bottom phase. In the event that the higher concentration solution is desired, the aqueous bottom phase is decanted and recovered. If the low concentration salt solution is desired, the microemulsion is subjected to a physical or chemical change to reduce its solubilizing capacity, e.g., by cooling, and the resulting bottom aqueous phase is recovered. In either case, the micellar dispersion or components thereof are recovered and recycled for additional brine treatment. Any surfactant or cosurfactant dissolved in the water can be removed, if necessary, and a series of process trains can be used to obtain water of desired salinity. The process can be used to obtain potable water from salt solutions.

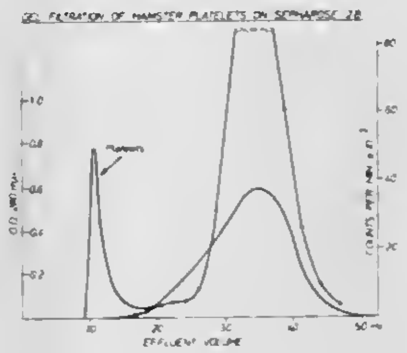
3,706,660
PROCESS FOR REMOVAL OF PARTICLE-FORMING PROTEINS FROM BLOOD SERA

James J. Hagan, Holmdel, N.J.; Edward E. Chanod, Staten Island, N.Y.; Robert S. Feldman, Howard Beach, N.Y., and Helmuth Cords, Princeton, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
Filed March 25, 1971, Ser. No. 128,152
Int. Cl. B01d *12/00*
U.S. Cl. 210—21 **8 Claims**

A process is provided for removal of particle-forming proteins from blood serum by extracting the serum with a halo-genated straight chain hydrocarbon solvent at a pH of within the range of from about 5.2 to about 5.6.

3,706,661
METHOD FOR THE SEPARATION OF CELLS FROM SOLUTES ACCOMPANYING SAID CELLS

Oddvar Tangen, Stigbergsvagen 8 C, Uppsala, Sweden; Herbert J. Berman, Boston, Mass. (142 Coolidge St., Brookline, Mass. 02146); and Peter Marfey, 9 Tudor Road, Albany, N.Y. 12203
Filed Oct. 5, 1970, Ser. No. 78,143
Int. Cl. B01d *15/08*
U.S. Cl. 210—24 **13 Claims**

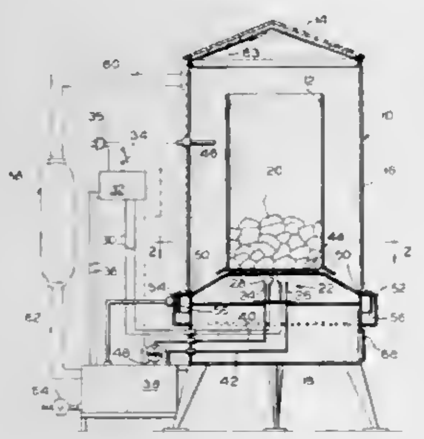


A gel filtration method is applied to separate cells from the solutes present in their surrounding medium. The separation is accomplished by passing the cells through a column packed with a gel which retains all undesired components, and at the same time allows the cells to pass through the gel bed more rapidly. For clinical or other purposes the procedure can be performed under sterile conditions.

3,706,662
NON-POLLUTING WASTE REDUCER AND METHOD

Walker L. Wellford, Jr., 135 St. Albans, Memphis, Tenn.
Filed July 1, 1971, Ser. No. 158,813
Int. Cl. C02c *5/04*
U.S. Cl. 210—63 **14 Claims**

An apparatus and method for heating and decomposing organic and inorganic household, industrial and commercial wastes to quickly and economically decrease their volume without thereby polluting the air. The device comprises a housing with a removable cover for inserting refuse into the housing. With the cover in place the housing serves as a sealed treatment chamber for the waste. Heating of the wastes is accomplished by an ignition and burner system within the housing which combines hydrogen and oxygen gases and applies the heat generated by their combustion directly to the waste material. The hydrogen and oxygen gases are manufactured by an electrolytic generator comprising cells such as the Knowles cell containing a suitable alkali electrolyte such as potassium hydroxide. The amount of oxygen fed to the burner from the electrolytic generator is limited so that all oxygen is combined with the hydrogen to produce heat, and no excess oxygen is available for oxidizing the waste material. A thermostatic valve responsive to a temperature sensor inside the housing continually limits the oxygen supply unless the housing temperature drops below a predetermined temperature, in which case the oxygen is increased until the temperature is restored. Conversely, more hydrogen is supplied to the burner than is necessary to combine with the oxygen in combustion, and the excess hydrogen reduces rather than oxidizes the waste material, resulting in the formation of hydrocarbon gases and carbon rather than carbon dioxide and ashes. The hydrocarbon gases, together with the water vapor which results from the combustion of hydrogen and oxygen and from the decomposition of the waste material, are collected in the sealed housing, and condensed to avoid polluting the air. Those hydrocarbons which do not condense may be burned to provide additional heat for decomposing the waste material. The condensed gases are fed into the electrolytic generator where the water is used to regenerate the hydrogen and oxygen gases for the burner system. The condensed hydrocarbons may be periodically removed and used for commercial purposes if the process is practiced on an industrial scale, or alternatively they can be disposed of as sewage. The housing includes a grating for holding the waste material above the burner, and a base portion located below the grating for collecting any solid residues which are not vaporized in the heating process and drop through the grating into the base portion. These solid materials are periodically removed from the system and either used for commercial purposes or disposed of.



3,706,663
METHOD OF CONTROLLING ODOR

Oliver H. Peterson, Charles City, Iowa, assignor to Salsbury Laboratories, Charles City, Iowa
Filed Feb. 25, 1971, Ser. No. 119,060
Int. Cl. C02b *3/06*
U.S. Cl. 210—64 12 Claims

A method of controlling the odors emanating from large bodies of animal waste such as are found in feedlots and in the sumps of animal houses. The animal waste is treated with a compound capable of selectively inhibiting the formation of malodorous compounds which normally result from the natural decomposition of the animal waste. Preferred compounds are the sulfa drugs, and sulfaguanidine has been found to be particularly useful. The compound is typically applied as a solid mixed with an inert diluent when used on a feedlot, and as an acid solution when used to treat the sewage in the sump of an animal house.

3,706,664
SEWAGE DISPOSAL SYSTEM

Quentin E. Thompson, Belleville, Ill., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Oct. 22, 1970, Ser. No. 83,154
Int. Cl. C02c *1/00*
U.S. Cl. 210—65 12 Claims

An improved, self-contained sewage disposal system which utilizes water immiscible synthetic esters as transport fluids to carry sewage from its source to a central separation and disposition system. The selected esters separate readily from the liquid and solid sewage, and are reclaimed and recirculated within the system, while sewage is disposed of by incineration or other means. Preferred transport fluids include dibasic acid esters such as dioctyl adipate and diisodecyl adipate, and fatty acid esters of C_4 to C_{13} monohydric alcohols.

ERRATUM

For Class 252—42.7 see:
Patent No. 3,706,632

3,706,665
PREPARATION OF MAGNESIUM-CONTAINING LUBRICATING OIL DETERGENTS

Cyril Ove Robert Bell, Newport, and Neville Murray Jones, Blackwood, England, assignors to Monsanto Chemicals Limited, London, England
No Drawing. Filed Nov. 23, 1970, Ser. No. 92,136
Claims priority, application Great Britain, Nov. 23, 1969, 57,391/69
Int. Cl. C10m *1/44, 11/48*
U.S. Cl. 252—32.7 HC 15 Claims

Detergents for lubricating oils are prepared by reacting a mixture of a phosphosulfurized polyolefin and an alkyl phenol sulfide or an alkylphenol with an alkanol solution of an alkoxide of magnesium or a carbonated alkoxide of magnesium.

3,706,666
METHOD OF MANUFACTURING A LUMINESCENT OXYSULPHIDE

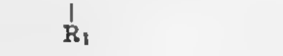
Roelof Egbert Schull, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
No Drawing. Filed Mar. 12, 1971, Ser. No. 123,866
Claims priority, application Netherlands, Mar. 25, 1970, 7004337
Int. Cl. C09k *1/14;* **C22b** *59/00;* **C01f** *17/00*
U.S. Cl. 252—301.4 S 7 Claims

A method of manufacturing a luminescent oxysulphide defined by the formula $M'_{(2-x)}M_x''O_2S$ wherein M' represents Y and/or Gd and/or La and M'' represents one of the rare earths and x represents a number of between 0.0002 and 0.2. Sulphur is added to a strong solution of alkali metal hydroxide in water whereafter the solution is mixed with the oxide of M' and M''. The mixture obtained is subsequently heated at a high temperature while it is being shut off from the air.

3,706,667
MONOSUBSTITUTED UREAS IN LUBRICATING COMPOSITIONS

Aubert Y. Coran, Akron, Ohio, and Billy D. Vineyard, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Aug. 3, 1970, Ser. No. 60,643
Int. Cl. C10m *1/20, 1/32*
U.S. Cl. 252—51.5 A 10 Claims

Varnish-removing additives for lubricating compositions comprising monosubstituted ureas having the formula



$$R-\underset{R_1}{\overset{H}{C}}-NH-\overset{O}{\overset{\|}{C}}-NH_2$$

wherein R is hydrogen, alkyl or alkenyl and R_1 is alkyl or alkenyl, and the sum of the carbon atoms in R and R_1 is from about 5 to about 25.

3,706,668
POLYPHENYL ETHER LUBRICATING COMPOSITIONS

Frank S. Clark, 4561 McPherson Ave., St. Louis, Mo. 63108
No Drawing. Filed May 28, 1971, Ser. No. 148,124
Int. Cl. C10m *1/44*
U.S. Cl. 252—49.9 10 Claims

Composition comprising polyphenyl ethers or mixtures thereof and phenoxyphenylphosphinic acids exhibit improved lurbicating properties over wide temperature ranges.

3,706,669
COMPOSITION AND METHOD FOR THE DISSOLUTION OF GYPSUM

Tommy R. Gardner, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
No Drawing. Filed Mar. 16, 1970, Ser. No. 20,046
Int. Cl. C23g *1/02*
U.S. Cl. 252—82 11 Claims

The present invention relates to a composition and method for the dissolution of gypsum wherein said gypsum is contacted with a solution which converts it into a dispersible sludge.

3,706,670
BLEACHING COMPOSITION

Frederick William Gray, Summit, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
Continuation of Ser. No. 679,506, Oct. 31, 1967, abandoned. This application Dec. 28, 1970, Ser. No. 102,046
Int. Cl. C11d *7/54*
U.S. Cl. 252—95 17 Claims

This disclosure relates to bleaching laundry compositions comprising a chlorine bleach, an optical brightener, preferably of the sulfonated triazole class, and a reducing agent such as inorganic sulfites, organic sulfinates, water-soluble phosphites, and inorganic alkaline materials combined with hydrogen peroxide. The presence of the reducing agent enables the composition to enhance brightening of the fabric being cleaned without adversely affecting the bleaching thereof to any appreciable extent. The optional addition of a detergent or surface active agent, also beneficially affects the brightener intensity.

3,706,671
BLEACHING AGENTS AND ADDITIVES

Frederick Edward Hardy, Newcastle-upon-Tyne, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Original application Apr. 2, 1970, Ser. No. 25,292. Divided and this application Feb. 3, 1972, Ser. No. 223,384
Int. Cl. C11d
U.S. Cl. 252—99 9 Claims

The invention relates to novel N-halo-N-alkyl-o-sulfobenzamides. These compounds are useful in bleaching compositions and methods. Some are activators for peroxygen bleaching agents, and some have bleaching activity themselves.

3,706,672
DETERGENT POLYELECTROLYTE BUILDERS

Preston Kuhn Martin, Fanwood, and Richard Howard Kelly, West Orange, both of N.J., assignors to Celanese Corporation, New York, N.Y.
Filed Dec. 8, 1970, Ser. No. 96,259
Int. Cl. C11d *7/06*
U.S. Cl. 252—156 , 9 Claims

Synthetic detergents are prepared having improved cleaning power using polyacrylic acid salts. For example, sodium polyacrylate of controlled molecular weight is an excellent substitute for the "suspect" phosphate builder-sequestrant presently used in household detergent compositions. Regardless of the merit of the charge that detergent phosphates are the primary cause of eutrophication in our lakes and rivers, the search for phosphate-free detergents intensifies daily. The polyacrylates described herein provide a very effective and attractive answer to the controversy.

3,706,673
AQUEOUS COMPOSITION FOR DEPOSITING PHOSPHORS

Eugene Wainer, Cleveland, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incoroprated
Division of Ser. No. 826,704, May 21, 1969, Pat. No. 3,597,259. This application Feb. 12, 1971, Ser. No. 155,662
Int. Cl. H01c *7/08;* **C09k** *1/12*
U.S. Cl. 252—501 4 Claims

The preparation of phosphors such as those based on zinc sulfide and/or cadmium sulfide in the form of very fine particles which include not only the sulfide but also the activator and mineralizer required to make this an active material and the deposition of such an active material from a clear solution containing the phosphor, mineralizer and dopant necessary to complete an active material, into the pores of a suitable substrate, thereby producing the essential element for a high resolution information retrieval transducer.

3,706,674
ENZYME PRODUCTS

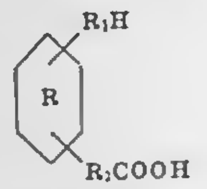
Sidney G. Clark, 12800 Mason Manor, and Harold E. Felerstein, 17 Country Squire Court, both of St. Louis, Mo. 63141
No Drawing. Original application Sept. 19, 1968, Ser. No. 760,981. Divided and this application May 15, 1970, Ser. No. 48,657
Int. Cl. C11d *3/066, 1/12*
U.S. Cl. 252—527 4 Claims

This invention relates to detergent compositions containing particulate enzyme products; these products contain enzymes produced by *Bacillus subtilis*, have a bulk density of from about 0.25 gram/cc. to about 2.0 grams/cc. and have a critical particle size, such that no visible color change results when said enzymes are incorporated into normally white detergent compositions.

3,706,675
DETERGENT COMPOSITION WITH THERMO-CONTROLLED FOAMING CAPACITY

Hans Barth, Kleve, Martin Knausenberger, Hockenheim, Henner Lange and Hans-Udo Menz, Hamburg, and Wilhelm Griess, deceased, late of Mannheim-Neckarau, Germany, by Irene Griess-Tomtschuk and Hanna Gordt-Griess, legal representatives, Mannheim-Feudenheim, Germany, assignors to Lever Brothers Company, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 14,783, Feb. 26, 1970, which is a continuation of application Ser. No. 669,845, Sept. 22, 1967. This application Oct. 27, 1970, Ser. No. 84,454
Claims priority, application Germany, Sept. 23, 1966, U 13,106
Int. Cl. C11d *1/04, 3/065, 9/32*
U.S. Cl. 252—539 4 Claims

Foaming at low washing temperature is obtained without over-foaming at high temperatures. the foam-controlling agent is an effective amount of a material selected from the group consisting of cyclized fatty acids and sodium salts of such acids, said acids being essentially obtained from cyclization of unsaturated C_{12}–C_{33} fatty acids by any suitable process known in the art, and being a mixture of acids having the formula:



wherein R represents a saturated or unsaturated six-membered carbon ring; R_1 is a hydrocarbon chain having from 0–12 carbon atoms, R_2 is a hydrocarbon chain having from 0–21 carbon atoms, the total number of carbon atoms of R_1 and R_2 being at least 5.

It is applicable in compositions essentially comprising 10–30% by weight of a water-soluble anionic detergent including soap and one to five times of said amount of a polyphosphate builder. Optionally nonionic synthetic detergents can be included.

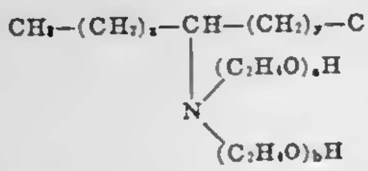
ERRATUM

For Class 156—336 see:
Patent No. 3,706,950

3,706,676
ETHOXYLATED AMINO ALKANES AS SURFACTANTS

Norman W. Franke, Penn Hills Township, Allegheny County, Stanley C. Paviak, Shaler Township, Allegheny County, and Warren K. Porter, Jr., Richland Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Dec. 26, 1968, Ser. No. 787,212
Int. Cl. C11d *3/26*
U.S. Cl. 252—544 **4 Claims**

Surface active agents are formed of substantially uniform mixtures of the various amine isomers of ethoxylated aminoalkanes represented by the formula:



$$\begin{array}{l} CH_3-(CH_2)_x-CH-(CH_2)_y-CH_3 \\ \qquad\qquad\quad | \quad (C_2H_4O)_aH \\ \qquad\qquad\quad N \\ \qquad\qquad\qquad (C_2H_4O)_bH \end{array}$$

wherein the total number of carbons in the linear paraffin chain is from about 8 to 22; wherein *x* is a whole number from about 0–19 and *y* is a whole number from about 0–19; and wherein *a* and *b* are each greater than zero, the sum of which is greater than about 4.

3,706,677
POLYXYLYLIDENE ARTICLES

Ritchie A. Wessling, Midland, and Ray G. Zimmerman, Shepherd, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of application Ser. No. 617,832, Feb. 23, 1967, now Patent No. 3,532.643. This application Oct. 5, 1970, Ser. No. 78,154
The portion of the term of the patent subsequent to Sept. 10, 1985, has been disclaimed
Int. Cl. C08f *47/00*
U.S. Cl. 260—2 H **14 Claims**

The compositions are of the class of polyxylylidene having a high degree of polymerization in the form of coatings, films, fibers or foams. Such articles are prepared from polyelectrolytes comprising viscous aqueous solutions of p-phenylene dimethylene bis(dialkyl sulfonium salts), or the analogous hydroxide, by shaping such viscous aqueous solutions, for example by casting a wet film or extruding the solution into a basic aqueous bath, then drying, sometimes with heating, to convert the sulfonium polyelectrolyte to a polyxylylidene in the form of a film, coating, fiber or foam.

3,706,678
HYDROPHILIC POLYURETHANE FOAMS PREPARED FROM BIURET CONTAINING POLYISOCYANATES

Werner Dietrich, Cologne, Stammheim, and Karlheinz Andres, Cologne, Flittard, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Aug. 3, 1970, Ser. No. 60,711
Claims priority, application Germany, Aug. 7, 1969, P 19 40 182.2
Int. Cl. A01c *1/04;* **C08g** *22/44*
U.S. Cl. 260—2.5 AD **7 Claims**

A process is provided for the production of open celled foam resins having a bulk density of from about 6 to about 15 kg./m.^{3} from organic polyisocyanates, organic compounds which contain at least two hydrogen atoms reactive with NCO groups, water and, if desired, other additives, characterized in that the organic polyisocyanates contain biuret groups and the water used for the foaming reaction is added in quantities of from about 20 to about 100 parts by weight per 100 parts by weight of the organic compounds which have at least two hydrogen atoms reactive with NCO groups.

3,706,679
VINYL RESIN BLOWABLE INTO A RIGID SMOOTH SKIN MICROCELLULAR PROFILE

Thomas E. Hopton, Stow, and Robert P. Socha, Lakewood, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Aug. 6, 1970, Ser. No. 61,816
Int. Cl. C08f *47/10, 45/62, 29/18*
U.S. Cl. 260—2.5 E **9 Claims**

A composition for and method of making a rigid impact resistant microcellular, whittlable and nailable woodlike structure having a smooth and integral skin.

3,706,680
FOAMED POLYURETHANES PREPARED FROM DIPHENOLS AND POLYISOCYANATES

Llewellyn Delphin Booth, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of application Ser. No. 781,261, Dec. 4, 1968. This application Nov. 30, 1970, Ser. No. 93,808
Int. Cl. C08g *22/44, 22/06*
U.S. Cl. 260—2.5 AM **5 Claims**

The invention concerns polyurethanes prepared from diphenols and polyisocyanates. It relates more particularly to polyurethane foams of diphenols and polyisocyanates.

3,706,681
PROCESS FOR STABILIZING A MECHANICALLY FROTHED URETHANE FOAM BY USING A SILICON SURFACTANT COMPOSITION

Richard A. Bachura, Midland, Mich., assignor to Dow-Corning Corporation, Midland, Mich.
No Drawing. Filed Mar. 4, 1971, Ser. No. 121,134
Int. Cl. C08g *22/44*
U.S. Cl. 260—2.5 AH **5 Claims**

The preparation of mechanically frothed polyurethane foams using a composition consisting essentially of a mixture of 1 to 10 parts by weight of a copolymer composed of SiO_2 units and units selected from the group consisting of $(CH_3)_3SiO_{1/2}$ and $Q(CH_3)_2SiO_{1/2}$ units, wherein Q is a solubilizing group, and 0.1 to 2 parts by weight of a silicone-glycol copolymer is disclosed.

3,706,682
HOT TOPS AND MIXTURE OF MATERIALS THEREFOR

Bertil Hilmer Allvin, Asgatan, Sweden, assignor to Enn Vallak, Geneva, Switzerland
No Drawing. Filed Jan. 25, 1971, Ser. No. 109,647
Claims priority, application Sweden, Feb. 2, 1970, 1,322
Int. Cl. B28b *7/36;* **C08f** *45/18*
U.S. Cl. 260—17.2 **4 Claims**

The basic idea of the invention is to provide a wall material for the hot top having such a composition that the surface contacting the molten steel or other metal will be covered with a smooth, gastight, thin, vitreous mineralic layer when contacting the molten steel or metal. The wall material is made from a mixture of granular or powdered aerated concrete or porous concrete and organic fibre material such as wood meal, sawdust, mechanical wood pulp and a binder, and according to the invention the mixture also comprises sand of such a rate of refractability that the melting temperature of the sand is lower than the temperature of the molten metal, said sand, under the influence of the heat from the molten metal, providing a thin vitreous mineralic layer.

3,706,683
CROSS-LINKED NITROGEN- AND CHLORINE-CONTAINING CELLULAR PLASTICS AND A METHOD FOR THE PREPARATION THEREOF

Herwart C. Vogt, Grosse Ile, and Pauls Davis, Gibraltar, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.
Filed Feb. 26, 1971, Ser. No. 119,386
Int. Cl. C08f *47/10, 29/14*
U.S. Cl. 260—2.5 R **18 Claims**

Cross-linked cellular plastics having either open or closed cell structures are prepared from chloronitrosylated hydrocarbon polymers, having a chlorine content of from 0.5 to 73 percent by weight and a nitrogen content of from 0.01 to 5 percent by weight. The resulting cellular plastics possess improved physical properties.

3,706,684
TRAFFIC PAINT COMPOSITIONS

John A. Lopez, Marlton, N.J., assignor to Shell Oil Company, New York, N.Y.
Continuation-in-part of Ser. No. 756,327, Aug. 29, 1968, abandoned. This application June 11, 1971, Ser. No. 152,390
Int. Cl. C08g *30/12*
U.S. Cl. 260—18 EP **4 Claims**

Rapid-dry, one-package, epoxy traffic paint compositions which require no curing agent and which exhibits reduced dirt pick-up comprise (1) an organic solvent, (2) a pigment and (3) a condensation product comprising near equal molar ratios of a polyepoxide and a dimer acid wherein the polyepoxide is a blend of two separately prepared glycidyl polyethers of a polyhydric phenol, one a liquid, the other a solid.

3,706,685
CROSS-LINKABLE POLYMER COMPOSITIONS COMPRISING ETHYLENICALLY UNSATURATED POLYMER

Karl Brack, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Filed July 1, 1971, Ser. No. 159,044
Int. Cl. C08f *11/00, 11/02*
U.S. Cl. 260—22 R **9 Claims**

Cross-linkable polymer compositions are described which comprise an ethylenically unsaturated polymer, the sultone adduct of a tertiary amine and a precursor of a polyfunctional nitrile N-oxide or nitrile imine. Typical sultone adducts are the 1,3-propane sultone adducts of triethylamine, triethylenediamine, N-methyl morpholine and quinuclidine. These compositions, which cross-link on heating, are useful as sealants and adhesives and in coating compositions.

3,706,686
PROCESSING AID FOR POST-CHLORINATED POLYVINYL CHLORIDE

Kenneth L. Eilers, Irvington, N.Y., and Adam F. Kopacki, Westwood, N.J., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Feb. 12, 1971, Ser. No. 115,087
Int. Cl. C08f *29/22*
U.S. Cl. 260—23 XA **13 Claims**

There are disclosed compositions of post-chlorinated polyvinyl chloride intimately admixed with a processing aid comprising a polyacrylate modified-polyvinyl chloride which is prepared by polymerizing an acrylate ester monomer, such as methyl methacrylate, in the presence of particles of polyvinyl chloride which have been previously prepared by means of a suspension polymerization procedure. These new compositions permit faster calendering with improved gloss and better surface qualities on extrusion as compared with post-chlorinated polyvinyl chloride which has not been modified in this manner.

3,706,687
URETHANE FOAM PRODUCTION AND CATALYST THEREFOR COMPRISING A MIXTURE OF AN ALIPHATIC TERTIARY AMINE COMPOUND AND A TERTIARY AMINE SALT OF AN ALKYLARYLSULFONIC ACID

Henryk S. Rudzki, Capo le Case 56, Rome, Italy
No Drawing. Continuation of application Ser. No. 788,842, Jan. 10, 1969, which is a continuation-in-part of abandoned application Ser. No. 715,554, Mar. 25, 1968, which in turn is a continuation-in-part of abandoned application Ser. No. 698,693, Jan. 18, 1968. This application Aug. 19, 1970, Ser. No. 65,347
Int. Cl. C08g *22/38*
U.S. Cl. 260—2.5 AC **33 Claims**

Production of polyurethane foams by reaction of at least one polyfunctional isocyanate compound with at least one polyfunctional compound containing an active hydrogen group in the presence of a novel catalyst composition comprising a particular mixture of at least one aliphatic amine and at least one alkylarylsulfonic acid which has been neutralized with a tertiary amine and also in the presence of a blowing agent for the reaction.

3,706,688
GLASS COLOR FILTER FOR USE UNDER DAYLIGHT COLOR FLUORESCENT LIGHT

Takashi Matsuura and Mitsuo Chikano, Tokyo, Japan, assignors to Hoya Glass Works, Tokyo, Japan
Filed Sept. 20, 1971, Ser. No. 181,782
Claims priority, application Japan, Sept. 18, 1970, 45/81,805
Int. Cl. F21v *9/00;* **C03c** *3/10, 3/30*
U.S. Cl. 252—300 **1 Claim**

A glass color filter suitable for use in color photography under daylight color fluorescent light is prepared from a glass composition comprising 100 parts of base glass composed of, by weight, 50–70% silicic acid anhydride, 8–17% lead oxide, 13–23% of either one or both of sodium oxide and potassium oxide, 3–12% of either one or both of calcium oxide and magnesium oxide. and 0.2–0.5% arsenic oxide, and a coloring agent composed of, by weight, 2.0–4.0% cerium oxide, 2.5–5.0% titanium oxide, 0.001–0.02 nickel oxide, 0.8–2.2% manganese dioxide, and 0.3–2.5% neodymium oxide.

3,706,689

PROCESS FOR THE PREPARATION OF A Sr^{90}–Y^{90} BETA SOURCE IN A RADIATION HAZARD FREE MANNER

Arlie W. Haskins, Alexandria, Va., assignor to Nuclear Associates, Inc.

No Drawing. Filed May 3, 1968, Ser. No. 726,566

Int. Cl. C09k *3/00*

U.S. Cl. 252—301.1 R **3 Claims**

Process for the preparation of a Sr^{90}–Y^{90} beta source in a substantially radiation hazard free manner comprising, in combination, the steps of providing a radioactive material containing Sr^{90}; separating at least part of the Sr^{90} from the radioactive material to provide a Sr^{90} rich material which emits only low energy beta rays; fabricating a source from the low energy beta ray emitting Sr^{90} rich material; storing the fabricated source for a period sufficient to permit the Sr^{90} therein to become an equilibrium mixture of Sr^{90}–Y^{90}; and utilizing the resulting stored fabricated source as a Sr^{90}–Y^{90} beta source. This process is useful in fabricating Sr^{90}–Y^{90} beta sources with a minimum of shielding. Such beta sources are in turn useful in medical applications of radioactivity such as radioactive eye applicators and nasopharyngeal applicators.

3,706,690

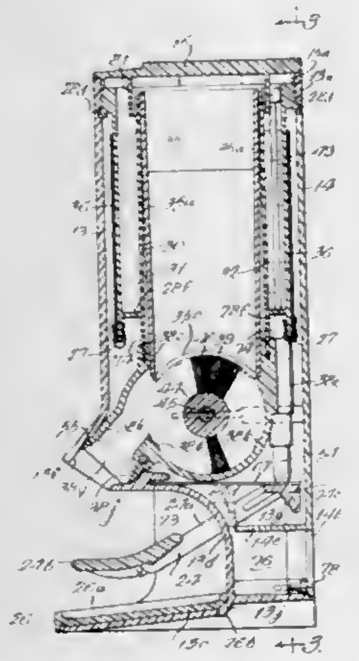
LATHER MAKING APPARATUS

John P. Duve, Brookfield, and Stanton H. Petry, Arlington Heights, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed June 11, 1970, Ser. No. 45,425

Int. Cl. B01d ; B67d *5/58;* **B01f**

U.S. Cl. 252—359 E **20 Claims**



A motor driven appliance for making soap lather by rotating a cylindrical brush in contact with a bar of soap in the presence of water. The lather is generated in a chamber nested beneath a water reservoir having means for dispensing the water into the chamber simultaneously with the actuation of the motor which rotates the brush. The vertically extending passageway for receiving the bar of soap is disposed within the water reservoir and connects to the top of the generating chamber. The chamber is sloped away from the lather discharge opening and a dam is provided to prevent the discharge of accumulated liquid along with the lather.

3,706,691

DEPOTTING SOLVENT

James V. Duffy, Beltsville, and Porter W. Erickson, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Sept. 4, 1970, Ser. No. 69,958

Int. Cl. B01f *1/00;* **C23g** *5/00*

U.S. Cl. 252—364 **10 Claims**

Encapsulating (potting) compositions which contain a linkage that is susceptible to hydrolytic cleavage; i.e., polyamides, polyesters and polyester base type polyurethanes, and which have deteriorated due to exposure to a hot, moist atmosphere are dissolved by contacting with a solvent comprising a solution of benzyltrimethylammonium hydroxide preferably containing a constituent selected from the group consisting of (a) tetrahydrofuran and acetone, (b) methylene chloride (c) methylene chloride and acetone and (d) N-methyl-2-pyrollidone.

3,706,692

CATALYST FOR PREPARATION OF UNSATURATED ALDEHYDES AND ACIDS

Jamal S. Eden, Akron, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.

Division of Ser. No. 838,349, July 1, 1969, Pat. No. 3,634,502. This application April 5, 1971, Ser. No. 131,501

Int. Cl. B01j *11/82*

U.S. Cl. 252—432 **3 Claims**

Unsaturated aldehydes and acids as acrolein and acrylic acid or methacrolein and methacrylic acid are prepared in excellent yields and at improved rates by the oxidation of propylene or isobutylene in the presence of a versatile catalyst containing molybdenum oxide, tellurium oxide and a boron phosphate. Calcination of the boron phosphate alone or in the catalyst mixture about 450° C. favors formation of aldehydes.

3,706,693

HYDROCARBON CONVERSION CATALYSTS

Grant A. Mickelson and Darryl L. Jones, Yorba Linda, and William J. Baral, Long Beach, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed July 10, 1970, Ser. No. 53,814

Int. Cl. B01j *11/82, 11/40*

U.S. Cl. 252—435 **18 Claims**

Hydrocarbon nconversion catalysts having markedly improved characteristics are prepared from intimate admixtures of foraminous alumina-containing refractory oxides and ion exchangeable aluminum-containing composites, such as crystalline alumiosilicate zeolites, silica-alumina cogels, and the like, upon impregnation with a strong acidic solution containing Group VIII and Group VI metal compounds and an acid of phosphorus at a pH below 3.

3,706,694

CATALYTIC HYDROCRACKING

Dean Arthur Young, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Continuation-in-part of application Ser. No. 761,321, Sept. 20, 1968, which is a continuation-in-part of application Ser. No. 681,561, Nov. 8, 1967. This application Mar. 9, 1970, Ser. No. 17,974

Int. Cl. B01j *11/40*

U.S. Cl. 252—455 Z **19 Claims**

A method for preparing crystalline aluminosilicate zeolite catalysts having a low alkali metal content in the zeolite and containing (1) a polyvalent metal cation, preferably an iron group metal and (2) a hydrogenation component, comprises pre-calcining or pre-steaming the polyvalent metal containing zeolite prior to addition of the hydrogenation component. The invention also includes the subsequent introduction of additional stabilizing element following the pre-calcining or pre-steaming but

prior to addition of the hydrogenation component. The catalysts find particular utility in hydrocracking and hydrotreating processes.

3,706,695

METHOD OF PREPARING A SILICONE EMULSION AND REGENERATING SAME AND ELECTRICALLY CONDUCTIVE PRODUCT

David J. Huebner, Williams Township, Bay County, and Michael D. Meddaugh, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Oct. 12, 1970, Ser. No. 80,179

Int. Cl. H01b *1/04;* **C08g** *31/34, 53/22*

U.S. Cl. 117—226 **20 Claims**

An emulsion prepared by dissolving a surface active sulfonic acid in water, adding polydiorganosiloxane, homogenizing the mixture, heating to polymerize the siloxane, adding a nonionic emulsifying agent, neutralizing, adding carbon black, and thereafter adding an organometallic catalyst and an alkoxysilane, provides a heat stable electrically conductive silicone rubber when the water is removed.

ERRATA

For Classes 260—2 H through 260—2.5 AC see: Patents Nos. 3,706,677 through 3,706,687, inclusive

3,706,696

GROUTING COMPOSITION

Frank E. Bernett, Yardley, Pa., and Robert J. Kleinhans, Kingston, N.J., assignors to Tile Council of America, Inc.,, New York, N.Y.

Continuation-in-part of Ser. No. 732,081, May 27, 1968, abandoned. This application Jan. 8, 1971, Ser. No. 105,068

Int. Cl. C04b *19/02;* **C08d** *7/00;* **C08f** *29/00*

U.S. Cl. 260—29.7 E **8 Claims**

A novel and improved grouting composition is provided having a viscosity of 50,000 to 1,200,000 cps., a water retention value of 10 to 40, a filler content of from about 75 to 88 percent and a volatile component content of from 8 percent to 20 percent which comprises an admixture of a water resistant polymer emulsion having a solids content of at least 40 percent and a non-hydraulic water insoluble filler having an average particle size not greater than 100 mesh nor less than 20 microns, which when measured as an aqueous slurry, at a viscosity of between 400,000 to 500,000 cps., has a water to filler volume ratio not greater than one and a slurry flow not greater than 120 percent. Additionally, a method of setting and grouting tile is provided in which said novel composition is employed.

3,706,697

EMULSION POLYMERIZATION OF ACRYLOXYALKYLSILANES WITH ALKYLACRYLIC ESTERS AND OTHER VINYL MONOMERS

Richard H. Backderf, West Richfield, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.

Filed Sept. 3, 1970, Ser. No. 69,431

Int. Cl. C08f *11/04;* **D21h** *1/40*

U.S. Cl. 260—29.2 M **9 Claims**

Aqueous emulsion polymerization of acryloxyalkyl alkoxysilane, alkyl acrylic esters, and optionally other vinyl monomers produces copolymers curable at low temperatures. The silane may be introduced to the polymerization after a portion of the other monomers are polymerized. Heat curing improves the solvent resistance of cured as-cast films of the latex. Silanol curing catalysts enhance the cure rate. Paper coatings are comparison tested for wet and dry tensile. Exemplary is a latex of a polymer of 40.7 percent 2-ethylhexyl acrylate, 18.5 percent vinylidene chloride, 37.6 percent vinyl chloride and 3.2 percent gamma-methacryloxypropyl trimethoxysilane.

3,706,698

PROCESS FOR THE DYEING OF SYNTHETIC POLYAMIDES IN BULK

Arthur Buehler, Rheinfelden, and Felix Steiolin, Dornach, Solothurn, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Mar. 23, 1970, Ser. No. 22,040

Claims priority, application Switzerland, Apr. 29, 1969, 6,560/69

Int. Cl. C08g *53/04*

U.S. Cl. 260—37 NP **2 Claims**

The invention relates to a process for dyeing synthetic linear polyamides in bulk, wherein a 1:1-chromium complex compound of a monoazo dyestuff that contains at least one sulphonic acid group or a salt thereof is used.

3,706,699

MANUFACTURE OF MOULDING MATERIAL STARTING FROM POLYETHYLENE TEREPHTHALATE

Andre Jan Conix, Antwerp, and Lambert Gaston Jeurissen, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Continuation of application Ser. No. 739,184, June 24, 1968. This application May 11, 1970, Ser. No. 37,392

Claims priority, application Great Britain, June 29, 1967, 30,140/67

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 R **24 Claims**

A process for the preparation of and a novel moulding material comprising polyethylene terephthalate having an inherent viscosity of 0.65 dl./g. measured at 25° C. in a 60:40 mixture of phenol and tetrachloroethane in admixture with from about 0.1 to 10% by weight of a fusible homopolymer and from about 0 to 1% by weight of a finely divided solid mineral substance is described.

3,706,700

USE OF BIS-METHYLENE MALONIC ACID NITRILES IN LIGHT SENSITIVE MATERIALS

Rudolph Kirchmayr, Binningen, Basel-Land, Hans Jakob Peterli, Fullinsdarf, Basel-Land, and Hansjorg Heller, Riehen, Switzerland, assignors to Ciba-Geigy Corporation

No Drawing. Original application July 18, 1966, Ser. No. 565,725, now Patent No. 3,546,270, dated Dec. 8, 1970. Divided and this application July 24, 1970, Ser. No. 64,861

Claims priority, application Switzerland, July 23, 1965, 10,366/65; July 15, 1966, 10,201/66

Int. Cl. C08b *27/68;* **C08f** *45/60;* **C08g** *51/60*

U.S. Cl. 106—178 **12 Claims**

Methylene malonic acid nitriles, useful as UV absorbers, are employed in light sensitive materials.

3,706,701

STABILIZATION OF POLYMERS

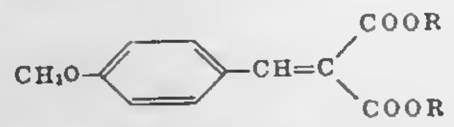
Peter Vincent Susi, 17 Starlit Drive, Middlesex, N.J. 08846

No Drawing. Continuation-in-part of application Ser. No. 389,210, Aug. 12, 1964, which is a continuation-in-part of application Ser. No. 362,182, Apr. 23, 1964, both now abandoned. This application June 15, 1971, Ser. No. 153,447

Int. Cl. C08f *45/58;* **C08g** *51/58;* **C08b** *27/66*

U.S. Cl. 260—45.85 V **8 Claims**

Stabilization of organic plastic substrates versus the degrading effects of ultraviolet light is effected by incorporating therein stabilizing amounts of a p-methoxybenzylidenemalonic acid diester represented by the formula:



where R is a methyl or ethyl radical.

3,706,702

LINEAR AROMATIC COPOLYTHIOETHERS

Josef Studinka, Zurich, and Rudolf Gabler, Uitikon-Waldegg/Zurich, both of Switzerland, assignors to General Electric Company

Filed March 2, 1970, Ser. No. 15,939

Claims priority, application Switzerland, March 3, 1969, 3197/69

Int. Cl. C08g *23/00, 23/24*

U.S. Cl. 260—47 R **1 Claim**

Heat resistant linear aromatic copolythioethers having recurring the structural units —S—R—S—R′ in which R and R′ originate from a dithiol and a polyhalogen. Preparing these copolythioethers by intermixing an aromatic dithiol and a bifunctional aromatic polyhalogen and an aromatic dithiol or a bifunctional aromatic polyhalogen different from the above. Reacting these compounds in an alkaline medium, without oxygen and in the presence of an inert polar aprotic solvent. Then recovering the copolythioether.

3,706,703

PROCESS FOR THE PREPARATION OF CYCLIC ACID ANHYDRIDES

William J. Heilman, Allison Park, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 828,001, May 26, 1969, which is a continuation-in-part of abandoned application Ser. No. 594,347, Oct. 25, 1966. This application Nov. 27, 1970, Ser. No. 93,469

Int. Cl. C08f *27/12*

U.S. Cl. 260—78.5 T **10 Claims**

A process is defined for heating an organic compound containing at least one half-ester of a dicarboxylic acid where the carbonyl groups are directly connected to adjacent internal aliphatic carbon atoms to a temperature from about 80° C. to 149° C. to convert the half-ester groups to cyclic anhydride groups and a by-product alcohol. The organic compound is a 1:1 copolymer of an aliphatic hydrocarbon having at least three carbon atoms, such as 1-hexane, and maleic anhydride. If the organic compound contains both half-ester and diester groups, the resulting compound after heating to a temperature from 80° C. to 149° C. will contain anhydride and diester linkages.

3,706,704

PREPARATION OF C_6–C_{10} OLEFIN-MALEIC ANHYDRIDE COPOLYMERS

William J. Heilman, Allison Park, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 828,001, May 26, 1969, which is a continuation-in-part of application Ser. No. 594,347, Oct. 25, 1966. This application Nov. 27, 1970, Ser. No. 93,501

The portion of the term of the patent subsequent to May 25, 1988, has been disclaimed

Int. Cl. C08f *1/08, 15/02*

U.S. Cl. 260—78.5 R **14 Claims**

Copolymers of maleic anhydride and an aliphatic alpha-olefin having from six to ten carbon atoms are prepared in a finely divided filterable solid form. Maleic anhydride is copolymerized with at least one of the olefins in the presence of a free-radical catalyst and a solvent for both of the monomers and the resulting copolymer. The copolymer is precipitated by adding the reaction solution to a sufficient amount of a monohydroxy aliphatic alcohol having from one to four carbon atoms.

3,706,705

METHOD FOR SUSPENSION-POLYMERIZING VINYL CHLORIDE

Shunichi Koyanagi, Yokohama-shi, Kanagawa-ken; Hajime Kitamura, Itabashi-ku, Tokyo, and Toshihide Shimizu, Kashima-gun, Ibaragi-ken, all of Japan, assignors to Shinetsu Chemical Company

Filed Aug. 26, 1971, Ser. No. 175,325

Claims priority, application Japan, June 3, 1971, 46/38810

Int. Cl. C08f *1/11, 3/30, 15/2*

U.S. Cl. 260—78.5 CL **11 Claims**

Vinyl chloride or a mixture of vinyl monomers containing vinyl chloride as its main component, and an aqueous medium containing a protective colloidal substance and an anionic surface active agent are subjected to an initial stirring, in the presence of an oil-soluble catalyst. Before the rate degree of conversion reaches 30 percent, an inorganic polyvalent metal salt and/or an amine hydrochloride is added to the polymerization system. The anionic surface active agent is thereby rendered water-insoluble. The polymerization is then completed. A polymer having uniform particle size distribution, superior porosity and a high rate of plasticizer absorption is produced.

3,706,706

POLYETHERS CONTAINING PENDANT METAL THIOSULFATE GROUPS

Edwin J. Vandenberg, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 843,799, July 22, 1969. This application May 6, 1971, Ser. No. 140,948

Int. Cl. C08g *23/06, 23/20, 23/04*

U.S. Cl. 260—79.3 R **10 Claims**

Modified polyethers containing pendant metal thiosulfate groups are described. The modified polyethers are prepared by reacting a polymer of an epihalohydrin or 1,4-dihalo-2,3-epoxybutane with a metal thiosulfate.

3,706,707

ADDUCTS OF A POLYMER OF A CYCLIC ETHER AND A SULTONE

Louis E. Trapasso, Westfield, N.J., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Original application Oct. 31, 1966, Ser. No. 590,460, now Patent No. 3,502,607, dated Mar. 24, 1970. Divided and this application Sept. 18, 1969, Ser. No. 871,057

Int. Cl. C07d *89/06*

U.S. Cl. 260—79.3 R **7 Claims**

An adduct composition particularly useful for increasing the dyeability of shaped polymeric articles, particularly fibers and more particularly, acrylonitrile fibers. The composition is an adduct of a polymer of a cyclic ether and a sultone. The adduct functions as a dyesite for a cationic dye diffusion promoter when incorporated into a polymer. The method of producing such adducts is also described.

3,706,708

UNIFORMLY DISPERSIBLE INSOLUBLE SULFUR VULCANIZING COMPOSITIONS

James Edward Kearnan, Yorktown Heights, and Robert William Newsbaum, Mahopac, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Sept. 28, 1970, Ser. No. 76,282

Int. Cl. C08c *11/54;* **C08f** *27/06*

U.S. Cl. 260—79.5 **16 Claims**

The dispersibility, in rubber, of insoluble sulfur used for vulcanizing can be improved by admixing alkylphenoxypoly(ethyleneoxy)ethanols with the sulfur.

3,706,709

COATING COMPOSITIONS OF UNSATURATED CARBOXYLIC ACID AMIDE POLYMERS AND UNSATURATED ORGANOSILANES

J. A. Erikson, Gibsonia, Pa., and Robert G. Douds, Delaware, Ohio, assignors to PPG Industries, Pittsburgh, Pa.

No Drawing. Filed July 22, 1970, Ser. No. 57,337

Int. Cl. C08f *15/40*

U.S. Cl. 260—80.71 **11 Claims**

Resinous compositions useful as coating compositions comprise an interpolymer of monomers consisting essentially of an unsaturated carboxylic acid amide, one or more ethylenically unsaturated monomers, and an unsaturated organoalkoxysilane. Coatings produced from these compositions have outstanding physical properties, such as chemical resistance, adhesion, flexibility, impact resistance, and hardness.

3,706,710

PROCESS FOR PREPARING DISCOLORATION-RESISTANT CURABLE POLYURETHANE COATINGS

Louis T. Camilleri, North Bellmore, and Anthony F. Forgione, Bayshore, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Dec. 31, 1970, Ser. No. 103,279

Int. Cl. C08g *53/00, 22/18*

U.S. Cl. 260—75 NE **17 Claims**

Moisture curable polyurethane coatings are rendered discoloration-resistant by first reacting a polyol with an aromatic polyisocyanate and completing the reaction with an aliphatic polyisocyanate.

3,706,711

PROCESS FOR THE MANUFACTURE OF HIGHLY POLYMERIC POLYESTERS UTILIZING SAMARIUM COMPOUND CATALYSTS

André Jan Conix, Antwerp, and Lambert Gaston Jeurissen, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Apr. 10, 1968, Ser. No. 720,400

Claims priority, application Great Britain, May 8, 1967, 21,291/67

Int. Cl. C08g *17/01, 17/013*

U.S. Cl. 260—75 C **4 Claims**

A process for the manufacture of highly polymeric fiber and film-forming polyesters comprising polycondensing a glycol dicarboxylate in the presence of a catalytic amount of a samarium compound is described. Only a small amount of the samarium compound is required, resulting in polyesters having good color.

3,706,712

AROMATIC SULFONATE MODIFIED POLYESTERS

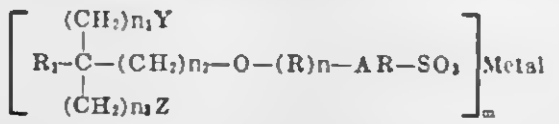
Gerald W. Davis, Charlotte, N.C., and Robert W. Stackman, Morristown, N.J., assignors to Celanese Corporation, New York, N.Y., and Fiber Industries, Inc., Charlotte, N.C.

Continuation-in-part of application Ser. No. 833,729, June 16, 1969. This application Apr. 13, 1970, Ser. No. 27,942

Int. Cl. C08g *17/08*

U.S. Cl. 260—75 S **9 Claims**

Aromatic sulfonates and fiber and film forming polymers containing these sulfonates, the sulfonates being represented by the general formula:



$$\left[R_1-\underset{(CH_2)n_3Z}{\overset{(CH_2)n_1Y}{C}}-(CH_2)n_2-O-(R)n-AR-SO_3 \,\middle|\, \text{Metal} \right]_m$$

wherein R_1 represents either hydrogen or an alkyl radical containing from 1 to about 6 carbon atoms; n, n_1, n_2 and n_3 each independently represent an integer from 0 to about 6, and $n_1+n_2+n_3$ is equal to or greater than 2 if Y and Z both are hydroxy; Y and Z are selected independently from the class consisting of hydroxy, carboxy, and alkoxycarbonyl, the alkoxy portion of which contains from 1 to about 6 carbon atoms; Ar represents a divalent aromatic radical which may be substituted or unsubstituted; m is an integer equal to the valency of the metal; and R represents a divalent radical, with the proviso that where n is 0 and Ar is phenylene, the metal is lithium.

3,706,713

ALIPHATIC POLYCARBONATES

Colin G. Hull, San Francisco, and John Boor, Jr., Cerrito, both of Calif., assignors to Shell Oil Company, New York, N.Y.

Filed Aug. 11, 1970, Ser. No. 63,030

Int. Cl. C08g *17/13*

U.S. Cl. 260—77.5 D **3 Claims**

Compositions comprising novel copolymers of carbon dioxide and one or more aliphatic 1,2 monoepoxide having at least four carbon atoms per molecule are prepared in the presence of a catalytic amount of a catalyst system comprising an organo metallic compound of magnesium, zinc or cadmium, an amine and water at pressures between 1 and 200 atmospheres and temperatures between 20° and 225° C. The compositions are useful for moldings, films and fibers.

3,706,714

POLYURETHANE POLYOLS

Rodney Frederick Lloyd and Michael Cuscurida, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Feb. 2, 1971, Ser. No. 112,044

Int. Cl. C08g *22/14*

U.S. Cl. 260—77.5 AP **5 Claims**

Polyurethane polyols may be prepared to contain oxypropylene and oxyethylene linkages and also, pendant alkyl chains of 8 to 20 carbon atoms. The polyols may be used to prepare polyurethane products of unusual softness and low resistance to temporary deformation useful as caulks, sealants, gaskets, and other space filling materials.

3,706,715

CROSS-LINKABLE POLYMER COMPOSITIONS COMPRISING ETHYLENICALLY UNSATURATED POLYMER

Karl Brack, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed July 1, 1971, Ser. No. 158,981

Int. Cl. C08f *11/00;* **C08g** *41/04*

U.S. Cl. 260—77.5 AC **4 Claims**

Cross-linkable ethylenically unsaturated polymer compositions are described, which compositions comprise an ethylenically unsaturated polymer, a precursor of a polyfunctional nitrile N-oxide or nitrile imine and a lactone or sultone. These compositions cross-link when heated. Suitable lactones are those containing 3 or 4 carbon atoms in the lactone ring such as propiolactones and butyrolactones and suitable sultones are those containing 3 carbon atoms in the sultone ring such as 1,3-propane sultone. These compositions are useful as sealants and adhesives.

3,706,716

ALPHA-METHYLENEGLUTARIMIDE POLYMERS AND COPOLYMERS AND PREPARATION THEREOF

John M. Hoyt, Cincinnati, and Karl Koch, Norwood, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Original application Dec. 28, 1967, Ser. No. 694,048. Divided and this application May 28, 1970, Ser. No. 50,008

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 UA **12 Claims**

Homopolymers and copolymers of alpha-methyleneglutarimide and process for preparing same using an initiator which is an alkali metal or an organometallic compound, which polymers can be employed to make fibers, foils and films.

3,706,717

COPOLYMERS OF FUMARIC ACID AND ALLYL SULFONIC ACID

Frederick Herman Siegele, Westport, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed July 1, 1970, Ser. No. 51,686

Int. Cl. C08f *15/02*

U.S. Cl. 260—78.5 R **2 Claims**

Formation of hard adherent scale deposits of insoluble salts particularly carbonates and sulfates of metals such as calcium or other alkaline earth metals, and/or iron are inhibited, controlled or prevented on, or removed from (a) the walls of evaporators, cooling towers, heat exchangers, boilers and devices where a thermal gradient exists or areas where catalytically active sites induce scale formation in aqueous systems by (b) from about $\frac{2}{10}$ to 2000 parts per million of an aliphatic copolymer of monovinyl compound and a vinyl sulfonate having (c) from about 25 mol percent to 75 mol percent of the sulfonate and (d) a molecular weight of about 1000 to 25,000. The copolymer is useful alone, and in cooperation with corrosion inhibitors, other sequestrants and chelating agents.

3,706,718

CATALYST AND METHOD FOR MAKING EPDM HAVING IMPROVED PROCESSABILITY

Frederick C. Loveless, Oakland, and Don H. Miller, Wayne, N.J., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed May 10, 1971, Ser. No. 142,058

Int. Cl. B01j *11/00;* **C08f** *15/40*

U.S. Cl. 260—80.78 **12 Claims**

The use of polypropylene glycol in the manufacture of EPDM based on a cyclic diene (e.g., dicyclopentadiene or ethylidene norbornene) with catalyst containing (a) vanadium oxytrichloride and (b) alkylaluminum sesquihalide or dialkylaluminum halide, leads to decreased long chain branching and consequent improved processability.

3,706,719

PROCESS FOR THE POLYMERIZATION OF MONOMERS

Edward P. Goffinet, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 6, 1971, Ser. No. 187,080

Int. Cl. C08f *15/40*

U.S. Cl. 260—80.78 **4 Claims**

There is provided a process for the copolymerization of ethylene in a horizontal cylindrical evaporatively cooled reactor provided with a rotatable ribbon blender agitator having a set of outer ribbon blades pitched in a direction opposite to a set of inner ribbon blades.

3,706,720

CONTINUOUS PROCESS FOR THE PRODUCTION OF ALFIN POLYMERS

Leo H. Broering, Fort Wright, Ky., and William R. Birchall, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

Continuation-in-part of abandoned applications Ser. No. 294,717, July 12, 1963, Ser. No. 661,921, Aug. 21, 1967, and Ser. No. 784,298, Dec. 13, 1968. This application Jan. 16, 1970, Ser. No. 3,539

Int. Cl. C08d *1/20, 3/06;* **C08f** *19/08*

U.S. Cl. 260—82.1 **20 Claims**

A continuous process for the preparation of alfin polymers is provided, effecting the polymerization of the monomer by an alfin catalyst in the presence of a molecular weight moderator, separating unreacted monomer, volatile low polymer and solvent by subjecting the alfin polymer reaction mixture to steam stripping, and thereafter purifying the monomer and solvent and recycling them for reuse, and washing and drying the alfin rubber.

In the process of the invention, molecular weight of the polymer is controlled by adjustment of the proportion of molecular weight moderator. No other modification of reaction conditions, proportions of catalyst, and other process variables is necessary.

3,706,721

CONTROL OF MOLECULAR WEIGHT IN THE PRODUCTION OF ALFIN POLYMERS

Lowell D. Grinninger, Cincinnati, Ohio, assignor to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed Mar. 26, 1970, Ser. No. 23,057

Int. Cl. C08d *1/32, 3/06*

U.S. Cl. 260—82.1 **17 Claims**

A process is provided for the control of molecular weight in the production of alfin polymers and copolymers by effecting the polymerization of the monomers by an alfin catalyst in the presence of a specific type of triene hydrocarbon compound having a conjugated diene structure adjacent to an allyl group. The molecular weight of an alfin polymer can be controlled by adjustment of the proportion of this molecular weight control agent or moderator.

3,706,722

POLYMERS FROM ESSENTIALLY WATER-INSOLUBLE UNSATURATED LIQUID MONOMERS AND PROCESS FOR PREPARING SAME

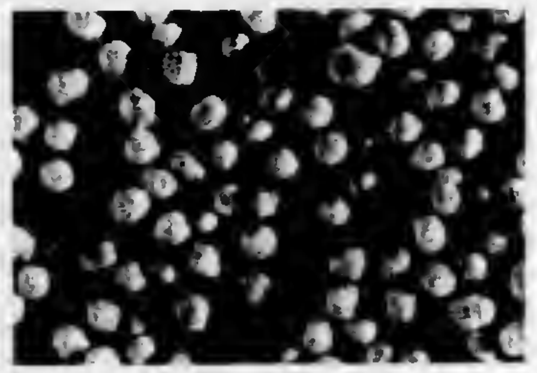
Alfred R. Nelson, Bay City, and Vernon D. Floria, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of application Ser. No. 718,722, Apr. 4, 1968, which is a continuation-in-part of application Ser. No. 642,169, May 29, 1967. This application July 2, 1970, Ser. No. 51,866

Int. Cl. C08f *1/60, 15/32, 1/09*

U.S. Cl. 260—85.5 ZA **9 Claims**

An improvement in the process for preparing polymers from substantially water-insoluble polymerizable ethylenically unsaturated liquid monomer in aqueous suspension wherein such monomers form polymers which are insoluble in their monomer and where the polymerization is first carried out by forming an initial continuous monomer phase which is then polymerized to a maximum conversion of about 20 percent and the polymerization completed following the addition of water in amount sufficient to form a monomer-in-water phase; wherein the improvement consists of conducting the polymerization in the presence of certain, non-ionic, monomer soluble surface active agents which provide for the formation of polymers composed of individual, uniform, substantially spherical porous particles which are devoid of exterior pericellular layer.



3,706,723

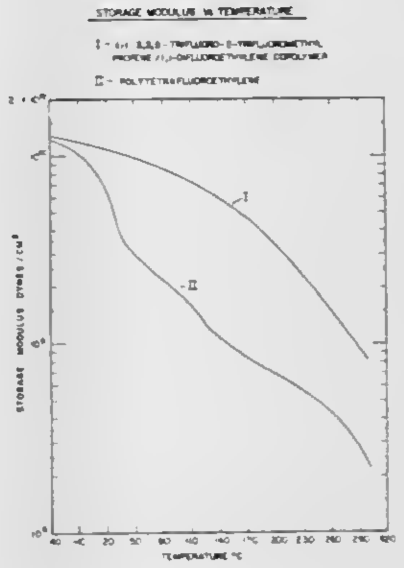
COPOLYMER OF 3,3,3 - TRIFLUORO-2-TRIFLUOROMETHYL PROPENE AND VINYLIDENE FLUORIDE

Swayambu Chandrasekaran, East Orange, and Max B. Mueller, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Apr. 29, 1970, Ser. No. 32,944

Int. Cl. C08f *15/06*

U.S. Cl. 260—87.7 **9 Claims**



Thermoplastic 3,3,3-trifluoro-2-trifluoromethyl propene/1,1-difluoroethylene copolymers are prepared by copolymerizing the monomers in liquid media in the presence of a free radical generating initiator. The copolymer products are melt-processable, retain their mechanical strength at high temperatures, and resist attack by corrosive agents and solvents.

3,706,724

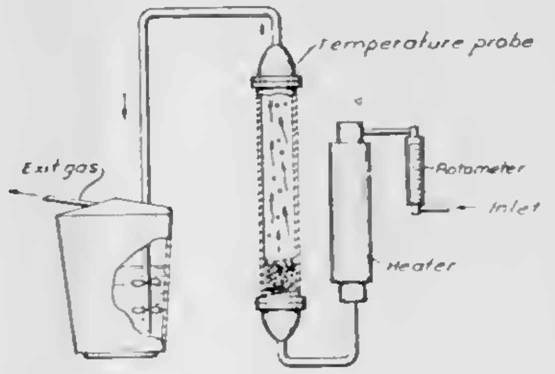
PROCESS FOR THE DEHYDROCHLORINATION OF CHLORINATED POLYOLEFINS

Robert R. Blanchard, Port Allen, and James S. Kennedy and Reginald F. Roberts, Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

Filed July 2, 1971, Ser. No. 159,427

Int. Cl. C08f *27/02, 3/00*

U.S. Cl. 260—94.9 GD **9 Claims**



This invention pertains to a process for preparing dehydrochlorinated chlorinated polyolefins in particulate form by dehydrochlorinating a comminuted chlorinated polyolefin containing catalyzing amounts of a Lewis acid, while said chlorinated polyolefin is maintained in a fluidized bed in the presence of a substantially inert gas and further in the presence of small amounts of an inert filler which has an affinity for adsorption onto the surfaces of the chlorinated polyolefin.

3,706,725

BASIC TRIAZOLE DISAZO DYES

Minoru Ozutsumi, Shigeo Maeda, and Teruo Nakajyo, Tokyo, Japan, assignors to Hodogaya Chemical Industry Co., Limited, Tokyo, Japan

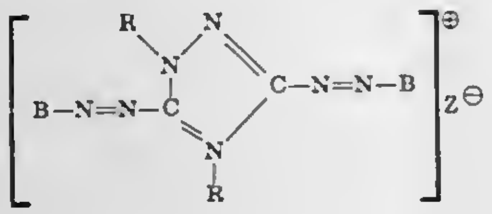
No Drawing. Filed Apr. 15, 1970, Ser. No. 28,933

Claims priority, application Japan, May 20, 1969, 44/38,419

Int. Cl. C09b *35/34;* **D06p** *3/70*

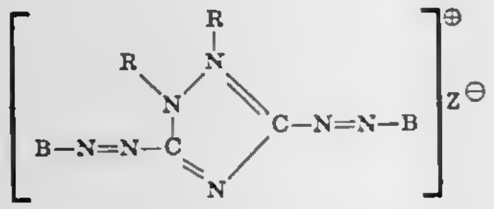
U.S. Cl. 260—157 **7 Claims**

Basic disazo compounds having the formula:



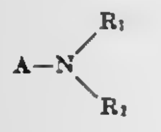
(I)

or



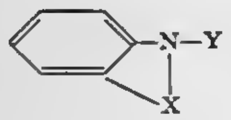
(I')

Wherein R represents a lower alkyl or a benzyl radical; Z⊖ represents an anion; and B represents either



(II)

wherein A is a phenylene group or a naphthylene group which may have a lower alkyl, lower alkoxy or an acylamine radical or halogen as a substituent; R_1 and R_2 each represent, respectively, hydrogen, lower alkyl, oxyalkyl, cyanoalkyl, alkoxyalkyl, halogenoalkyl, or an aralkyl radical, substituted or un-substituted phenyl group, and the R_1 and R_2 taken together can be bonded to form a ring directly or linked with nitrogen or oxygen atom; or



(III)

wherein X represents a divalent residue radical which can form hetero rings having 5 or 6 members linked with a nitrogen atom; and Y represents a lower alkyl, oxyalkyl, cyanoalkyl, alkoxyalkyl, halogenoalkyl, or an aralkyl radical which are useful for coloring a wide variety of fibers and especially polyacrylonitrile type fibers and methods for producing the same which compounds provide shades of color which are characterized by high fastness to sunlight, good wash resistance, good rub resistance, and good heat stability.

3,706,726

POLYURETHANE RESINS PREPARED FROM ALKOXYLATED GLUCOSE DERIVATIVES

John P. Gibbons, Western Springs, and Lawrence Wondolowski, Lemont, Ill., assignors to CPC International Inc.

No Drawing. Original application Nov. 15, 1967, Ser. No. 683,162, now Patent No. 3,586,650, dated June 22, 1971. Divided and this application June 1, 1970, Ser. No. 54,040

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R **5 Claims**

Covers polyurethane resins. Particularly covers polyurethane resins formed by reacting an organic polyisocyanate and an alkoxylated monoacetone glucose or ethylene glucose having a molecular weight ranging from about 350 to about 5000 and a hydroxyl number ranging from about 40 to about 500. The resins may be in the form of coatings or foams, either of the flexible or rigid type; also covers a method of preparing the above polyurethanes.

3,706,727

STEROID COMPOUNDS EFFECTIVE AGAINST CARDIAC CONDITIONS AND METHOD OF THEIR PREPARATION

Wilhelmine Beran, Linz, Austria, assignor to Laevosan-Gesellschaft Chem. Pharm. Industrie, Franck & Dr. Freudl, Linz, Austria

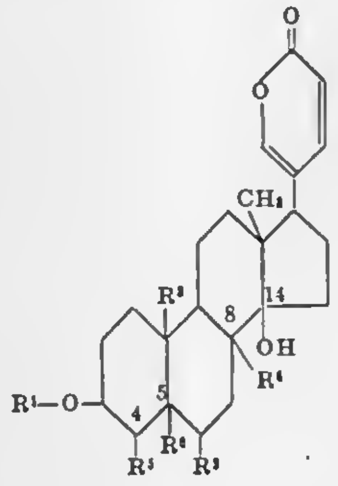
Filed June 10, 1969, Ser. No. 831,847

Claims priority, application Austria, June 10, 1968, A 5,546/68

Int. Cl. C07c *173/00*

U.S. Cl. 260—210.5 **22 Claims**

The present invention provides novel steroid compounds having the formula



wherein R_1 is hydrogen or a sugar radical; R_2 is hydrogen, a hydroxyl group or an ester or an ether thereof with a lower alkyl carboxylic acid or a lower alkyl alcohol; R_3 is a lower alkyl radical which may be substituted with an oxygen atom, a hydroxyl group, a lower alkoxy group, or with the acyl radical of a lower alkyl carboxylic acid; R_4 is hydrogen, the hydroxyl group or an ester thereof with a lower alkyl carboxylic acid, or is the ethoxy group; and R_5 and R_6 are each a hydroxyl group or together form an epoxy group.

3,706,728

N(6)-BRANCHED CHAIN LOWER-ALKYL-ADENOSINE DERIVATIVES

Erich Fauland, Mannheim-Waldhof, Wolfgang Kampe, Heddesheim, Max Thiel and Wolfgang Juhran, Mannheim, Karl Dietmann, Mannheim-Waldhof, and Harald Stork, Lampertheim, Germany, assignors to Boehringer Mannheim GmbH, Postfach, Germany

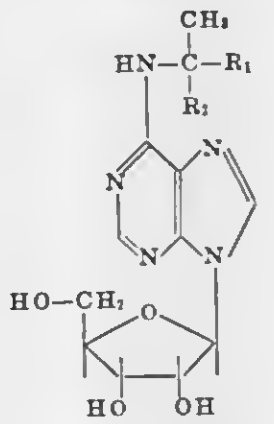
No Drawing. Filed Mar. 4, 1970, Ser. No. 16,617

Claims priority, application Germany, Mar. 19, 1969, P 19 13 818.2, P 19 13 816.0

Int. Cl. C07d *51/54*

U.S. Cl. 260—211.5 R **9 Claims**

Novel N(6)-alkyl-adenosine derivatives of the formula



wherein R_1 is straight-chain or branched-chain alkyl of from 1 to 6 carbon atoms; and R_2 is methyl or, when R_1 contains more than one carbon atom, R_2 can also be hydrogen; are useful as cardio- and circulatory-active agents and in influencing fat metabolism.

3,706,729

ANTIBIOTICS AND PROCESSES FOR THEIR PREPARATION

Andrew David Batcho, 98 Jackson Ave., North Plainfield, N.J. 07060; Julius Berger, 308 Aycrigg Ave., Passaic, N.J. 07055; Andre Furlenmeier, 119 Wettseinallee, Basel, Switzerland; Oscar Keller, 187 Rutherford Blvd., Clifton, N.J. 07014; Benjamin Pecherer, 24 Clairidge Court, Montclair, N.J. 07042; Arno Johannes Schocher, RD 2, Boonton Ave., Boonton, N.J. 07005; Hans Spiegelberg, 16 Im Holeeletten, Basel, Switzerland and Bruno Peter Vaterlaus, 14 Muhlesteig, Binningen, Switzerland

No Drawing. Filed Nov. 21, 1963, Ser. No. 325,498

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R **26 Claims**

Novel antibiotics of the family coumermycin formerly called sugordomycins are prepared by cultivating the organism *Streptomyces hazeliensis* (NRRL 2938). The most active of the antibiotics is coumermycin A_1, which is of the Formula I.

3,706,730

METHOD OF CONTROLLING ETHERIFICATION OF GRANULE STARCH WITH AN ALKALI-CONSUMING ETHERIFYING REAGENT

Erling T. Hjermstad and Otto J. Rajtora, Cedar Rapids, Iowa, assignors to Penick & Ford Limited, Cedar Rapids, Iowa

Filed Mar. 1, 1971, Ser. No. 119,480

Int. Cl. C08b *19/06*

U.S. Cl. 260—233.3 R **15 Claims**

Granule starch is etherified with an alkali-consuming etherifying reagent, such as an alkyl or aralkyl halide, using an alkali etherification catalyst while maintaining the starch in a filterable state with a reduced amount of an inorganic salt starch swelling inhibitor, such as sodium chloride or sodium sulfate. In the method, a water suspension of granule starch, with limited quantities of the alkali etherification catalyst and the salt inhibitor, is reacted in a batch-type reaction vessel with the alkali-consuming etherifying reagent. During the course of the reaction, portions of the reaction mixture are withdrawn and formed into a turbulently flowing stream outside the reaction vessel. There is injected into this stream, a water solution of additional amounts of the alkali etherification catalyst, and the withdrawn portions are returned to the reaction vessel with the alkali in admixture therewith. The additional amounts of alkali catalyst are proportioned to maintain limited and controlled concentrations thereof in the reaction vessel,

3,706,731

PROCESS OF PREPARING HIGHLY SUBSTITUTED HYDROXYALKYL ETHERS OF UNINHIBITED GRANULE STARCHES SUBSTANTIALLY FREE OF SALTS AND GLYCOLS, AND RESULTING PRODUCTS

Erling T. Hjermstad, Cedar Rapids, Iowa, assignor to Kcinep & Drof, Inc., Cedar Rapids, Iowa

No Drawing. Continuation-in-part of applications Ser. No. 779,631, Nov. 27, 1968, now abandoned, and Ser. No. 826,027, May 19, 1969, now Patent No. 3,577,407. This application May 3, 1971, Ser. No. 139,939

Int. Cl. C08b *19/06*

U.S. Cl. 260—233.3 R **22 Claims**

Substantially salt-free and glycol-free monofunctional reaction products of uninhibited granule starches with high levels of alkylene oxides are prepared by a water suspension etherification process using an alkaline catalyst in combination with an alkali metal sulfate. The alkali metal sulfate is essential, and it is used at a concentration of at least 3 to 5 parts per 100 parts of water. Although the reaction is carried to a high substitution level measured as hydroxyalkyl (D.S.), the starch, although not cross-linked, remains in native granule form and is both filterable and washable. This permits substantially complete removal of the salts and side reaction products by ordinary filtration and washing techniques. The method can be employed to produce novel starch products, which are believed to contain monofunctionally-linked oxyalkyl polymer chains, and the products are free of bifunctional cross-links.

3,706,732

POLYFRUCTOSAN TRINICOTINATES

Karl Holzer, Linz (Danube), Austria assignor to Laevosan-Gesellschaft Chem. Pharm. Industrie Frank & Dr. Freudl, Linz (Danube), Austria

No Drawing. Filed Feb. 9, 1970, Ser. No. 9,977

Int. Cl. C07c *47/18*

U.S. Cl. 260—234 R **2 Claims**

Polyfructosan trinicotinates are disclosed wherein the polyfructosan is inulin, sinistrin or garlic polyfructosan. These materials may be prepared by esterifying nicotinic acid or a derivative thereof with the corresponding fructosan in the presence of an acid bonding agent and in the presence of inert solvents. The resulting polyfructosan trinicotinates have pharmacological activity and slowly release nicotinic acid in the body.

3,706,733

EPITHIO-THIOL-DIENOATES

Clive A. Henrick, 1621 Channing Ave., and John B. Siddall, 2470 Greer St., both of Palo Alto, Calif. 94304

No Drawing. Filed Feb. 16, 1971, Ser. No. 115,725

Int. Cl. C07d *59/00, 1/00*

U.S. Cl. 260—327 E **9 Claims**

Polyunsaturated aliphatic hydrocarbon thiolesters, nitriles, amines, halides, alcohols and derivatives thereof, synthesis thereof, for the control of arthropods.

3,706,734

1,5-DIHYDRO-2H-1,4-BENZODIAZEPINE

Rodney Ian Fryer, North Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Jan. 25, 1968, Ser. No. 700,348, which is a continuation-in-part of application Ser. No. 614,009, Feb. 6, 1967. Divided and this application Apr. 15, 1971, Ser. No. 133,739

Int. Cl. C07d *53/06*

U.S. Cl. 260—239.3 D **9 Claims**

Novel benzodiazepin-2-ones having an ethylenic linkage interjoining positions 3 and 4. These compounds are intermediates in a process for preparing dihydro benzodiazepines from tetrahydro benzodiazepines. Dihydro benzodiazepines are useful as muscle relaxants, sedatives and anticonvulsants.

3,706,735

BASIC DERIVATIVES OF 5H-DIBENZ[b,f] AZEPINES

Alfred Sallmann, Bottmingen, and Rudolf Pfister, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Aug. 19, 1970, Ser. No. 65,350

Claims priority, application Switzerland, Aug. 20, 1969, 12,583/69

Int. Cl. C07d *41/08*

U.S. Cl. 260—239 D **3 Claims**

2 - (2 - aminoethyl) - 10,11 - dihydro - 5H - dibenz [b,f]azepines optionally substituted in 5-position by methyl or ethyl and at the basic nitrogen atom of the sidechain by methyl, as well as their pharmaceutically acceptable acid addition salts, have anti-inflammatory and analgesic activity; the compounds are useful for the treatment of inflammatory diseases and for alleviating pain in mammals, and are active ingredients of pharmaceutical compositions; a typical embodiment is 2-(2-aminoethyl)-10,11-dihydro-5H-dibenz[b,f]azepine.

3,706,736

19-HYDROXY-3-AZA-A-HOMO-STEROIDS

Oskar Jeger, Zollikerberg, and Hans Ueli Wehrli, Schaffhausen, Switzerland, assignors to Ciba-Geigy Corporation, Summit, N.J.

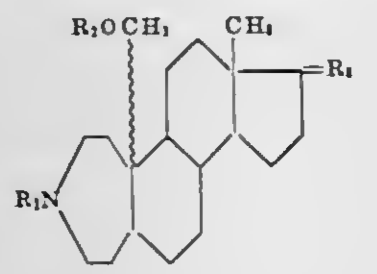
No Drawing. Filed Sept. 22, 1969, Ser. No. 860,089

Claims priority, application Switzerland, Sept. 27, 1968, 14,489/68, 14,490/68

Int. Cl. C07d *41/08, 99/04*

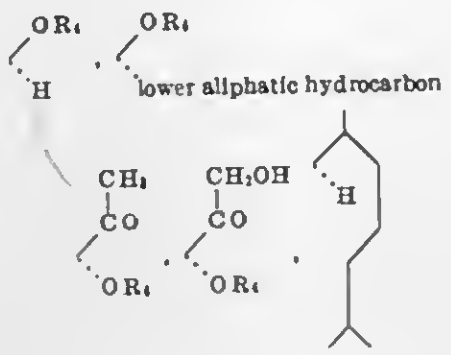
U.S. Cl. 260—239 BB **10 Claims**

The invention relates to novel compounds of the formula



which may contain a double bond in the 4,4α, or the 5,6-position, wherein

R_1=H or lower alkyl
R_2O=a free, esterified or etherified hydroxyl group and
R_3=free or ketalized oxo group



in which OR_4 represents a free, esterified or etherified hydroxyl group and a process of manufacturing same. The new compounds are strong local anesthetics.

3,706,737

NOVEL 5β,19-(EPOXYETHANOIMINO)-STEROIDS

Hansuli Wehrli, Schaffhausen, and Oskar Jeger, Zollikerberg, Zurich, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 22, 1970, Ser. No. 48,472

Claims priority, application Switzerland, June 25, 1969, 9,707/69

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.55 R **10 Claims**

Compounds of the class of 5β,19-(epoxyethanoimino)-androstanes have useful blood-circulation-promoting activity and are active ingredients of pharmaceutical compositions; a typical embodiment is 1′-methyl-2′,17-dioxo-5β,19-(epoxyethanoimino)-androstane.

3,706,738

5,6-DIHYDRO-8H-THIOPYRANO[4′,3′:4,5]THIENO [2,3-d]PYRIMIDINES

Paul Schmidt and Kurt Eichenberger, Therwil, and Ernst Schweizer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Summit, N.J.

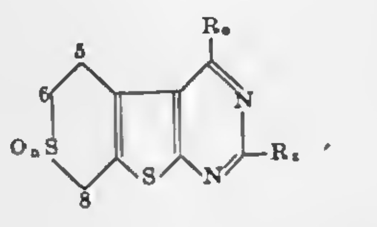
No Drawing. Continuation-in-part of application Ser. No. 802,248, Feb. 25, 1969. This application Sept. 21. 1970, Ser. No. 74,240

Claims priority, application Switzerland, Feb. 29, 1968, 2,980/68; Aug. 9, 1968, 12,029/68; Jan. 21, 1969, 837/69; Dec. 30, 1969, 19,408/69

Int. Cl. C07d *99/06*

U.S. Cl. 260—247.1 **22 Claims**

Compounds of the formula



in which R_0 stands for an aminoalkylamino group, R_x for an optionally substituted hydrocarbon radical or hydrogen and *n* stands for 0, 1 or 2, and which contain in at least one of the positions 6 and 8 an aryl radical and which may be further substituted in positions 5, 6 and/or 8 are useful as chemotherapeutic and prophylactic agents against malaria.

3,706,739

3-(α-SUBSTITUTED AMINO-β-ALKOXYBENZOXY-PROPYL)-6,7-OR-6,7,8-ALKOXY-1,2,3-BENZOTRIAZINE-4(3H)-ONES

Rudi Beyerle, 15, Allensteinerstrasse, 6451 Bruchkobel; Rolf-Eberhard Nitz, 28, Steinauerstrasse; Klaus Resag, 15, Hunfelderstrasse, both of 6 Frankfurt(Main)-Fechenheim; Eckhard Schraven, 24, Fuldaer Strasse, 6 Frankfurt (Main) Fechenheim, all of Germany; Adolf Stachel, deceased, late of Frankfurt, Germany, and by Inge Stachel, executrix, 52, Meerholzerstrasse, 6 Frankfurt (Main)-Fechenheim, Germany

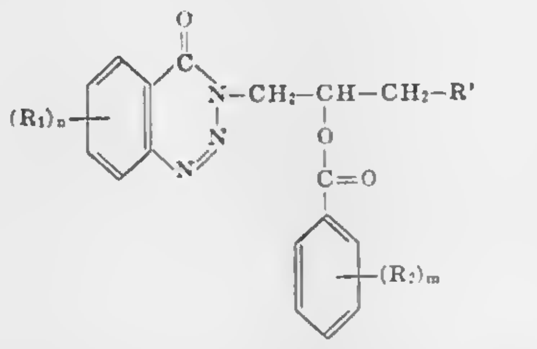
Filed May 18, 1970, Ser. No. 38,544

Claims priority, application Germany, May 22, 1969, P 19 26 075.4

Int. Cl. C07d *87/36*

U.S. Cl. 260—247.2 B **6 Claims**

The present invention pertains to new, pharmacologically valuable basically substituted 1,2,3-benzotriazine-4(3H)-one derivatives having excellent coronary dilator properties and which have the structural formula



wherein R′ is a radical selected from the group consisting of a secondary aliphatic, cycloaliphatic or araliphatic amine containing two to 10 carbon atoms; or of a 5, 6 or 7-membered heterocyclic nitrogen base, which contains in the nucleus in addition to the nitrogen atom a corresponding number of methylene groups as well as an additional member selected from the group consisting of a nitrogen, an oxygen or a sulfur atom, said radical being bound via a nitrogen atom; R_1 is an alkoxy group having one to four carbon atoms, which may be in the 6,7 or 6,7,8-position; R_2 is an alkoxy group having one to four carbon atoms; *m* is an integer selected from 1, 2 and 3; and *n* is an integer selected from 2 and 3; and to processes for producing said derivatives.

3,706,740

3,5-DIALKYL-4-HYDROXYPHENYL DERIVATIVES OF TRIAZINES

Martin Dexter, Briarcliff Manor, and Martin Knell, Ossining, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Filed Apr. 19, 1971, Ser. No. 135,461

Int. Cl. C02d *55/50*

U.S. Cl. 260—248 CS **6 Claims**

Novel dialkyl-4-hydroxyphenyl derivatives of triazine were prepared which are stabilizers of organic material. Certain of these compounds can be prepared by direct alkylation of 2,6-dialkylphenol with cyanuric chloride or through the cyclization of the appropriate 3,5-dialkyl-4-hydroxyphenyl alkylimino ester hydrochloride. A typical embodiment of this invention is 2,4,6-tris(3′,5′-dimethyl-4′ - hydroxyphenyl) - 1,3,5 - triazine. The compounds of this invention are useful as stabilizers of organic materials which are subject to oxidative and thermal deterioration.

3,706,741

PROCESS FOR PREPARING 2,4,6-TRIS(TERT ALKYLAMINO)-s-TRIAZINES

Christos George Papaioannou, 7 Kingsbridge Road, Somerset, N.J. 08873

No Drawing. Filed Aug. 11, 1971, Ser. No. 170,955

Int. Cl. C07d *55/24*

U.S. Cl. 260—249.6 **5 Claims**

This disclosure describes a method of preparing 2,4,6-tris(tertiary alkylamino or 1-adamantylamino)-s-triazines by trimerization of tertiary alkyl or 1-adamantyl cyanamides. The products of the process are useful as anti-mycobacterial agents.

3,706,742

TETRAHYDROQUINOXALINE/ALDEHYDE REACTION PRODUCTS AS ANTIOXONANTS

Farris H. Wilson, Jr., Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Original application Mar. 29, 1968, Ser. No. 717,463, now Patent No. 3,580,884. Divided and this application Aug. 17, 1970, Ser. No. 64,640

Int. Cl. C07d *51/78*

U.S. Cl. 260—250 R **5 Claims**

Polymers protected against ozone degradation by the incorporation of a reaction product produced by reacting a tetrahydroquinoxaline (1,2,3,4-tetrahydroquinoxaline) with an aldehyde (formaldehyde).

3,706,743

1,2-PYRIDAZINEDICARBOXIMIDOPHOSPHOROUS INSECTICIDES

Malcolm W. Moon, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Oct. 16, 1970, Ser. No. 81,524

Int. Cl. C07d *51/04*

U.S. Cl. 260—250 A **19 Claims**

This invention pertains to new organic chemical compounds, the process for preparing the same, and a new method and compositions for controlling invertebrate pests. The invention is more particularly directed to new pesticidally active 1,2-pyridazinedicarboximides characterized by an organic phosphorus group attached to the imide nitrogen, new N-hydroxyalkyl-1,2-pyridazinedicarboximide intermediates, new N-haloalkyl-1,2-pyridazinedicarboximide intermediates, new 4- and/or 5-alkylsubstituted-1,2-pyridazinedicaboximide intermediates, a process for preparing the foregoing new compound, a new method and compositions for controlling invertebrate pests, and a new process for cyclizing dicarboxamides to obtain corresponding dicarboximides, particularly 1,2-pyridazinedicarboximides.

3,706,744

HYDRAZONE DERIVATIVES OF 3-SUBSTITUTED AMINO-6-HYDRAZINO PYRIDAZINES

Paul L. Anderson, Dover, and William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Nov. 16, 1970, Ser. No. 90,002

Int. Cl. C07d *51/04*

U.S. Cl. 260—250 A **6 Claims**

Hydrazone derivatives of 3-substituted amino-6-hydrazino pyridazines, e.g., 3 - diallylamino - 6-[2-(hept-4-ylidene)hydrazino]-pyridazine are prepared from 3-substituted amino-6-hydrazino pyridazines and carbonyl compounds and exhibit anti-hypertensive activity.

3,706,745

CERTAIN NITROFURYL(HYDRAZINO) PYRIMIDINES

Herbert Berger, Mannheim-Kafertal, Rudi Gall, Grossachsen, Hartmut Merdes, Heidelberg, Kurt Stach, Mannheim-Waldhof, and Winfriede Sauer and Wolfgang Vomel, Mannheim, Germany, assignors to Boehringer Mannheim G.m.b.H., Postfach, Germany

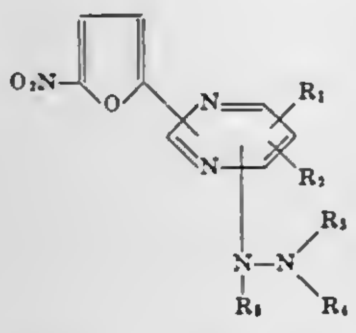
No Drawing. Filed Feb. 10, 1970, Ser. No. 10,297

Claims priority, application Germany, Feb. 25, 1969, P 19 09 346.0

Int. Cl. C07d *51/42*

U.S. Cl. 260—256.4 N **7 Claims**

Novel hydrazino-pyrimidines of the formula



wherein R_1 is hydrogen or lower alkyl or azido; R_2 is hydrogen or lower alkyl; and R_3, R_4 and R_5, which may be the same or different, are hydrogen or lower alkyl, lower acyl, lower carbalkoxy, lower alkyl-sulfonyl, carbamyl, thiocarbamyl or guanyl; and the physiologically compatible salts thereof, especially those wherein the hydrazine function is in the 4-position, R_2 is in the 5-position, and the nitrofuryl ring is in the 2-position of the pyrimidine ring, are outstandingly active in vivo in the treatment of urinary tract infections.

3,706,746

O-DESACETYL DERIVATIVES OF 7-N-ACYL-AMINO-CEPHALOSPHORANIC ACIDS

Rolf Bosshardt, Arlesheim, Bruno Fechtig, Reinach, Johannes Mueller, Arlesheim, Heinrich Peter, Riehen, and Hans Bickel, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Summit, N.J.

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,863

Claims priority, application Switzerland, Nov. 7, 1968, 16,591/68; Apr. 26, 1969, 6,362/69

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **6 Claims**

7-N-ocyl - O - desacetyl - O - N - substituted-carbamoylaminocephalosporanic acids in which acyl is the radical of a cyclically substituted lower alkanecarboxylic acid carrying a free amino group linked with a carbon atom of aliphatic character. Use: antibiotics.

3,706,747

BENZOTHIENO[3,2-d]- AND BENZOFURO[3,2-d] PYRIMIDINES

Gerald George De Angelis, North Stonington, and Hans-Jurgen Ernst Hess, Old Lyme, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed June 5, 1970, Ser. No. 43,974

Int. Cl. C07d *99/06*

U.S. Cl. 260—265.5 R **8 Claims**

4-aminobenzothieno[3,2-d]- and 4-aminobenzofuro[3,2-d]pyrimidines and salts thereof, novel classes of heterocyclic compounds useful as inhibitors of platelet aggregation.

3,706,748

SUBSTITUTED URACIL PHOSPHATES AS PESTICIDES

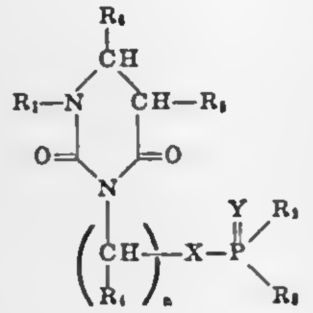
Daniel D. Rosenfeld, 8 Thrush Drive, East Brunswick, N.J. 08816, and Stanley Rosenhouse, 802 E. Front St., Plainfield, N.J. 07062

No Drawing. Continuation-in-part of application Ser. No. 803, Jan. 5, 1970. This application Oct. 4, 1971, Ser. No. 186,498

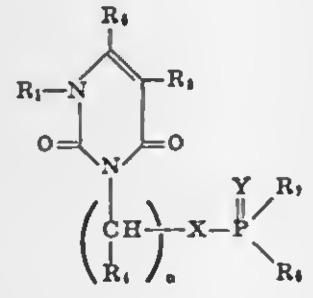
Int. Cl. C07d *51/30*

U.S. Cl. 260—260 **24 Claims**

Uracil derivatives substituted on the imide nitrogen with a methylene thiophosphate grouping are biologically active compounds of exceptional pesticidal activity. These compounds can be characterized by the following structural formulas:



and



In this formula, R_1 is hydrogen or an organic radical; each of R_2 and R_3 is C_1–C_6 alkyl, C_1–C_6 alkoxy, C_6–C_{10} aryloxy, C_1–C_6 haloalkyl, C_6–C_{10} aryl, C_6–C_{10} halo-substituted arylalkyl and C_7–C_{11} halo-substituted arylalkyl; R_4 can be hydrogen, C_1–C_4 alkyl and halo-substituted derivatives thereof, C_2–C_6 alkenyl and alkynyl; each of R_5 and R_6 is hydrogen, C_1–C_{16} alkyl, aryl, halo-substituted alkyl and aryl, alkoxy, C_1–C_6 alkenyl and alkynyl, alkyl sulfoxide, nitrile, alkyl amino, aryloxy, carboalkoxy, dialkylamino, nitro, alkoxyalkyl, alkylthioalkyl, halogen, alkylthio and sulfonyl; *n* is an integer of from 1 to 2; and each of X and Y is oxygen or sulfur.

3,706,749

N-ACYL CARBOSTYRILS

Janis Plostnieks, Philadelphia, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Original application Mar. 30, 1967, Ser. No. 626,982, now Patent No. 3,575,984. Divided and this application Mar. 27, 1970, Ser. No. 24,470

Int. Cl. C07d *33/46*

U.S. Cl. 260—287 R **8 Claims**

The compounds herein are 3,4-dihydro-4-methyl-4-phenyl-6-chloro-carbostyril derivatives, useful for their various pharmacological activities, such as anti-inflammatory, hypotensive and central nervous system depressant activities. Also included herein is 4′-chloro-β-methyl-cinnamanilide, useful in the synthesis of the subject carbostyrils.

3,706,750

PYRRYLAMINOKETONE DERIVATIVES

Uberto Teotino and Davide Della Bella, Milan, Italy, assignors to Whitefin Holding SA, Lugano, Switzerland

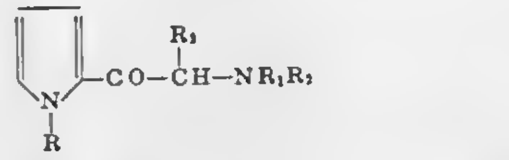
No Drawing. Continuation-in-part of application Ser. No. 636,643, May 8, 1967. This application Oct. 5, 1970, Ser. No. 78,262

Claims priority, application Great Britain, May 17, 1966, 21,777/66

Int. Cl. C07d *99/02, 99/04*

U.S. Cl. 260—293.71 **6 Claims**

This invention relates to pyrrylaminoketone derivatives of the formula:



(I)

wherein R is a member selected from the group consisting of methyl, ethyl, phenyl or benzyl whose benzene moiety may be further substituted with one or two substituents selected from the group consisting of halogen, methyl, and methoxy; R_3 is hydrogen or methyl; R_1 is selected from the group consisting of hydrogen and alkyl having from 1 to 4 C atoms; R_2 is selected from the group consisting of hydrogen, alkyl having from 1 to 4 C atoms and benzyl or taken together with R_1 and the nitrogen atom to which they are attached, is a heterocyclic ring selected from the group consisting of piperidine, morpholine and its pharmaceutically suitable addition salts with organic and inorganic acids and alkyl halides, which compounds are highly valuable for their activity on the central nervous system.

3,706,751

CERTAIN POLYHALO-4-NITRO-PICOLINONITRILES

Penelope B. Domenico, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application July 3, 1969, Ser. No. 839,066, now Patent No. 3,629,281, dated Dec. 21, 1971. Divided and this application Mar. 18, 1971, Ser. No. 125,874

Int. Cl. C07d *31/46*

U.S. Cl. 260—294.9 **2 Claims**

Disclosed as novel compounds are polyhalo-4-nitropyridine derivatives which are substituted in the 6-position by cyano, trifluoromethyl or methylsulfonyl groups. The compounds have utility as pesticides and are variously effective as herbicides and as active constituents fungicidal and bacteriocidal compositions.

3,706,752

MANUFACTURE OF BYPYRIDYLIUM SALTS BY OXIDATION OF THE CORRESPONDING DIHYDROBIPYRIDYL

John Francis Cairns, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Mar. 21, 1969, Ser. No. 809,402

Claims priority, application Great Britain, Apr. 2, 1968, 15,785/68

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 D **1 Claim**

1,1-disubstituted-bipyridylium salts are prepared by oxidizing the corresponding dihydrobipyridyl with oxygen or oxidizing agent which is an electron acceptor and which has a redox potential in water more positive than −0.50 volt as compared with the saturated calomel electrode.

3,706,753

PROCESS FOR THE PREPARATION OF 2-AMINO-3-PYRIDINOL

John Valdemar Brammer Petersen and Niels Clauson-Kaas, Farum, Denmark, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Application June 25, 1968, Ser. No. 751,650, now Patent No. 3,553,224, dated Jan. 5, 1971, which is a division of application Ser. No. 544,685, Apr. 25, 1966, now Patent No. 3,419,570, dated Dec. 31, 1968. Divided and this application Aug. 19, 1970, Ser. No. 65,336

Claims priority, application Switzerland, Apr. 29, 1965, 5,938/65, 5,939/65, 5,940/65

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 R **2 Claims**

2-amino-3-pyridinol is prepared from the monohydrate of 3-hydroxy-2-imino-1-(2H)-pyridine sulfonic acid.

3,706,754

METHOD FOR PREPARING 2,3-PYRIDINEDIOL

John Valdemar Brammer Petersen and Niels Clauson-Kaas, Farum, Denmark, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Division of application Ser. No. 751,650, June 25, 1968, now Patent No. 3,553,224, which is a division of application Ser. No. 544,685, Apr. 25, 1966, now Patent No. 3,419,570. Divided and this application Aug. 19, 1970, Ser. No. 65,334

Claims priority, application Switzerland, Apr. 29, 1965, 5,938/65, 5,939/65, 5,940/65

Int. Cl. C07d *31/30*

U.S. Cl. 260—297 R **3 Claims**

2,3-pyridinediol is prepared by hydrolyzing the reaction mixture of furfural, a chlorinating agent and sulfamic acid.

3,706,755

CERTAIN 4{3-[4-(PHENYL)-3,6-DIHYDRO-1(2H) PYRIDYL]-2 - HYDROXY-PROPOXY}-BENZOPHENONES

Albrecht Edenhofer, Riehen, Henri Ramuz, Birsfelden, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 567,354, July 25, 1966. This application May 21, 1970, Ser. No. 39,505

Claims priority, application Switzerland, July 30, 1965, 10,769/65

Int. Cl. C07d *31/28*

U.S. Cl. 260—297 R **9 Claims**

Novel lower alkyloxy benzophenone derivatives and processes for their preparation are disclosed. These novel benzophenone derivatives are useful as psychosedative agents.

3,706,756

AMINOALKYL-SPIROCYCLOALKANES

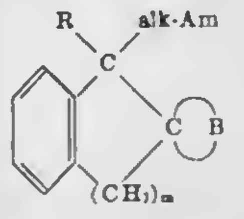
Lincoln Harvey Werner, Summit, N.J., assignor to Ciba-Geigy Corporation, Summit, N.J.

No Drawing. Continuation-in-part of application Ser. No. 723,585, Apr. 23, 1968. This application Feb. 3, 1969, Ser. No. 796,166

Int. Cl. C07c *87/28;* **C07d** *27/56, 31/44*

U.S. Cl. 260—295.5 **6 Claims**

1 - aminoalkyl - benzcycloalkane-2-spirocycloaliphatic compounds, e.g. those of the formula



alk=lower alkylene
Am=an amino group
R=H or OH; m=1–3
B=lower alkylene or alkenylene acyl and 1-dehydro derivatives, N-oxides, quaternaries and salts thereof exhibit analgetic effects.

3,706,757
CERTAIN ORGANOTIN DERIVATIVES OF 3-HYDROXYISOTHIAZOLE

Sheldon N. Lewis, Willow Grove, and George Allen Miller, Glenside, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 647,586, June 21, 1967. This application July 22, 1970, Ser. No. 57,367

Int. Cl. C07d *91/10, 91/12*

U.S. Cl. 260—299 **2 Claims**

Disclosed herein is a novel group of compounds which are properly designated as 3-isothiazole derivatives being obtained, for the most part, by reacting a substituted 3-hydroxyisothiazole with an active halogen compound. These compounds and compositions thereof exhibit biocidal characteristics and are exceptionally effective in the control of living organisms.

3,706,758
2-(1-ADAMANTANYL)-1,2-BENZISOTHIAZOLIN-3-ONE

John C. Grivas, South Holland, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio

Filed June 18, 1971, Ser. No. 154,678

Int. Cl. C07d *91/10*

U.S. Cl. 260—304 1 Claim

A novel compound, 2-(1-adamantanyl)-1,2-benzisothiazolin-3-one, is found to be useful as a microbiocide.

3,706,759
ANTHELMINTIC THIOCYANATOBENZOTHIAZOLES

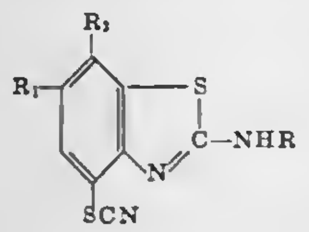
Robert J. Alaimo and Stanford S. Pelosi, Jr., Norwich, N.Y., assignors to Morton-Norwich Products, Inc.

No Drawing. Filed Oct. 28, 1970, Ser. No. 84,952

Int. Cl. C07d *91/46*

U.S. Cl. 260—305 **3 Claims**

Certain thiocyanatobenzothiazoles of the formula:



wherein R is hydrogen or acetyl; R_1 is ethyl, fluoro or chloro; and R_2 is hydrogen, methyl or chloro are effective anthelmintic agents.

3,706,760
4-CYANO-3β-ETHOXY-3-SECOYOHIMBANO [17,18-c]ISOXAZOLE

Jay Donald Albright and Leon Goldman, Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application Sept. 9, 1968, Ser. No. 758,593, now Patent No. 3,576,004. Divided and this application Jan. 11, 1971, Ser. No. 105,640

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 D **1 Claim**

The disclosure describes 4-cyano-3β-ethoxy-3-secoyohimbano[17,18-c]isoxazole useful as an analgesic agent.

3,706,761
5-AMINO-4-METHOXYISOXAZOLES AND 3-AMINO-4-METHOXYISOXAZOLES

Harry Allen Albrecht, Towaco, and John Thomas Plati, Rutherford, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application Nov. 13, 1967, Ser. No. 682,551, now Patent No. 3,547,973, dated Dec. 15, 1970, which is a division of application Ser. No. 446,068, Apr. 6, 1965, now Patent No. 3,400,122, dated Sept. 3, 1968. Divided and this application Aug. 6, 1970, Ser. No. 61,785

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H **4 Claims**

5-amino-4-methoxy-3-alkylisoxazoles and 3-amino-4-methoxy-5-alkylisoxazoles, intermediates for the preparation of antibacterial N^1-(4-methoxy-3-alkyl-5-isoxazolyl)sulfanilamides and N^1-(4-methoxy-5-alkyl-3-isoxazolyl)sulfanilamides, respectively, are prepared and described.

3,706,762
FUNGICIDAL METHOD

Hiroshi Takeda, Tokyo, Japan; Walter H. Schuller; Ray V. Lawrence, both of Lake City, Fla., and Seymour S. Block, Gainesville, Fla., assignors to The United States of America as represented by the Secretary of Agriculture

Division of Ser. No. 843,225, July 18, 1969, Pat. No. 3,663,593. This application May 7, 1971, Ser. No. 141,422

Int. Cl. A01n *9/24*

U.S. Cl. 424—308 5 Claims

This invention relates to the formation of a new composition of matter, active as a fungicide. This product is prepared by heating either methyl levopimarate or a salt of levopimaric acid in the presence of a proton acceptor such as potassium hydroxide, sodium hydroxide, tris-n-butylamine, etc., and the resulting mixture ozonized and the ozonide oxidized with chlorine.

3,706,763
POLYALKYLENE GLYCOL MERCAPTOSUCCINIMIDES DISPERSANTS FOR LUBRICANT FLUIDS

Ting-I Wang, Fullerton, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Original application Oct. 8, 1968, Ser. No. 765,994, now Patent No. 3,598,735. Divided and this application Sept. 2, 1970, Ser. No. 69,094

Int. Cl. C07d *27/10*

U.S. Cl. 260—326.5 S **7 Claims**

A new class of compounds and a series of novel lubricant compositions are disclosed. Polyalkylene glycol mercaptosuccinimides which are useful as dispersants in polyalkylene glycol lubricant fluids as sludge dispersants and lubricant fluid compositions including such mercaptosuccinimides are described.

3,706,764
PHENETHYLAMINOMETHYL-CHROMANONES AND- THIOCHROMANONES

Michio Nakanishi, Oita, and Tomohiko Munakata and Shinro Setoguchi, Fukuoka, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

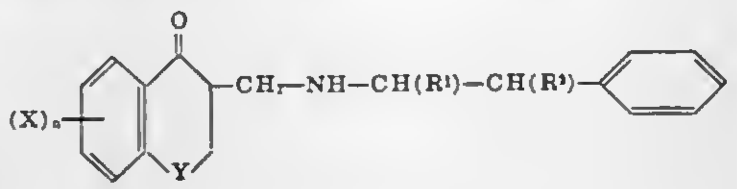
No Drawing. Filed Apr. 13, 1970, Ser. No. 27,997

Claims priority, application Japan, Apr. 16, 1969, 44/29,899

Int. Cl. A61k *27/00;* **C07d** *7/20, 65/08*

U.S. Cl. 260—327 TH **6 Claims**

Phenethylamine derivatives of the formula



wherein Y is $—CH_2—$, $—O—$, $—S—$ or $—SO_2—$, X is Cl, CH_3O or CH_3, n is 0, 1 or 2, R^1 is H, CH_3 or CH_2OH, and R^2 is H or OH and pharmaceutically acceptable, acid-addition salts thereof, are useful as antidepressants.

3,706,765
HYDROXYETHANO-ANTHRACENES

Max Wilhelm, Allschwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 16, 1969, Ser. No. 885,646

Claims priority, application Switzerland, Jan. 3, 1969, 13/69; Dec. 2, 1969, 17,952/69

Int. Cl. C07c *87/28;* **C07d** *27/56, 5/12*

U.S. Cl. 260—326.14 T **9 Claims**

9,10-dihydro-9,10-ethano-anthracenes which in at least one of the positions 1 to 8 contain a free or acylated hydroxyl group and in 9-position an aminoalkyl radical and their salts are useful as psychotropic agents.

3,706,766
1-CARBAMOYL-2-PHENYLIMINOPYRROLIDINES

Fred M. Hershenson, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Mar. 22, 1971, Ser. No. 126,948

Int. Cl. C07d *27/04*

U.S. Cl. 260—326.3 **6 Claims**

2-phenyliminopyrrolidines having an alkyl- or aryl-carbamoyl substituent at the 1-position are described herein. The compounds involved are useful as anti-hypertensive agents. They are prepared by the reaction of a 2-phenyliminopyrrolidine with an appropriate isocyanate.

3,706,767
ACETIC ACID COMPOUNDS AND METHODS FOR THEIR PRODUCTION

James S. Kaltenbronn, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed June 23, 1971, Ser. No. 156,118

Int. Cl. C07d *63/22*

U.S. Cl. 260—330.5 **6 Claims**

3 - (2 - thienyl)benzo[b]thiophene - 7 - acetic acids, 4 - (2 - thienyl)benzo[b]thiophene - 7 - acetic acids, and 7 - (2 - thienyl)benzo[b]thiophene - 4 - acetic acids, optionally substituted at the 5-position of the 2-thienyl group by bromine or chlorine and at the α-carbon position by methyl; carboxylate salts thereof; and their production by hydrolysis of a carboxylic acid precursor, reductive dehalogenation, or halogenation. The compounds of the invention are useful as anti-inflammatory agents.

3,706,768
XANTHONE DERIVATIVES

David Edmund Bays, London, England, assignor to Allen & Hanburys Limited, London, England

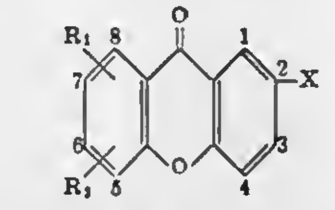
No Drawing. Filed Nov. 17, 1970, Ser. No. 90,444

Claims priority, application Great Britain, Nov. 27, 1969, 58,121/69

Int. Cl. C07d *7/44*

U.S. Cl. 260—335 **31 Claims**

Xanthone derivatives of the formula:



in which X represents a carboxyl or 5-[1H]-tetrazolyl group; and R_1 and R_2 which may be the same or different each represent a hydrogen atom, an alkyl group containing from 1 to 4 carbon atoms, a nitro group, a halogen atom or a group of the formula $—NR_3R_4$ or OR_3 or $NR_5SO_2R_6$ (in which the groups R_3 and R_4 which may be the same or different each represent a hydrogen atom, a phenyl group, a benzyl group or an alkyl group which may optionally be substituted by an alkoxy group containing from 1 to 6 carbon atoms, a phenoxy group, phenyl group, an amino, alkylamino or dialkylamino group or by one or more hydroxy groups; and in which R_5 is a hydrogen atom or an alkyl group containing from 1 to 6 carbon atoms and R_6 is an alkyl group containing from 1 to 6 carbon atoms); with the proviso that when X represents a carboxyl group R_1 and R_2 do not both represent hydrogen atoms; and pharmaceutically acceptable non-toxic salts and esters of such compounds.

These derivatives have pharmacological activity and in particular inhibit the release of spasmogen mediators from antigen-antibody reactions.

3,706,769
THIOPHENE-1,1-DIOXIDES

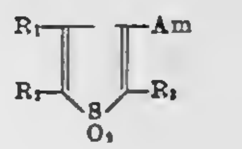
Melvin Harris Rosen, Florham Park, and Herbert Morton Blatter, Summit, N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 765,974, Oct. 8, 1968. This application June 8, 1970, Ser. No. 44,553

Int. Cl. A61k *27/00;* **C07d** *63/12*

U.S. Cl. 260—332.1 **5 Claims**

3-amino-2,4-diaryl-thiophene-1,1-dioxides, e.g. those of the formula



Am=tert. amino
R_1=H or alkyl

are antiparasitic agents.

3,706,770
PRODUCTION OF FURANS BY REACTION OF AN OXAZOLE WITH AN ACETYLENE COMPOUND

Fritz Graf and Horst Koenig, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

No Drawing. Filed June 29, 1970, Ser. No. 51,004

Claims priority, application Germany, July 10, 1969, P 19 35 009.5

Int. Cl. C07d *5/16*

U.S. Cl. 260—346.1 R **4 Claims**

The production of furans by reaction of an oxazole with an acetylene compound. The new and known compounds obtainable by the process of the invention are solvents and starting materials for the production of dyes, plastics and plant protection agents.

3,706,771
ALKENYL SULFOSUCCINIC ANHYDRIDES, ACIDS AND SALTS THEREOF

Frank J. Kremers, Dover, N.J., and Michael S. Rhodes, Bronx, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed July 22, 1969, Ser. No. 843,753

Int. Cl. C07c *57/02*

U.S. Cl. 260—346.8 **8 Claims**

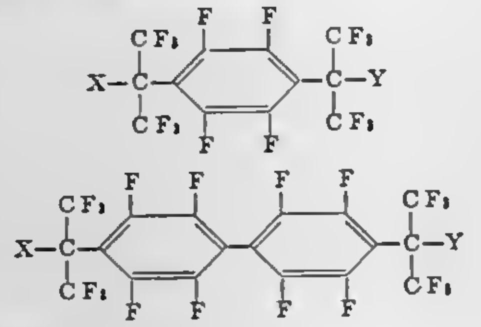
Alkenyl sulfosuccinic anhydrides, acids and alkali and amine salts thereof and their preparation by reacting an alkenyl succinic anhydride with sulfur trioxide in an anhydrous solvent reaction medium to form the alkenyl sulfosuccinic anhydride which is converted to the acid or salts by reaction with water or aqueous base solutions. The compounds are useful as surface tension reducing agents, especially adapted for incorporation in acid plating baths.

3,706,772

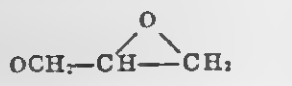
FLUORODIGLYCIDYL ETHERS

Scott A. Reines, Fort Lee, N.J., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Mar. 23, 1971, Ser. No. 127,379
Int. Cl. C07d *1/18*
U.S. Cl. 260—348 R **3 Claims**

Compounds of the formulae



wherein X and Y are OH or



$$\mathrm{OCH_2{-}\overbrace{CH{-}CH_2}^{O}}$$

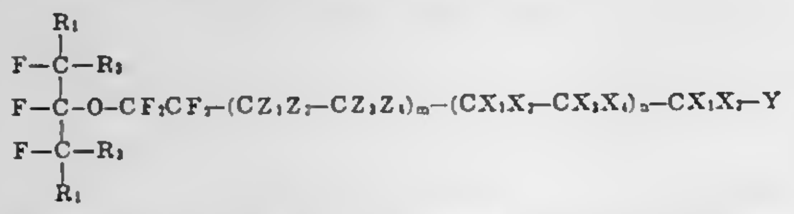
useful for producing polymers with film forming properties.

3,706,773

FLUOROCARBON COMPOUNDS

Louis Gene Anello, Basking Ridge, and Richard Francis Sweeney, Randolph Township, Morris County, N.J., and Morton Herbert Litt, Cleveland, Ohio, assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 633,359, Apr. 25, 1967. This application Apr. 12, 1968, Ser. No. 721,117
The portion of the term of the patent subsequent to Oct. 10, 1989, has been disclaimed
Int. Cl. C07c *59/22*
U.S. Cl. 260—408 **52 Claims**

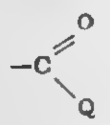
Fluorocarbon compounds of the formula



wherein R_1 and R_2 are F, fluoroalkyl or fluoroalkylene groups forming a cycloaliphatic structure, wherein

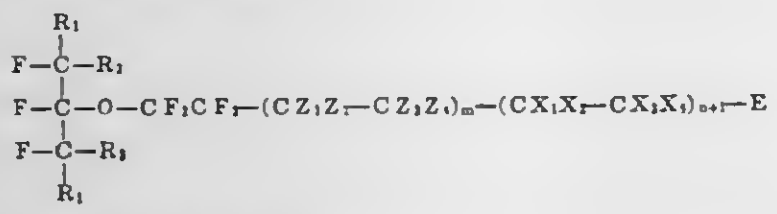
$$—(CZ_1Z_2—CZ_3Z_4)—$$

and $—(CX_1X_2—CX_3X_4)—$ are bifunctional groups wherein Z–Z_4 and X_1–X_4 are H, F, or Cl, and wherein Y is —CN or



$$-\mathrm{C}(=\mathrm{O})\mathrm{Q}$$

wherein Q represents F, Cl, hydroxy, alkoxy, amino or substituted amino groups are prepared from polyfluoro halides of the formula



wherein E is a halogen.

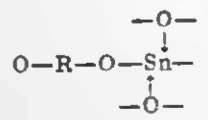
The fluorocarbon compounds of the present invention are or can be converted into surface active and stain repellent agents.

3,706,774

STANNOUS GLYCOLOXIDES

Melvin Hyman Gitlitz, Edison, N.J., assignor to M & T Chemicals Inc., Greenwich, Conn.
No Drawing. Filed Feb. 2, 1971, Ser. No. 112,045
Int. Cl. C07f *7/22*
U.S. Cl. 260—429.7 **8 Claims**

This invention concerns novel polymeric stannous glycoloxides wherein the repeating unit exhibits the formula



$$\mathrm{O{-}R{-}O{-}\overset{\overset{-O-}{\downarrow}}{\underset{\underset{-O-}{\uparrow}}{Sn}}{-}}$$

and a method for preparing these compounds.

3,706,775

METHOD OF PREPARING HIGH MOLECULAR WEIGHT LINEAR ORGANOPOLYSILOXANES

Siegfried Nitzsche, Jurgen Burkhardt, and Karl-Heinrich Wegehaupt, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany
No Drawing. Filed Dec. 17, 1970, Ser. No. 99,230
Int. Cl. C07f *7/02*
U.S. Cl. 260—448.2 E **13 Claims**

High molecular weight copolymeric diorganopolysiloxanes consisting essentially of diphenylsiloxane and dimethylsiloxane units are prepared by alkaline hydrolysis and condensation of a mixture of 4 to 70 mol percent $(C_6H_5)_2SiCl_2$, 29 to 96 mol percent $(CH_3)_2SiCl_2$ and up to 1 mol percent of other chlorosilanes, employing a solution of 3 to 30 percent by weight of alkali metal hydroxide in water as the hydrolysis medium, separating the hydrolysates from the aqueous medium, and thereafter further condensing and equilibrizing the hydrolysates employing phosphorous-nitrogen compounds as catalysts.

3,706,776

PROCESS FOR THE MANUFACTURE OF VINYL TRICHLOROSILANE

Claus-Dietrich Seiler, Rheinfelden, Hans-Joachim Vahlensieck, Wehr, and Kurt Boje, Rheinfelden, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
No Drawing. Filed Jan. 6, 1971, Ser. No. 104,523
Claims priority, application Germany, Jan. 20, 1970, P 20 02 258.6
Int. Cl. C07f *7/14*
U.S. Cl. 260—448.2 E **4 Claims**

Improved process for producing vinyl trichlorosilane by reacting vinyl chloride and trichlorosilane under substantially anhydrous conditions at about 680 to 850° C. using a residence time of about 0.2 to 1.8 seconds.

3,706,777

PROCESS FOR THE PRODUCTION OF ALKYL SILANES

Claus-Dietrich Seiler, Schulster, and Hans-Joachim Vahlensieck, Hagiken, Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany
No Drawing. Filed Feb. 10, 1971, Ser. No. 114,393
Claims priority, application Germany, Mar. 14, 1970, P 20 12 229.6
Int. Cl. C07f *7/08*
U.S. Cl. 260—448.2 E **7 Claims**

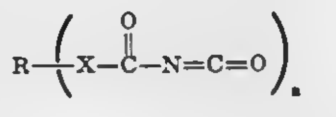
Improvements in the reaction of olefinic hydrocarbons with hydrogen silanes in the presence of an in contact with platinum or palladium catalyst where the catalyst is disposed above the reaction mixture below a cooling system and where condensate from the cooling system is sprinkled onto the catalyst.

3,706,778

ISOCYANATES AND PREPARATION THEREOF

Hermann Hagemann, Cologne-Flittard, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 17, 1969, Ser. No. 842,726
Claims priority, application Germany, July 31, 1968, P 17 93 088.0
Int. Cl. C07c *119/04, 153/07*
U.S. Cl. 260—455 R **2 Claims**

Organic isocyanates are prepared by a process wherein N-chlorocarbonyl isocyanate is reacted with a compound containing hydroxyl or thiol groups. A preferred embodiment of the invention comprises producing organic isocyanates having the general formula



$$\mathrm{R}\left(\mathrm{X}-\overset{\mathrm{O}}{\overset{\|}{\mathrm{C}}}-\mathrm{N}=\mathrm{C}=\mathrm{O}\right)_n$$

wherein R represents an n-valent radical which may be saturated or unsaturated and which may be substituted, X is oxygen or sulfur and *n* is a positive integer, produced by reacting N-chlorocarbonyl isocyanate with compounds of the general formula

$$\mathrm{R}\left(\mathrm{X}-\mathrm{H}\right)_n$$

wherein R, X and *n* are as defined above, preferably at a temperature of from about −100° C. to about 200° C. The isocyanates are useful in the production of synthetic resins according to known procedures.

3,706,779

PROCESS FOR PREPARING 4-CYANOCYCLOHEXANE CARBOXYLIC ACID

Saburo Nabeta, Chibuashi, and Yuzo Yamada and Itsuya Ito, Tokyo, Japan, assignors to Daiichi Seiyaku Co., Ltd., Tokyo, Japan
No Drawing. Filed Sept. 10, 1970, Ser. No. 71,265
Claims priority, application Japan, Sept. 12, 1969, 44/72,374
Int. Cl. C07c *121/10, 121/46*
U.S. Cl. 260—464 **2 Claims**

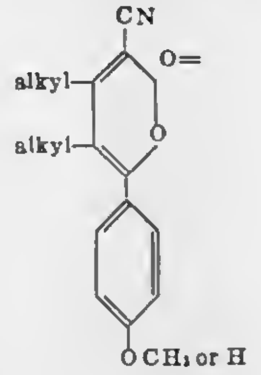
A process for preparing 4-cyanocyclohexane carboxylic acid which comprises contacting hexahydroterephthalic acid or a mixture of hexahydroterephthalic acid and 1,4-dicyanocyclohexane with ammonia gas, wherein the reaction temperature is from 270° C. to 340° C.

3,706,780

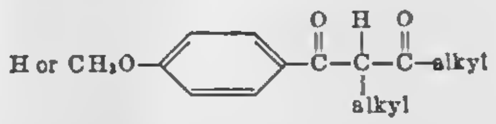
PHENYLDIALKYLBICYCLO-[2.2.2]-OCT-2-ENE NITRILES

Kyu Tai Lee, Kingsridge, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application Jan. 29, 1969, Ser. No. 795,059. Divided and this application Mar. 8, 1971, Ser. No. 122,237
Int. Cl. C07c *121/64*
U.S. Cl. 260—465 F **6 Claims**

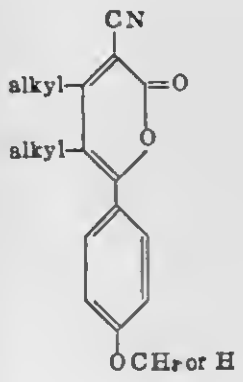
Preparing a compound of the formula:



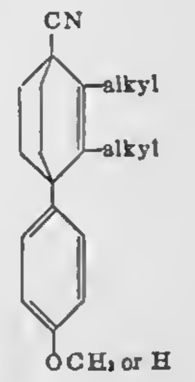
by admixing a diketone compound of the formula:



and ethyl cyanoacetate in the presence of a catalytic amount of ammonium acetate and glacial acetic acid; and thereafter via an ethylene addition reaction with a compound of the formula:



producing a compound of the formula:



3,706,781

1,2-DIHYDROPHENANTHRENES

Michael Marx, Sunnyvale, and John H. Fried, Palo Alto, Calif., assignors to Syntex Corporation, Panama, Panama
No Drawing. Filed Dec. 9, 1969, Ser. No. 883,643
Int. Cl. C07c *69/76*
U.S. Cl. 260—468.5 **6 Claims**

New compounds of the 1,2-dihydrophenanthrene class, useful as estrogenic and anti-fertility agents, and methods for their preparation 1α-ethyl-2α-carboxy-2β-methyl-7-methoxy-1,2-dihydrophenanthrene is exemplified as illustrative of the class.

3,706,782

ESTERS OF p-BIPHENYLYLACETIC ACID WITH POLYHYDRIC ALCOHOLS

Oliver Stephenson, Anthony Musgrave Wild, and David Frank Hayman, London, England, assignors to BDH Pharmaceuticals Limited, London, England
No Drawing. Filed July 8, 1970, Ser. No. 53,330
Claims priority, application Great Britain, July 9, 1969, 34,534/69
Int. Cl. C07c *69/76*
U.S. Cl. 260—469 **5 Claims**

Esters of p-biphenylylacetic acid with polyhydric alcohols, for example, glyceryl-α-(p-biphenylyl) acetate, having utility as anti-inflammatory agents.

3,706,783

AUTO-OXIDATION OF ALDEHYDES IN THE PRESENCE OF CHLOROFORMATES

Richard Anthony Bafford, Aiken, S.C., assignor to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Original application Apr. 18, 1968, Ser. No. 722,166, now Patent No. 3,580,955, dated May 25, 1971. Divided and this application Mar. 18, 1971, Ser. No. 125,894

Int. Cl. C07c *73/00;* **C08f** *1/60*

U.S. Cl. 260—463 **5 Claims**

Peroxy compounds are prepared by reacting free-oxygen, an aldehyde, an organic compound containing active halogen and an acid acceptor, under anhydrous conditions, at a temperature below the decomposition temperature of the desired acylperoxy product.

Benzoyl n-butyryl peroxide prepared by reacting free-oxygen, n-butyraldehyde, benzoyl chloride and sodium carbonate, in benzene solution, under anhydrous conditions, under illumination, at a temperature of 30–35° C.

3,706,784

SUBSTITUTED CYCLOHEXENE CARBOXYLIC ACIDS AND DERIVATIVES THEREOF

John A. Edwards, Los Altos, and John H. Fried, Palo Alto, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Jan. 11, 1968, Ser. No. 697,027

Int. Cl. C07c *69/76*

U.S. Cl. 260—473 R **15 Claims**

Novel substituted cyclohexene carboxylic acids and derivatives thereof useful as anti-fertility agents.

3,706,785

PREPARATION OF BIS(2-HYDROXYALKYL) ESTERS OF TEREPHTHALIC OR ISOPHTHALIC ACID

Donald R. Larkin, Corpus Christi, Tex., assignor to Celanese Corporation, New York, N.Y.

Continuation of abandoned application Ser. No. 728,541, May 13, 1968, which is a continuation-in-part of abandoned application Ser. No. 695,075, Jan. 2, 1968. This application Apr. 13, 1971, Ser. No. 133,728

Int. Cl. C07c *69/82*

U.S. Cl. 260—475 PR **14 Claims**

The preparation of bis(2-hydroxyalkyl terephthalate or isophthalate by reacting terephthalic acid or isophthalic acid with an alkylene oxide in an aromatic medium, followed by extraction of the thus formed diester from the aromatic medium with water and crystallization from the water. Treating steps such as hydrogenation and/or the addition of chemical treating agents may also be included.

3,706,786

CHLORONITROPHENYL ESTERS OF POLYCARBOXYLIC ACIDS

Delta W. Gier, Laurinberg, N.C., and Daniel M. Wasleski, Kansas City, Mo., assignors to Chemagro Corporation, New York, N.Y.

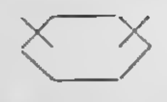
Division of Ser. No. 675,287, Oct. 16, 1967, Pat. No. 3,555,160. This application Feb. 13, 1970, Ser. No. 11,293

Int. Cl. C07c *149/00*

U.S. Cl. 260—479 S **4 Claims**

Compounds of the formulas

1. $R_2OOC(CH_2)_nCOOR_1$,
2. $R_2OOCCH{=}CHCOOR_1$,
3. R_2OOC



$COOR_1$, and

4. $R_2OOC(CH_2)_mS(CH_2)_mCOOR_1$

are useful as fungicides, herbicides and nematocides. R_1 and R_2 are mono to trihalo mono to dinitrophenyl or mono halo mono methyl nitrophenyl *m* is 1, 2 or 3 and *n* is an integer from 0 to 8. Compounds of formulas (1), (2) and (3) are plasticizers for cellulose esters and synthetic resins and compounds of formula (4) are stabilizers for mono and diolefin polymers.

3,706,787

ALKYL ESTERS OF FLUOROALKYL DICARBOXYLIC ACIDS

Robert Bonner Hager, Collegeville, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

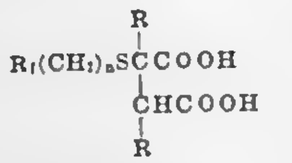
No Drawing. Continuation-in-part of application Ser. No. 839,077, July 3, 1969, which is a continuation-in-part of application Ser. No. 651,967, July 10, 1967, now Patent No. 3,471,518. This application July 7, 1971, Ser. No. 160,572

Int. Cl. C07c *149/20*

U.S. Cl. 260—481 R **3 Claims**

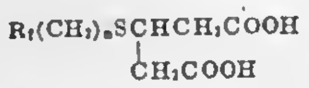
Alkyl esters of perfluoroalkyl alkylene thiocarboxylic acids are disclosed wherein the acids are represented by the structures:

(I)



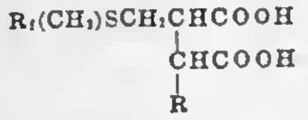
$R_f(CH_2)_nSC(R)(COOH)CH(R)COOH$

(II)



$R_f(CH_2)_nSCH(CH_2COOH)CH_2COOH$

(III)



$R_f(CH_2)SCH_2CH(COOH)CH(R)COOH$

where R_f is perfluoroalkyl, $n=1–3$, and R is H, CH_3, or C_2H_5, and where in Formula I at least one R is H. The esters are readily converted to the acids which are useful for imparting oil and water repellency to leather.

3,706,788

N,N-DIFLUOROCARBAMATES

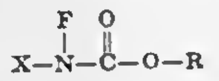
Vytautas Grakauskas, Arcadia, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

No Drawing. Application May 31, 1966, Ser. No. 554,947, which is a continuation-in-part of application Ser. No. 404,210, Oct. 14, 1964. Divided and this application July 6, 1970, Ser. No. 52,708

Int. Cl. C07c *125/04*

U.S. Cl. 260—482 C **5 Claims**

Novel fluorinated compounds of the formula:



$X-N(F)-C(=O)-O-R$

wherein R is an aliphatic radical and X is hydrogen or fluoride and process for manufacture.

3,706,789

$PGF_2\alpha$

Sune Bergstrom, and Jan Sjovall, both of Kemiska Institutionen, Karolinska Institutet, Stockholm 60, Sweden

Continuation-in-part of Ser. No. 203,752, June 20, 1962, Pat. No. 3,598,858, which is a continuation-in-part of Ser. No. 119,209, April 9, 1962, abandoned, which is a continuation-in-part of Ser. No. 738,514, May 28, 1958, Pat. No. 3,069,322. This application Feb. 12, 1971, Ser. No. 115,111

Claims priority, application Great Britain, March 29, 1962, 12,139/62

Int. Cl. C07c *61/32, 69/74*

U.S. Cl. 260—468 D **12 Claims**

The prostaglandins $PGF_2\alpha$ and $PGF_2\beta$, and their salts, esters, and alkanoates are disclosed. These novel compounds are useful for a variety of pharmacological purposes, including use as smooth muscle stimulants and as cardiovascular agents.

3,706,790

(MONO-AND DI-SUBSTITUTED SULFAMOYL) BENZOIC ACIDS

James M. Sprague, Gwynedd Valley, and Carl Ziegler, Glenside, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Feb. 27, 1970, Ser. No. 15,203

Int. Cl. C07c *143/78*

U.S. Cl. 260—518 A **4 Claims**

(Mono- and di-substituted sulfamoyl)benzoic acids and the salt, ester and amide derivatives thereof wherein the benzene ring may be substituted by one or more halo, lower alkyl, trihalomethyl, sulfamoyl, alkylsulfonyl, nitro, carboxy, amino, halosulfonyl or hydrocarbylene radicals. The products are prepared by treating a halosulfonylbenzoic acid with a primary or secondary amine and are useful as uricosuric agents in the treatment of gout and gouty arthritis.

3,706,791

SURFACE ACTIVE SULFONATES AND PROCESS OF PREPARING SAME BY THE REACTION OF ALPHA OLEFINS AND BISULFITE

Hillary Robinette, Jr., Philadelphia, Pa., assignor to Robinette Research Laboratories, Inc., Berwyn, Pa.

Filed March 18, 1970, Ser. No. 20,814

Int. Cl. C07c *143/02*

U.S. Cl. 260—513 B **18 Claims**

Surface active alkane sulfonates prepared by agitating an aqueous solution of a bisulfite and an alcoholic solution of an olefin of seven to 20 carbon atoms or mixtures thereof in the presence of a small quantity of a diazo or azobis compound such as azobisisobutyronitrile, azobis-(α, γ-dimethylvaleronitrile) or diazoaminobenzene serving as a free radical-forming initiating catalyst. During the course of the reaction, a dispersion of a two phase system is maintained and the temperature of the reaction is kept below the boiling point of the alcohol used. The products are hydrolysis and heat stable, have excellent color and are useful as textile softeners, textile anti-static agents, emulsifying agents, wetting agents, dyeing assistants, bio-degradable detergents, lubricants, dispersing agents, and the like. The products can be employed as the clear reaction mixture at the end of the reaction or as a solid material after evaporation of the alcohol or the alcohol and water therefrom.

3,706,792

SUBSTITUTED PHENYLSULFONYLMETHYL SALICYLIC ACIDS AND ESTERS AND SALTS THEREOF

Tsung-Ying Shen, Bruce E. Witzel, and Gordon L. Walford, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 836,641, June 25, 1969. This application Apr. 20, 1970, Ser. No. 30,291

Int. Cl. C07c *65/14*

U.S. Cl. 260—520 **4 Claims**

Substituted (benzylthio)-salicylic acids, (phenylmercaptomethyl)-salicylic acids and phenyl disulfide salicylic acids and the non-toxic pharmaceutical accepted salts, esters, amides and various derivatives thereof. Also a method of treating inflammation which comprises administering the above compounds and various derivatives are also claimed. The substituted (benzylthio)-salicylic acids, (phenylmercaptomethyl)-salicylic acids and phenyl disulfide salicylic acids described herein have anti-inflammatory, anti-pyretic and analgesic activity.

3,706,793

RECOVERY OF POLYHYDRIC ALKANOLS AND METAL SALTS OF ALKANOIC ACIDS

Roy H. Prinz, Robstown, Tex., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed Jan. 28, 1971, Ser. No. 110,640

Int. Cl. C07c *29/26, 51/44*

U.S. Cl. 260—542 **9 Claims**

Alkali or alkaline earth metal salts and polyhydric alcohols are recovered from aqueous solution by first mixing with the aqueous solution an organic solvent composed of acetone and a C_1 to C_3 alkanol so as to precipitate the metal salt. The polyhydric alcohol is then recovered from the mother liquor by crystallization after removal of the organic solvent by distillation.

3,706,794

PRODUCTION OF SULPHONYL CHLORIDES

Patrick James Horner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Feb. 16, 1967, Ser. No. 616,467

Claims priority, application Great Britain, Feb. 28, 1966, 8,719/66

Int. Cl. C07c *143/70*

U.S. Cl. 260—543 R **5 Claims**

A sulphonyl chloride is produced from the corresponding free sulphonic acid using a catalytic amount of a chlorinated tertiary organic amide and excess chlorinating agent by introducing the sulphonic acid no faster than it is used up.

3,706,795

CONVERSION OF 2,2-BIS(FLUOROPERHALOMETHYL)-3,4-DIFLUOROOXETENE TO THE CORRESPONDING FLUOROPERHALO - 3-METHYL-2-BUTENOYL FLUORIDE

Bernard M. Lichstein, Elizabeth, and Cyril Woolf, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 600,047, Dec. 8, 1966. This application Aug. 18, 1969, Ser. No. 851,043

Int. Cl. C07c *51/58, 57/02, 69/52*

U.S. Cl. 260—544 F **5 Claims**

2,2-bis(fluoroperhalomethyl) - 3,4-difluorooxetenes can be converted in the presence of a free radical initiator, such as iodine, to the corresponding fluoroperhalo-3-methyl-2-butenoyl fluorides, which are useful as intermediates in the preparation of surfactants and other useful compounds.

3,706,796

SUBSTITUTED AMIDES

Edward S. Blake, Dayton, Ohio, assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Nov. 25, 1970, Ser. No. 92,898

Int. Cl. C07c *103/30*

U.S. Cl. 260—558 D **10 Claims**

Substituted amides as new chemical compounds. These compounds have been found to be useful in the control of bacteria.

3,706,797

BISACYL AMINIMIDES

William J. McKillip and Lawrence M. Clemens, Minneapolis, Minn., assignors to Ashland Oil, Inc., Ashland, Ky.

No Drawing. Continuation-in-part of application Ser. No. 485,618, Sept. 7, 1965. This application Aug. 6, 1969, Ser. No. 848,066

Int. Cl. C07c *103/54*

U.S. Cl. 260—558 H **7 Claims**

Isocyanate precursors in the form of novel diaminimides are provided by reaction of a diacyl dichloride with an unsymmetrical hydrazine, quaternizing the resultant bisacyl hydrazide which is then titrated with a base to yield the bisacyl aminimide.

3,706,798
BISOXALIC ACID DIAMIDES

Max Dunnenberger, Frenkendorf, Basel-Land, and Hans Rudolf Biland, Gelterkinden, Basel-Land, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Filed Apr. 12, 1971, Ser. No. 133,377
Int. Cl. C07c *103/32*
U.S. Cl. 260—559 A **5 Claims**

New bisoxalic acid diamides are stabilisers for organic materials. They are prepared by reacting an oxalic acid monoamide or the chloride or an ester thereof with an alkylendiamine.

3,706,799
NAPHTHYLOXYSALICYLANILIDES

David Richard Duke Osborne, Riseley, England, assignor to Lever Brothers Company, New York, N.Y.
No Drawing. Filed Dec. 3, 1969, Ser. No. 881,869
Claims priority, application Great Britain, Dec. 3, 1968, 57,429/68
Int. Cl. C07c *103/26*
U.S. Cl. 260—559 S **9 Claims**

New naphthyloxy-substituted anilides are disclosed. The compounds are useful germicidal agents. Preferred compounds contain halogen substituents.

3,706,800
PROCESS FOR THE PREPARATION OF AMINIMIDES

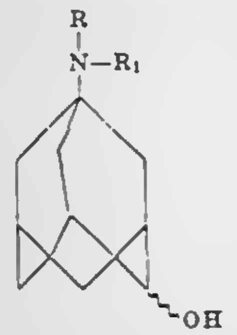
James A. Hartlage, Burnsville, and William J. McKillip, Minneapolis, Minn., assignors to Ashland Oil, Inc., Houston, Tex.
No Drawing. Continuation-in-part of abandoned application Ser. No. 514,705, Dec. 17, 1965. This application Feb. 26, 1970, Ser. No. 14,668
Int. Cl. C07c *103/30*
U.S. Cl. 260—561 H **12 Claims**

This invention relates to a process for the preparation of trialkylammonium acrylimines, trivially designated aminimides. More specifically, the present invention relates to a one-step process for preparing an aminimide from a carboxylic acid ester.

3,706,801
1-AMINOADAMANTAN-4-OLS

Milton E. Herr, Kalamazoo, Herbert C. Murray, Hickory Corners, and Gunther S. Fonken, Galesburg, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Continuation-in-part of application Ser. No. 666,990, Sept. 11, 1967, which is a continuation-in-part of application Ser. No. 528,346, Feb. 18, 1966. This application Jan. 21, 1970, Ser. No. 4,773
Int. Cl. C07c *87/40*
U.S. Cl. 260—563 P **7 Claims**

Novel compounds of the formula:

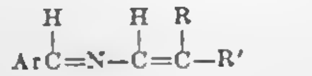


wherein R is hydrogen, an alkyl radical of 1 to 18 carbon atoms, inclusive, or a cycloalkyl radical of 5 to 15 carbon atoms, inclusive; R_1 is hydrogen, an alkyl radical of 1 to 18 carbon atoms, inclusive, or the cycloalkylmethyl radical, $—CH_2—R_3$ in which R_3 is a cycloalkyl radical of 3 to 6 carbon atoms, inclusive, and the pharmacologically acceptable acid addition salts thereof. The novel compounds are of particular value as central nervous system stimulants.

3,706,802
N-(2,2-DI-SUBSTITUTED-VINYL)-ARYLIMINES

Joseph T. Arrigo, Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Sept. 26, 1969, Ser. No. 861,455
Int. Cl. C07c *119/00*
U.S. Cl. 260—566 F **7 Claims**

A novel compound of the following formula



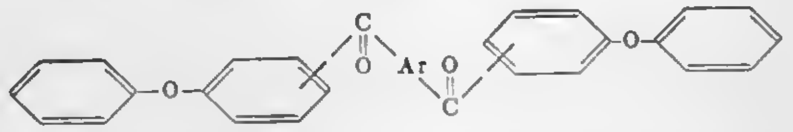
$$\mathrm{Ar}\overset{\displaystyle H}{\underset{|}{C}}=N-\overset{\displaystyle H}{\underset{|}{C}}=\overset{\displaystyle R}{\underset{|}{C}}-R'$$

where Ar is aryl and R and R′ are hydrocarbyl or together form a carbocyclic ring. These novel compounds are prepared by reacting an arylaldehyde with an N-(2,2-dihydrocarbylethylidene) - 2,2 - dihydrocarbylvinylamine or an N,N′ - bis - (2,2 - dihydrocarbylethylidene) - 2,2 - dihydrocarbylethylidenediamine. These compounds are useful as metal deactivators, antiozonants, etc.

3,706,803
BIS(PHENOXYBENZOYL) AROMATIC COMPOUNDS

Robert Salle, Bernard Sillion, and Gabriel de Gaudemaris, Grenoble (Isere), France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants, Rueil Malmaison, Hauts-de-Seine, France
No Drawing. Filed Dec. 4, 1969, Ser. No. 882,322
Claims priority, application France, Dec. 17, 1968, 179,056
Int. Cl. C07c *49/76*
U.S. Cl. 260—591 **13 Claims**

For use as heat exchange fluids or lubricants, there are provided aromatic and heterocyclic ketoethers of the formula:



These compounds are produced by reacting a magnesium derivative of a halodiphenylether with an aromatic dinitrile.

3,706,804
QUATERNARY ALKYL ALIPHATIC KETONES

John B. Siddall, Palo Alto, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.
No Drawing. Continuation-in-part of applications Ser. No. 854,778, Sept. 2, 1969, and Ser. No. 879,620, Nov. 24, 1969. This application Jan. 27, 1970, Ser. No. 6,291
Int. Cl. C07c *49/20*
U.S. Cl. 260—593 R **19 Claims**

Quaternary alkyl aliphatic hydrocarbon ketones prepared by reaction of acid with alkyl lithium useful as insect control agents and intermediates.

3,706,805
PROCESS FOR THE PREPARATION OF ARYL SULFIDES

Tamotsu Fujisawa, Yamato-shi; Noriko Ohtsuka, Sagamihara-shi; Takeo Kobori, Makano-ku, and Genichi Tsuchihashi, Tokyo, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan
Continuation-in-part of Ser. No. 719,743, April 8, 1968.
Filed Sept. 16, 1970, Ser. No. 72,821
Claims priority, application Japan, April 15, 1967, 42/24395
Int. Cl. C07c *149/30*
U.S. Cl. 260—609 E **8 Claims**

Aromatic sulfides are prepared by reacting 6—20 molar proportions of certain aromatic compounds with one molar proportion of a sulfur chloride in the presence of iron at 0°-50° C. The compounds have a variety of uses, including use as herbicides and fungicides.

3,706,806
PROPYL OR BUTYL DITHIOL FORMAL

Christian Esclamadon, Billere, Yves Labat, Pau, and Jean-Baptiste Signouret, Billere, France, assignors to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine, Courbevoie, France
No Drawing. Filed Jan. 28, 1970, Ser. No. 6,570
Claims priority, application France, Jan. 31, 1969, 6902063
Int. Cl. C07c *149/14*
U.S. Cl. 260—609 R **3 Claims**

New dithiol compounds include a formal group and have the general formula $HS—R—O—CH_2—O—R—SH$, in which R is a hydrocarbon group of from 1 to 12 carbon atoms, which can be substituted or unsubstituted aliphatic, cycloalkyl or aromatic radicals. These compounds are prepared by causing a chloroalkyl alcohol ($Cl—R—OH$) to react with formaldehyde so as to effect the acetalization of the alcohol and by treating the dichloro dialkyl formal which is obtained with an acid sulphide of an alkali metal and with hydrogen sulphide. These new dithiol compounds are used for the plasticisation of sulphur and for the production, as new industrial products, of plasticised sulphur compositions.

3,706,807
PREPARATION OF ALKYL-SUBSTITUTED PHENOLS

Robert W. Etherington, Jr., Pennington, and Warren W. Kaeding, Westfield, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed Mar. 20, 1969, Ser. No. 808,986
Int. Cl. C07c *37/12*
U.S. Cl. 260—624 C **8 Claims**

A method of preparing an alkyl-substituted phenol which comprises contacting a phenol with an organic compound having an available alkyl group in the presence of a catalytically-active ZSM-4 zeolite.

3,706,808
PRODUCTION OF NITROALKANES

Gustave Bryant Bachman, Lafayette, and Stephen E. Eisenstein, West Lafayette, both of Ind., assignors to Purdue Research Foundation.
Filed Oct. 18, 1971, Ser. No. 190,403
Int. Cl. C07c *79/04, 79/08*
U.S. Cl. 260—644 5 Claims

A process for the production of a nitroalkane or dinitroalkane by reacting an olefin or diolefin with nitric acid in the presence of a lower aliphatic monocarboxylic acid anhydride, thereby producing a nitro-ester or dinitro-ester, and reducing the nitro-ester or dinitro-ester with an alkali borohydride to produce the nitroalkane or dinitroalkane.

3,706,809
PROCESS FOR PREPARING HIGHLY REACTIVE ORGANO-MAGNESIUM COMPOUNDS

Tatsuo Moroe, Akira Komatsu, Susumu Akutagawa, and Toshiaki Sakaguchi, Tokyo, and Hirokazu Matsuyama, Yokohama, Japan, assignors to Takasago Perfumery Co., Ltd., Tokyo, Japan
No Drawing. Filed Sept. 17, 1970, Ser. No. 73,176
Int. Cl. C07f *3/02*
U.S. Cl. 260—665 R **7 Claims**

A process for the preparation of a highly reactive organo-magnesium compound which comprises reacting a conjugated diene compound with metallic magnesium in a solvent selected from the group consisting of an ether compound and a mixture of said ether compound with a Gregnard reagent inactive solvent, in the presence of a Lewis acid catalyst with the proviso that the Lewis acid catalyst may not be a catalyst of metals belonging to Group I–A and Group II–A of the Periodic Table, to thereby directly combine said conjugated diene compound with said metallic magnesium with the further proviso that said conjugated diene compound does not contain conjugated double bonds which are stabilized in the ring of a cyclic compound.

3,706,810
N-MORPHOLINOALKYL-THIENO[3,2-b]PYRROLE-5-CARBOXAMIDES

Herbert Joseph Brabander, Nanuet, N.Y., and William Blythe Wright, Jr., Woodcliff Lake, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Sept. 15, 1970, Ser. No. 72,524
Int. Cl. C07d *87/46*
U.S. Cl. 260—247.1 **5 Claims**

The preparation of N-(aminoalkyl) derivatives of thieno[3,2-b]pyrrole-5-carboxamides by several methods is described. One method is reacting a thieno[3,2-b]pyrrole-5-carboxylic acid with N,N′-carbonyldiimidazole and subsequently with an alkylene diamine. The substituted thieno[3,2-b]pyrrole-5-carboxamides are useful as analgesic and anti-depressant agents.

3,706,811
OXIDATIVE DEALKYLATION AND DEHYDROGENATION OF TERT-ALKYL AROMATICS

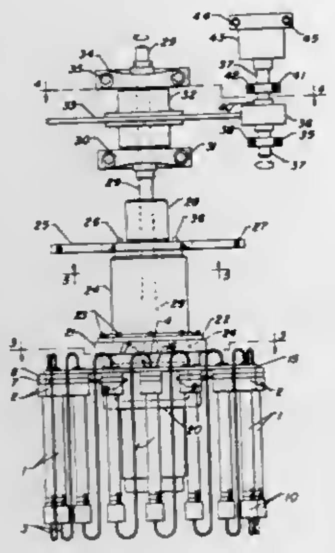
Roy B. Duke, Jr., Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio
No Drawing. Filed Sept. 16, 1970, Ser. No. 73,250
Int. Cl. C07c *15/10*
U.S. Cl. 260—669 R **23 Claims**

Tert-alkyl aromatics, e.g., tert-butylbenzene, are dealkylated and dehydrogenated by passing over catalyst, e.g., copper chromite in the presence of halogen and oxygen, e.g., tert-butylbenzene in the presence of oxygen and iodine gives alpha-methylstyrene.

3,706,812
FLUID-SOLID CONTACTING APPARATUS

Armand J. de Rosset, Clarendon Hills, and Richard W. Neuzil, Downers Grove, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 7, 1970, Ser. No. 95,673
Int. Cl. C07c *7/12*
U.S. Cl. 260—674 SA **11 Claims**

A fluid-solid contacting apparatus comprising a plurality of adsorbent chambers which are serially connected in a continuous closed loop system. The adsorbent chambers are interconnected by flow conduits which also contain fluid transfer taps and through which the flow of a fluid material may be passed to simulate a countercurrent continuous type flow process. The apparatus contains unidirectional flow directing means which are located between each adsorbent chamber and which allow a unidirectional flow of fluid when there is flow between the adsorbent chambers.



3,706,813
SELECTIVELY ADSORBING MULTIBRANCHED PARAFFINS

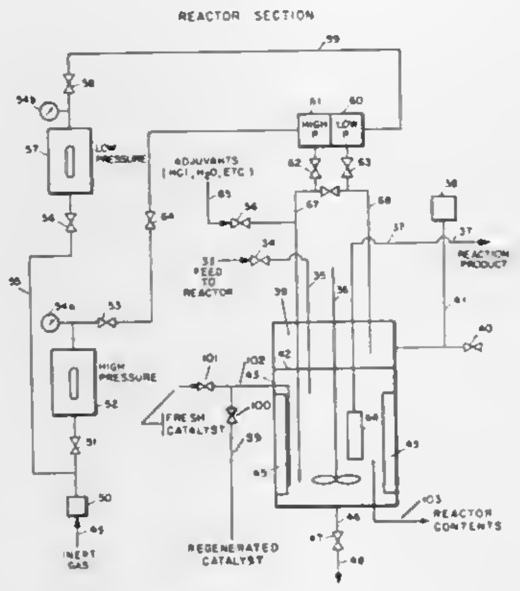
Richard W. Neuzil, Downers Grove, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed July 8, 1971, Ser. No. 160,901
Int. Cl. C10g *25/04;* **C07c** *9/16*
U.S. Cl. 260—676 MS **7 Claims**

A process for the separation of hydrocarbons utilizing a crystalline aluminosilicate adsorbent containing a specific cation ion-exchanged thereon and a specified range of water contents to provide a selective adsorption of a hydrocarbon type from a feed stream containing a mixture of hydrocarbons. Specifically, the separation involves selectively separating multibranched paraffins from a feed stream which contains a mixture of multibranched paraffins together with singly branched paraffins and/or normal paraffins. The separation can take place utilizing batch methods, moving bed systems, or simulated moving bed countercurrent flow schemes. Both liquid phase and vapor phase operations are anticipated. Specific feedstocks utilized in this process include high octane components—namely, the C_5 and C_6 hydrocarbons and specifically dimethylbutanes, methylpentanes and the normal hexanes and pentanes.

3,706,814
CONTINUOUS PROCESS FOR PRODUCING GASOLINE BLENDING COMPONENTS

Francis William Kirsch, Wayne, David S. Barmby, Media, and John D. Potts, Springfield, Pa., assignors to Sun Oil Company, Philadelphia, Pa.
Continuation-in-part of applications Ser. No. 581,129, Aug. 25, 1966, now abandoned, Ser. No. 715,998, Mar. 26,1968, now Patent No. 3,624,173, Ser. No. 716,190, Mar. 26, 1968, Ser. No. 749,714, Aug. 2, 1968, Ser. No. 823,656, May 12, 1969, Ser. No. 830,687, June 5, 1969, now Patent No. 3,655,813, and Ser. No. 840,110, June 16, 1969, now abandoned. This application May 4, 1970, Ser. No. 34,209
Int. Cl. C07c *3/52*
U.S. Cl. 260—683.43 **7 Claims**

A process for the continuous preparation of gasoline blending components comprises contacting, in a continuous stirred reactor, an acidic zeolite catalyst and a liquid feed containing C_4–C_8 isoparaffin and C_3–C_9 monoolefin at 25–200° C. and 14–800 p.s.i., continually introducing the liquid feed and simultaneously continually withdrawing a reactor product stream free of catalyst from the reactor wherein the feed stream and the product stream are introduced and withdrawn respectively at the same rate, the paraffin/olefin molar ratio in the reaction mixture being at least 10 to 1. Preferably an additional acyclic feed component is added, comprising C_9^+ olefin or C_6^+ paraffin (such as Udex raffinate). Also preferred is to constantly withdraw a slipstream of the reaction mixture containing aged catalyst and to constantly introduce, at the same rate, an active catalyst stream to the reactor and to regenerate and activate the catalyst from said sidestream.



3,706,815
CHELATED METAL-POLYPHOSPHORIC ACID CATALYSTS, METHOD OF PREPARATION AND ISOMERIZATION PROCESS UTILIZING THE SAME

Starling K. Alley, Jr., Brea, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Continuation-in-part of abandoned application Ser. No. 877,435, Nov. 17, 1969. This application May 24, 1971, Ser. No. 146,533
Int. Cl. B01j *11/82;* **C07c** *5/24*
U.S. Cl. 260—683.65 **12 Claims**

Novel catalysts are prepared by chelating ions of a Group VIII noble metal, e.g., platinum, with a polyphosphoric acid and depositing the chelate on a porous support. The catalyst is especially useful for isomerizing hydrocarbons.

3,706,816
MANUFACTURE OF 1,1,1-TRICHLOROETHANE

Alastair Campbell and Rosemary Angela Carruthers, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Sept. 22, 1969, Ser. No. 860,032
Claims priority, application Great Britain, Oct. 9, 1968, 47,796/68, 47,797/68
Int. Cl. C07c *17/00*
U.S. Cl. 260—658 R **1 Claim**

An integrated process for the manufacture of 1,1,1-trichloroethane based on ethylene and chlorine. Chlorine is reacted with ethyl chloride and 1,1-dichloroethane in an unpacked reaction zone. A light fraction from the chlorination zone comprising ethylene and chloroethylenes together with ethylene feedstock are reacted with HCl and the resulting ethyl chloride and 1,1-dichloroethane are fed to the chlorination zone.

3,706,817
BLOCK COPOLYMERS HAVING DISSIMILAR NONELASTOMERIC POLYMER BLOCKS

Milton M. Wald and Myron G. Quam, deceased, by Milton M. Wald, legal representative, Walnut Creek, Calif.; said Wald assignor to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 806,763, Dec. 24, 1968, which is a continuation-in-part of abandoned application Ser. No. 333,671, Dec. 26, 1963. This application May 5, 1971, Ser. No. 140,613
Int. Cl. C08f *19/06, 19/08*
U.S. Cl. 260—880 B **6 Claims**

The resistance to creep is substantially improved in block copolymers which are selectively hydrogenated and have within the same block copolymeric molecules nonelastomeric blocks A and C and elastomeric blocks B wherein, prior to hydrogenation, blocks A are homopolystyrene blocks, blocks B are conjugated diene polymer blocks and blocks C are homopolymer blocks of alpha methyl styrene; and due to hydrogenation, no more than about 25% of the double bonds in blocks A and C are reduced and at least 90% of the aliphatic double bonds of blocks B are reduced.

3,706,818
PROCESSES USING POLYPEROXIDES AFFORDING SEQUENTIAL FREE RADICAL GENERATION

Orville Leonard Mageli, Kenmore, and Antonio Joseph D'Angelo, Buffalo, N.Y., assignors to Pennwalt Corporation
No Drawing. Filed July 17, 1968, Ser. No. 745,416
Int. Cl. C08f *19/10*
U.S. Cl. 260—885 **7 Claims**

Organic syntheses requiring free radical initiation in two stages are carried out using as the source of sequential free radicals a polyperoxy compound having at least two functional peroxy groups, at least one of these having a half-life different from the other functional peroxy groups.

Example: Styrene monomer and di-t-butyl alpha-(methoxycarbonyl)diperoxysuccinate were reacted at about 60° C. to obtain a polystyrene containing functional peroxy groups. The polystyrene-peroxy polymer was reacted with methyl methacrylate monomer at 85° C. to obtain a block copolymer of polystyrene and poly (methyl methacrylate).

3,706,819
VULCANIZABLE RUBBER COMPOSITION COMPRISING ACCELERATOR EPDM AND DIOLEFIN RUBBER

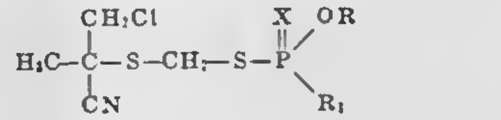
Teruyoshi Usamoto, Osaka, Yasutaka Hatada, Higashi-Osaka, Itsuro Furuichi, Toyonaka, and Masao Matsuo, Takatsuki, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
No Drawing. Filed Sept. 9, 1970, Ser. No. 70,934
Claims priority, application Japan, Sept. 16, 1969, 44/73,448
Int. Cl. C08f *29/12, 41/12*
U.S. Cl. 260—889 **13 Claims**

Blends of EPDM with highly unsaturated rubbers are co-cured with sulfur using as accelerators higher alkyl thiuram disulfides (e.g., tetralaurylthiuram disulfide) or benzothiazylsulfenamides (e.g., N-laurylbenzothiazylsulfenamide).

3,706,820
S-ALKYLMERCAPTOMETHYLTHIOPHOSPHORIC OR PHOSPHONIC ACID ESTERS

Hellmut Hoffmann, Wuppertal-Elberfeld, and Ingeborg Hammann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 4, 1971, Ser. No. 121,190
Claims priority, application Germany, Mar. 7, 1970, P 20 10 889.8
Int. Cl. C07f *9/24;* **A01n** *9/36*
U.S. Cl. 260—940 **6 Claims**

S-alkylmercaptomethyl-thio- or -dithio-phosphoric or -phosphonic acid esters of the general formula:



$$H_3C-\underset{\displaystyle CN}{\overset{\displaystyle CH_2Cl}{C}}-S-CH_2-S-\overset{X}{\overset{\|}{P}}\begin{matrix}OR\\ \\R_1\end{matrix} \qquad (I)$$

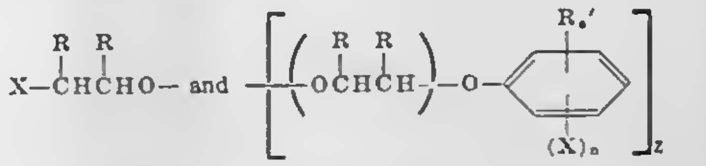
in which:

R is a lower alkyl radical,
R_1 is a lower alkyl or alkoxy radical, and
X is an oxygen or sulfur atom,
to a process for their preparation and to their use as insecticides or acaricides.

3,706,821
NOVEL PHOSPHORUS AND HALOGEN-CONTAINING COMPOUNDS

James J. Anderson, Wendell M. Byrd, Jr., and Vasco G. Camacho, Richmond, Va., assignors to Mobil Oil Corporation
No Drawing. Continuation-in-part of application Ser. No. 826,019, May 19, 1969. This application Sept. 18, 1969, Ser. No. 859,196
Int. Cl. C07f *9/12;* **C09k** *3/28;* **C08f** *45/58*
U.S. Cl. 260—951 **7 Claims**

The flammability of polymeric materials is substantially reduced or obviated by associating therewith novel halogen-containing phosphites, phosphates and phosphonates having characterizing groups

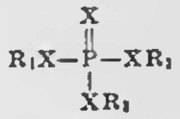


Polymeric materials can be processed at elevated temperatures of the order of 250–300° C. with certain of the phosphorus compounds.

3,706,822
METHOD OF REFINING ESTERS OF ORGANOPHOSPHORUS

James E. Caldwell, 535 Coppinger Drive, Ferguson, Mo. 63135, and Ronald R. Sorrell, Apt. 7, 4130 Geraldine, St. Ann, Mo. 63074
No Drawing. Filed Oct. 2, 1969, Ser. No. 863,334
Int. Cl. C07f *9/08, 9/16, 9/40*
U.S. Cl. 260—990 **15 Claims**

Organophosphorus acid esters of the formula



$$R_1X-\underset{XR_1}{\overset{X}{\overset{\|}{\underset{|}{P}}}}-XR_1$$

wherein R_1, R_2 and R_3 individually represent alkyl, aryl, alkaryl, aralkyl, haloalkyl, haloaryl, nitroalkyl, nitroaryl, alkoxyalkyl, alkoxyaryl, cyanoaryl, haloalkaryl and alkylthioalkyl, and X represents oxygen, sulfur, or a carbon-phosphorus bond, at least two of X being oxygen or sulfur, are prepared wherein certain wash-improving agents are added to the lye and/or water washes during the refining of the crude organophosphorus esters. The organophosphorus esters prepared by the method of this invention have utility as flexibilizing plasticizers for polyvinylchloride compositions, as synthetic lubricants and force transmission fluids, as film-forming addition agents for extreme pressure lubricants and as insecticides.

3,706,823

PURIFICATION OF ALKARYL PHOSPHATES

Gordon A. Rampy, Nitro, and Norman C. Parsons and Mabel H. Ryder, St. Albans, W. Va., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Aug. 24, 1970, Ser. No. 66,553

Int. Cl. C07f *9/08, 9/12*

U.S. Cl. 260—990 **2 Claims**

Hindered phenol impurities which cause color development in alkaryl phosphates—e.g. 2,6-dialkylphenols—are removed by reaction with excess PCl_5 to form the alkaryl phosphoric chlorides, which are then removed from the alkaryl phosphate by treatment with water, preferably combined with alkali.

3,706,824

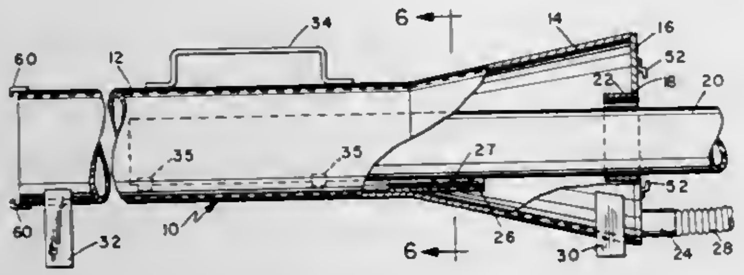
SYSTEM FOR HEATING A SECTION OF PIPE

Buel D. Huber, 11848 Altadena, Lakeside, Calif. 92040, and Howard M. Enloe, 509 Hemerick, Huston, Mo. 65483

Filed Feb. 22, 1971, Ser. No. 117,286

Int. Cl. F27b *17/00*

U.S. Cl. 263—2 R **9 Claims**



A system for heating a section of pipe sufficiently to allow bending of the pipe for making curves and right angle bends for installation. The heater has a body portion including an elongated heating chamber with openings at each end for receiving a section of plastic or other heat pliable pipe, and a gas injection section for receiving but diffusing the heated exhaust gas of an internal combustion engine. A supplemental device is utilized for heating the interior of the pipe and comprises an elongated cylindrical member with a plurality of holes for distributing gas supplied to the center of the cylinder into contact with the inside diameter of the pipe to be heated.

3,706,825

PROCESS FOR MANUFACTURE OF AN IMPROVED MULTI-COLORED PLASTIC BUILDING PRODUCT

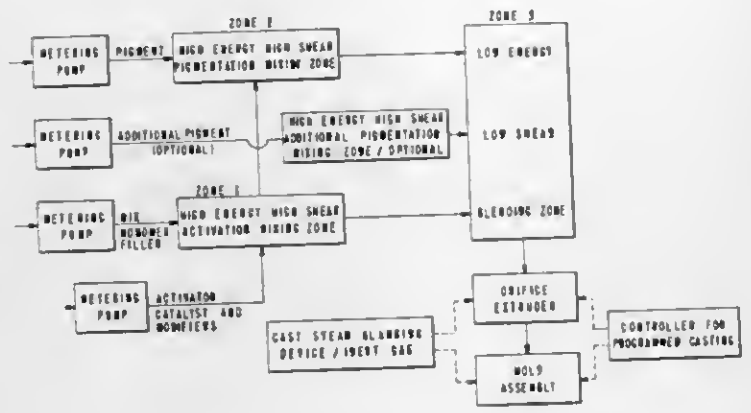
Nelson Lee Hall, Williamsville, N.Y., and Donald Hillman Slocum, Moorestown, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Original application July 24, 1969, Ser. No. 844,509. Divided and this application June 9, 1970, Ser. No. 57,014

Int. Cl. B29c *9/00;* **B29f** *3/12*

U.S. Cl. 264—75 **5 Claims**

A multi-colored cast plastic building product of uniformity and strength including a mass of polymeric material having distributed and suspended therein at least one smaller elongated continuous pattern of a different colored polymeric material in a predetermined reproducible three dimensional configuration and a manufacturing arrangement for producing the same so that the polymeric materials are substantially equally matched as to degree of polymerization at the time of being cast to give uniformity of all properties except color in the final product.


METERING PUMP
PIGMENT
ZONE 2
HIGH ENERGY HIGH SHEAR PIGMENTATION MIXING ZONE
ZONE 3
LOW ENERGY
METERING PUMP
ADDITIONAL PIGMENT (OPTIONAL)
HIGH ENERGY HIGH SHEAR ADDITIONAL PIGMENTATION MIXING ZONE / OPTIONAL
LOW SHEAR
ZONE 1
METERING PUMP
MIX MONOMER FILLER
HIGH ENERGY HIGH SHEAR ACTIVATION MIXING ZONE
BLENDING ZONE
METERING PUMP
ACTIVATOR CATALYST AND MODIFIERS
ORIFICE EXTRUDER
CAST STEAM BLANKING DEVICE / INERT GAS
CONTROLLER FOR PROGRAMMED CASTING
MOLD ASSEMBLY

3,706,826

MELT SPINNING PROCESS

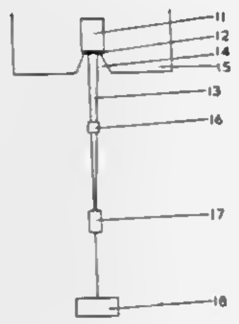
James Duncan Bremner and Iain Alexander McLellan, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

Filed May 21, 1970, Ser. No. 39,525

Claims priority, application Great Britain, May 23, 1969, 26,429/69

Int. Cl. B28b *3/20*

U.S. Cl. 264—176 F **6 Claims**



A method for decreasing the birefringence of a melt spun filament by applying a forwarding force to a filamentary stream in a region where the filament is in an intermediate plastic state, the forwarding force being sufficiently small such that the filament is under positive tension throughout the process sequence.

3,706,827

METHOD FOR FLOW RATE CONTROL

Robert Edward Nott and David Robin Lander, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England

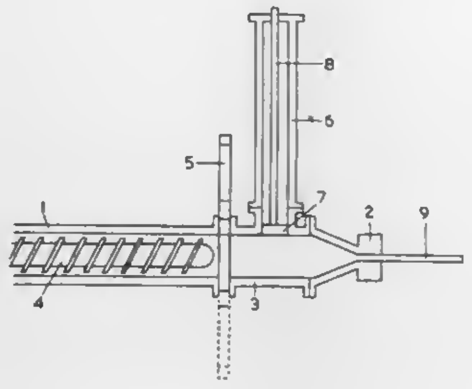
Continuation of abandoned application Ser. No. 809,163, Mar. 21, 1969. This application June 2, 1971, Ser. No. 149,372

Claims priority, application Great Britain, Mar. 28, 1968, 14,964/68

Int. Cl. B28b *3/20*

U.S. Cl. 264—176 **4 Claims**

A method and apparatus which allows a substantially constant flow rate of viscous material through a die while permitting variations or interruptions in the flow at an earlier stage, by means of providing for changes in the available capacity for the viscous material prior to the die.



3,706,828

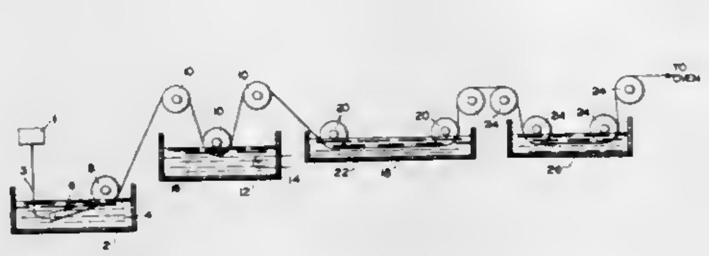
WET SPINNING NON-CIRCULAR POLYACRYLONITRILE FIBERS BY UTILIZING CIRCULAR ORIFICES AND SEQUENTIAL COAGULATION

Leonidas S. Tzentis, Zurich, Switzerland, assignor to Dow Badische Company, Williamsburg, Va.

Filed Aug. 19, 1969, Ser. No. 851,368

Int. Cl. D01f *7/02*

U.S. Cl. 264—182 **10 Claims**



A method of producing synthetic fibers having tough outer skins and dog-bone or other non-circular cross-sections which comprises spinning said fiber and subjecting the spun fiber to sequential coagulation treatments whereby the outer core is coagulated and shrinks to a tough shell, surrounding the inner core which is incompletely coagulated and collapsed. The fibers may be used in conventional textile materials.

3,706,829

AUTOMATED PROCESS FOR THE HYDROLYSIS OF TITANIUM SULFATE SOLUTIONS

Monroe M. Solomka, Bilbao, and Enrique Renteria Aguirre, Plencia, Spain, assignors to Dow-Unquinesa S.A., Erandio, Bilbao, Spain

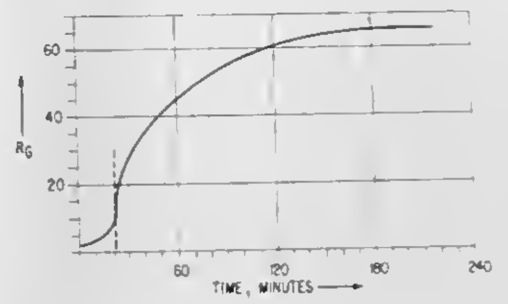
Filed Nov. 19, 1970, Ser. No. 91,039

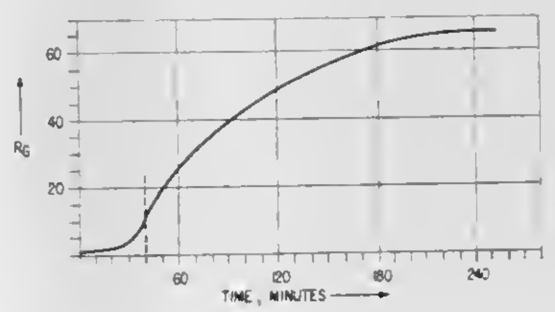
Claims priority, application Spain, Nov. 22, 1969, 373,807

Int. Cl. C01g *23/06*

U.S. Cl. 423—615 **18 Claims**

The hydrolysis of titanium sulfate solutions is performed and controlled by heating a seeded titanium sulfate solution with agitation while simultaneously measuring the reflectance of the resulting suspension, until a critical point is attained as indicated by a substantial change in the rate of reflectance per unit of hydrolysis time, allowing the solution to remain quiescent for from 5 to 60 minutes, then resuming the heating of the solution until the hydrolysis produces the desired yield of titanium hydrate. The measurement of reflectance may be made by photoelectric means, and the point of inflection of the reflectance curve or its first or second derivative with respect to time may be used to control the hydrolysis process.





ERRATUM

For Class 424—308 see:
Patent No. 3,706,762

3,706,830

2,4-BENZODIAZEPINES USED AS ANTI-HYPERTENSIVE AGENTS

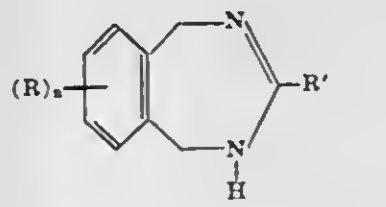
Herman Robert Rodriguez, New York, N.Y., and George de Stevens, Summit, N.J., assignors to Ciba-Geigy Corporation

No Drawing. Continuation-in-part of application Ser. No. 840,833, July 10, 1969, which is a continuation-in-part of application Ser. No. 694,421, Dec. 29, 1967, which in turn is a continuation-in-part of application Ser. No. 630,497, Apr. 13, 1967, all now abandoned. This application Apr. 16, 1970, Ser. No. 29,257

Int. Cl. A61k *27/00*

U.S. Cl. 424—244 **3 Claims**

4,5-dihydro-1H-2,4-benzodiazepines, e.g. those of the formula



R=H, alkyl, free, etherified or esterified OH or SH, CF_3, NO_2 or amino; *n*=1 or 2

R′=H, OH, SH, amino or an aliphatic, araliphatic or aromatic radical
acyl derivatives, N-oxides, quaternaries or salts thereof, are antihypertensives and increase the contractile force of the heart.

3,706,831
METHOD FOR TREATMENT OF DRUG ADDICTION

Nicholas Peter Plotnikoff, Lake Bluff, and Anthony Thomas Dren, Waukegan, Ill., and William George Jochimsen, Wauwatosa, Wis., assignors to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed May 14, 1971, Ser. No. 143,652

Int. Cl. A61k *27/00*

U.S. Cl. 424—153 **11 Claims**

Covers a method for the treatment of drug addiction comprising administering to a drug addict a composition selected from the group consisting of 2-imino-5-phenyl-4-oxazolidinone, a pharmaceutically-acceptable salt thereof or a combined composition comprising 2-imino-5-phenyl-4-oxazolidinone or a salt thereof and an additional agent comprising an aluminum base, an aluminum salt, and an alkaline earth metal salt or an alkaline earth metal base. The method is particularly applicable to treatment of a drug addict dependent upon a stimulant-type addictive drug such as cocaine, amphetamine and the like.

3,706,832
CERTAIN O-ALKYL-S-PHENYL-PHOSPHONOTHIOLATE FUNGICIDES

Seiichi Hirane, Masahiro Aya, and Shigeo Kishino, Tokyo, Japan, assignors to Nihon Tokushu Noyaku Seizo Kabushiki Kaisha, Tokyo, Japan, and Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany

No Drawing. Original application Jan. 22, 1968, Ser. No. 699,296, now Patent No. 3,560,596, dated Feb. 2, 1971. Divided and this application June 1, 1970, Ser. No. 42,465

Int. Cl. A01n *9/36*

U.S. Cl. 424—217 **12 Claims**

A process is provided for treating blast (*Piricuralia oxyzae*), brown spot (*Cochliobolus miyabeanus*) and sheath blight (*Hypochnus sasakii*) in rice plants comprising applying to either the plant, the seed or the soil a horticultural and agricultural fungicide containing as active ingredient at least one O-alkyl S-phenylbenzylphosphonothiolate compound.

3,706,833
USE OF 4,6-DIAMINOPYRIMIDINE HYDROCHLORIDE AS AN ANTIFUNGAL AGENT

Mary Eloise McCoy, Pearl River, and Gunnar Sigurd Redin, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Apr. 13, 1971, Ser. No. 133,708

Int. Cl. A61k *27/00*

U.S. Cl. 424—251 **4 Claims**

The method for the use of 4,6-diaminopyrimidine and salts thereof as antifungal agents in warm blooded animals and compositions containing said compound is described.

3,706,834
METHOD FOR COMBATTING BACTERIA USING CERTAIN 2-(2′-HYDROXYPHENYL)-OXAZOLES

Max Schellenbaum, Muttenz, and Max Duennenberger, Frenkendorf, Switzerland, assignors to Ciba-Geigy Corporation

No Drawing. Continuation-in-part of application Ser. No. 686,298, Nov. 28, 1967. This application July 14, 1970, Ser. No. 54,850

Claims priority, application Switzerland, Nov. 30, 1966, 17,154/66

Int. Cl. A01m *9/22*

U.S. Cl. 424—272 **5 Claims**

A method for combatting harmful microorganisms, such as fungi and bacteria, by applying a 2-(2′-hydroxyphenyl)-oxazole.

3,706,835
CRASSIN ACETATE USED AS AN ANALGESIC

Donald Bruce Borders, Suffern, and Arnold Curtis Osterberg, Pearl River, N.Y., and Kenneth George Wallo, Wayne, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed June 24, 1971, Ser. No. 156,475

Int. Cl. A61k *27/00*

U.S. Cl. 424—279 **4 Claims**

New compositions of matter and method of administration are described. The compositions contain as the active component crassin acetate. The compositions are useful for their analgesic activity in warm-blooded animals.

3,706,836
INSECTICIDAL COMPOSITIONS CONTAINING 2,6,7 - TRIOXA-1-ARSABICYCLO[2.2.2]OCTANE COMPOUNDS

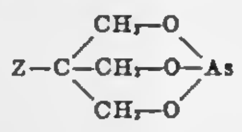
John F. Deffner, Glenshaw, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Original application Apr. 24, 1969, Ser. No. 819,122, now Patent No. 3,621,044, dated Nov. 16, 1971. Divided and this application Dec. 1, 1970, Ser. No. 94,630

Int. Cl. A01n *9/00, 9/02*

U.S. Cl. 424—297 **3 Claims**

Insecticidal compositions comprise derivatives of 2,6,7-trioxa-1-arsabicyclo[2.2.2]octane and solutions thereof. The 2,6,7-trioxa-1-arsabicyclo[2.2.2]octane compounds are represented by the general formula



$$Z-C\begin{matrix}CH_2-O\\-CH_2-O-\\CH_2-O\end{matrix}As$$

wherein Z can be alkyl, aryl, aralkyl, alkaryl, cycloalkyl, alkoxy, aryloxy, acyl, acyloxy, acyloxymethyl, benzoxymethyl, and chrysanthemumoxymethyl. Examples include
4-propyl-2,6,7-trioxa-1-arsabicyclo[2.2.2]octane
4-acetoxymethyl-2,6,7-trioxa-1-arsabicyclo[2.2.2]octane
4-chrysanthemumoxymethyl-2,6,7-trioxa-1-arsabicyclo [2.2.2]octane.

ELECTRICAL

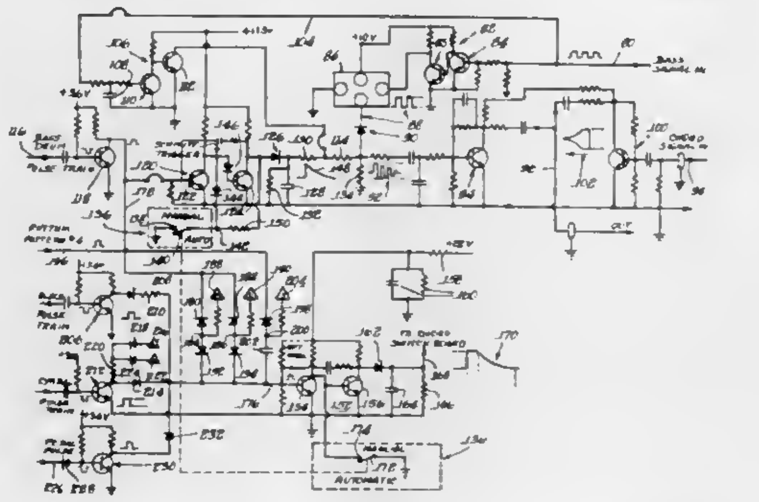
3,706,837
AUTOMATIC RHYTHMIC CHORDING UNIT

Alvan D. Arsem, Clarence; Harold O. Schwartz, and Anthony C. Ippolito, both of North Tonawanda, all of N.Y., assignors to The Wurlitzer Company, Chicago, Ill.

Filed June 17, 1971, Ser. No. 154,054

Int. Cl. G10f *1/00*

U.S. Cl. 84—1.03 **4 Claims**



A keyboard musical instrument is provided having a keyboard for playing solo or lead. Automatic switching also is provided for producing predetermined percussive-type rhythm patterns and sounds, and is operable with a plurality of chord buttons to play predetermined chords and also a related bass note. The chords and bass note may be alternated, the bass note being the root of the chord or its fifth preferably alternating.

3,706,838
TELECOMMUNICATION CABLES

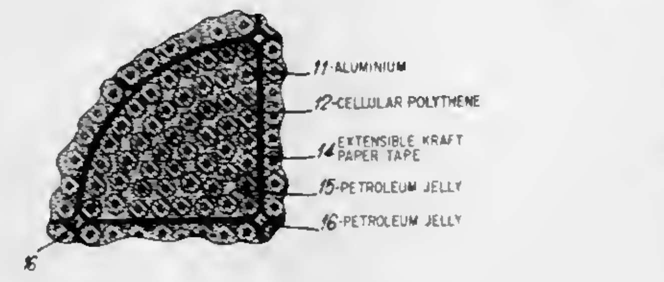
David Luard Boult, Manley, England, assignor to British Insulated Callender's Cables Limited, London, England

Filed Nov. 20, 1970, Ser. No. 91,507

Claims priority, application Great Britain, Nov. 19, 1969, 56,711/69

Int. Cl. H01b *7/02*

U.S. Cl. 174—25 R **10 Claims**



A telecommunication cable comprises at least two cable units laid up together and enclosed in a water-proof sheath. Each cable unit comprises a multiplicity of conductors each having a dielectric of cellular plastics material, at least one layer of insulating tape, for instance paper, surrounding the multiplicity of conductors and, filling the interstices within the cable unit, a water-impermeable medium, for instance petroleum jelly, which will not drain under the influence of gravity or such hydrostatic pressure as may arise in the event of damage to the cable sheath but which will permit relative sliding movement of the cellular plastics insulated conductors over one another during such bending of the cable as occurs during manufacture and installation of the cable. The or each layer of insulating tape is impregnated with the water-impermeable medium and constitute a barrier to the ingress of water.

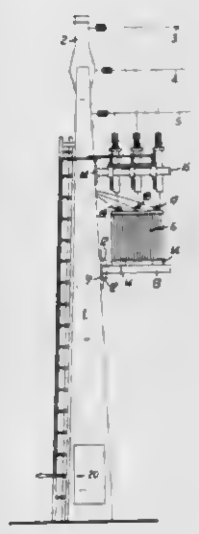
3,706,839
TRANSFORMER STATION CARRIED BY A MAST

Bernard Comte, 1723 Marly, and Victor Cler, 1700 Fribourg, both of Switzerland, assignors to Gram S.A., Broye, Fribourg, Switzerland

Filed Dec. 9, 1971, Ser. No. 206,292

Int. Cl. H01b *31/00*

U.S. Cl. 174—45 TD **17 Claims**



The invention relates to a transformer station carried by a mast. Such a station comprises a transformer and a high voltage connection device last fastened onto the mast the one above the other. A low voltage connection device is located within the hollow mast. An access device to the high voltage circuit-breaker is provided and comprises a ladder, the lower portion of which is foldable, a footbridge surrounded by a hand rail.

The station is remarkable in that it comprises further a safety device hindering the unfolding of the ladder as long as the high voltage line as well as the primary of the transformer has not both been grounded.

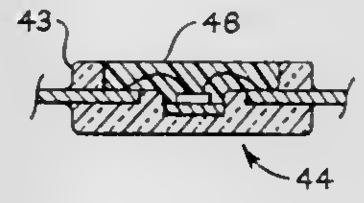
3,706,840
SEMICONDUCTOR DEVICE PACKAGING

Kenneth J. Moyle, Palo Alto, and Richard S. Mann, Mountain View, both of Calif., assignors to Intersil Incorporated

Filed May 10, 1971, Ser. No. 141,793

Int. Cl. H05k *5/00*

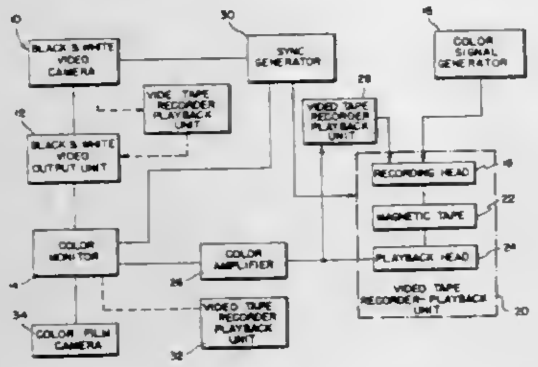
U.S. Cl. 174—52 PE **10 Claims**



An improved semiconductor device package and process of manufacture incorporating an inner rigid glass structure including mounting pad and lead fingers and a surrounding plastic package through which leads extend.

3,706,841
METHOD AND APPARATUS FOR CONVERTING MONOCHROME PICTURES TO MULTI-COLOR PICTURES ELECTRONICALLY

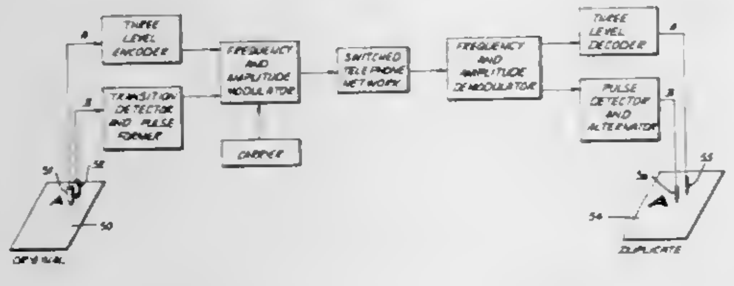
Joseph F. Novak, 447 Ridge Court, Roselle, Ill.
Filed Sept. 17, 1971, Ser. No. 181,425
Int. Cl. H04n *9/02*
U.S. Cl. 178—5.4 R **13 Claims**


10
BLACK & WHITE VIDEO CAMERA
30
SYNC GENERATOR
16
COLOR SIGNAL GENERATOR
VIDEO TAPE RECORDER PLAYBACK UNIT
28
VIDEO TAPE RECORDER PLAYBACK UNIT
12
BLACK & WHITE VIDEO OUTPUT UNIT
RECORDING HEAD
18
MAGNETIC TAPE
22
PLAYBACK HEAD
24
COLOR MONITOR
14
COLOR AMPLIFIER
26
VIDEO TAPE RECORDER- PLAYBACK UNIT
20
34
COLOR FILM CAMERA
VIDEO TAPE RECORDER PLAYBACK UNIT
32

A method and apparatus for converting black and white or monochrome pictures to multi-color pictures electronically.

3,706,842
METHOD TO DOUBLE TRANSMISSION SPEED OF TELEPHONE NETWORK FACSIMILE

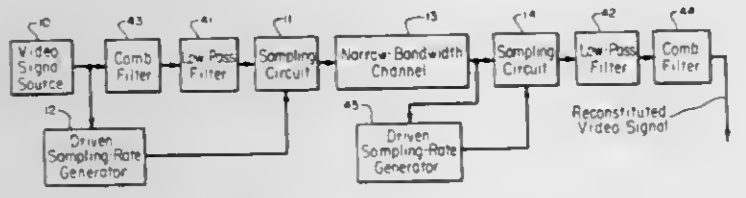
Gene D. Robertson, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind.
Filed Feb. 1, 1971, Ser. No. 111,376
Int. Cl. H04j *9/00;* **H04l** *5/00;* **H04n** *1/40*
U.S. Cl. 178—6 **8 Claims**


A
THREE LEVEL ENCODER
B
TRANSITION DETECTOR AND PULSE FORMER
FREQUENCY AND AMPLITUDE MODULATOR
CARRIER
SWITCHED TELEPHONE NETWORK
FREQUENCY AND AMPLITUDE DEMODULATOR
THREE LEVEL DECODER
A
PULSE DETECTOR AND ALTERNATOR
B
51
52
50
ORIGINAL
55
56
54
DUPLICATE

Material to be sent is scanned two lines at a time and the information in the two lines is transmitted simultaneously. The first line of each pair is encoded and transmitted by a frequency or phase modulated carrier. The second line of each pair is encoded and is used to amplitude modulate the frequency or phase modulated carrier of the first line.

3,706,843
NARROW-BANDWIDTH TELEVISION SYSTEM

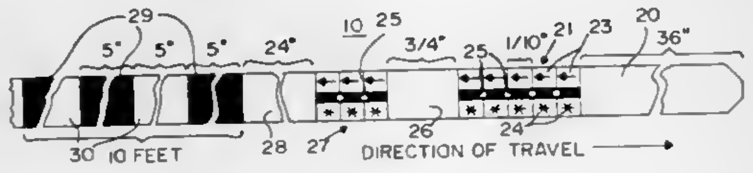
Leonard J. Laub, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Oct. 29, 1969, Ser. No. 872,047
Int. Cl. H04n *7/12*
U.S. Cl. 178—6.8 **1 Claim**



A television system for transmitting a video signal on a narrow-bandwidth bases. A driven sampling-rate generator is responsive to the video signal for developing a control signal having a frequency equal to a non-integral factor times the line rate of the video signal. A sampling circuit is responsive to the control signal for producing a narrow-bandwidth transmission signal. A second sampling circuit located at the receiver derives a representative video signal from the narrow-bandwidth signal and synchronizes the representative signal with the control signal.

3,706,844
FILM FORMAT AND STOP CIRCUIT FOR AN ELECTRONIC VIDEO RECORDING PLAYER

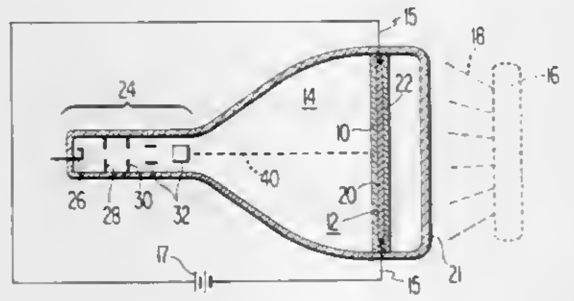
Emil E. Besier, Chicago, and Warren L. Knauer, Jr., Winnetka, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed March 15, 1971, Ser. No. 124,247
Int. Cl. H04n *5/84*
U.S. Cl. 178—7.2 **10 Claims**



An electronic video recording player is disclosed for converting images on a film into a composite video signal for application to a television receiver to be reproduced therein. To prevent damage to the film cartridge by tearing the film loose from the cartridge when the end of the film is reached, the film is provided with a sequence of clear and opaque portions in the synchronizing signal track thereof. The player includes a timing circuit coupled with a light responsive resistor to operate a film device stop solenoid when the film end sequence is sensed. If an attempt is made to restart the forward drive of the film in any forward mode following an automatic stop at the end of the film, the sequence of opaque and clear portions at the end of the film causes reoperation of the stop solenoid. A time delay circuit operates to prevent false operation of the stop solenoid when the film leader is first threaded through the player. Clear portions also may be inserted in the synchronizing track of the film between different program materials on the film. These clear portions are long enough to cause energization of the stop solenoid when the player is being operated in a play mode but are too short to cause energization of the stop solenoid when the player is being operated in fast-forward mode of operation.

3,706,845
METHOD OF IMPROVING THE γ'OF A CATHODOCHROMIC DISPLAY DEVICE

Philip Michael Heyman, Trenton, and Istvan Gorog, Princeton, both of N.J., assignors to RCA Corporation
Filed Oct. 8, 1970, Ser. No. 79,037
Int. Cl. G02f *1/28*
U.S. Cl. 178—7.5 D **8 Claims**

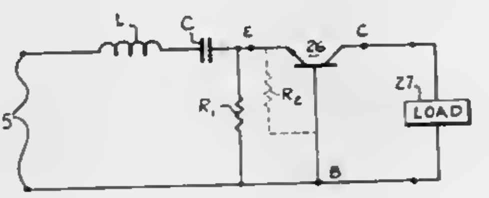


Operation of a cathodochromic display tube by steps including destabilizing the color centers for the optically reversible coloration component of the cathodochromic material. Such destabilizing excludes at least partially the optically reversible coloration components before the image-formation process.

Destabilization can be achieved by heating the cathodochromic material to a temperature at least equal to the partial erase temperature but below the total erase temperature of the cathodochromic material, and/or by exposing the cathodochromic material material to radiation of suitable wavelength.

3,706,846
TELEVISION RECEIVER INTERMEDIATE FREQUENCY AMPLIFIER CIRCUITRY

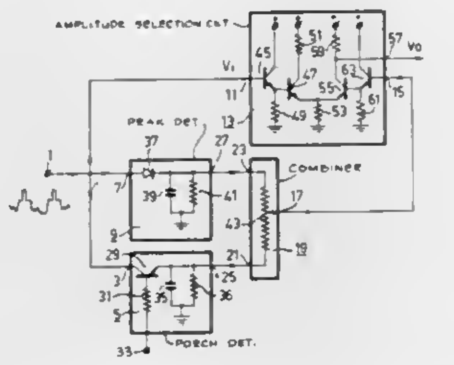
Karol Siwko, Batavia, N.Y., assignor to GTE Sylvania Incorporated
Filed Dec. 7, 1970, Ser. No. 95,485
Int. Cl. H04n *5/48*
U.S. Cl. 178—7.3 R **13 Claims**



An intermediate frequency amplifier, utilizing a common base transistor amplifier, which changes the intermediate frequency response with gain to improve the weak signal (maximum gain) performance of a television receiver is disclosed. Series and/or parallel resonant circuits are damped by the input impedance of the transistor to increase or decrease the Q of the circuit response.

3,706,847
SLICING SYNCHRONIZING PULSE SEPARATOR CIRCUIT

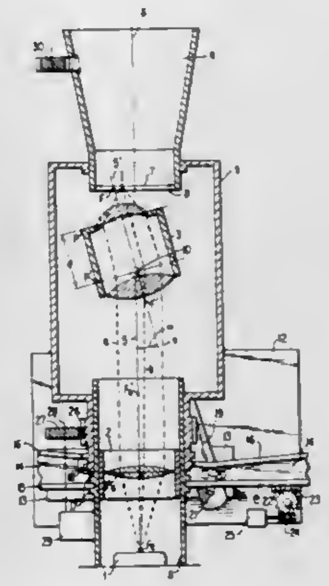
Wouter Smeulers, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 17, 1970, Ser. No. 99,055
Claims priority, application Netherlands, Jan. 19, 1970, 7000743
Int. Cl. H04n *5/08*
U.S. Cl. 178—7.35 **9 Claims**



A synchronizing pulse separator circuit with which slicing of the separated synchronizing pulse relative to a fixed level between the peak level and black level is obtained by combining the reference level for the separator, preferably by averaging, from an optionally corrected level obtained by both peak level detection and by porch level detection.

3,706,848
OPTICAL SYSTEM FOR A CAMERA

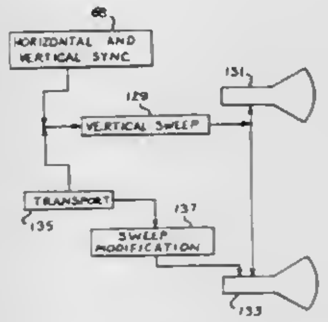
Paul Rouet, Marcinelle, Belgium, assignor to Ateliers de Constructions Electriques de Charleroi (ACEC) Societe Anonyme, Charleroi, Belgium
Continuation-in-part of Ser. No. 680,912, Nov. 6, 1967, abandoned. This application March 5, 1971, Ser. No. 121,498
Int. Cl. G02b *13/06, 13/16*
U.S. Cl. 178—7.92 **8 Claims**



An optical system for a camera which comprises a front objective and a microscope assembly located behind the front objective. The said assembly comprises a microscope objective which is individually tiltable in order to increase the angular field of the optical system.

3,706,849
COLOR IMAGE DISPLAY SYSTEM EMPLOYING ALTERED SCANNING

Charles Bailey Neal, and Benton Boyd Scott, both of Batavia, N.Y., assignors to GTE Sylvania Incorporated
Filed Dec. 30, 1968, Ser. No. 787,725
Int. Cl. H04n *9/02*
U.S. Cl. 178—5.2 D **1 Claim**



A system for providing a color image display derived from color television signals and photographic film includes a color image reproducer; first signal source means responsive to color television signal to provide signals representative of luminance, chrominance and synchronizing information; second signal source means including a flying spot scanner tube with two vertical deflection yokes to receive normal and correction scan signals, responsive to light-scanned photographic film to provide signals representative of luminance and chrominance information; transport means for effecting conveyance of a film through said second signal source means and synchronization of said film conveyance and said first signal source means; and switching means for selective coupling of signals representative of luminance and chrominance information from said first and second signal source means to said color image reproducer.

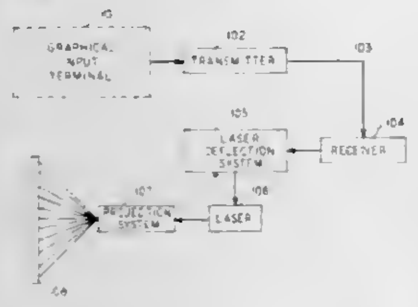
3,706,850
TELEWRITING SYSTEM

George Myles Cordell Fisber, Holmdel; Fritz Edgar Froehlich, New Shrewsbury; William Levin, Freehold; Colonel Blake McDowell, III, Holmdel, and Leonard Edward O'Boyle, New Shrewsbury, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed April 23, 1971, Ser. No. 136,736

Int. Cl. G08c *21/00*

U.S. Cl. 178—18 9 Claims



A telewriting system for transmitting handwriting and similar data in real time over voice grade telephone lines and reproducing such data at remote locations utilizes digital transmission to reduce the effects of transmission noise and signal distortion and to provide an easy means for control of remote apparatus. An ultrasonic transducer and microphone combination provides a readout of the writing head position with respect to a writing surface such as a blackboard. The readout signal is converted into digital form and transmitted to the remote locations where it is reconverted to analog form. The analog signal is used to control the deflection of an ultraviolet laser which reproduces the data on a photosensitive plate while the plate is simultaneously projected by visible light. The analog signal can also control other types of utilization apparatus.

3,706,851
MEANS FOR EVALUATING AND DISPLAYING CERTAIN IMAGE PORTIONS OCCURING WITHIN A TOTAL IMAGE

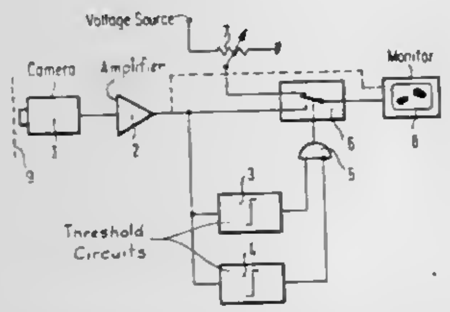
Walter Froeblich, 73 Karlsruhe, and Walter Lang, 708 Aalen, both of Germany, assignors to Carl Zeiss-Stiftung, Heidenheim on the Brenz, Wuerttembert and Siemens Aktiengesellschaft, Munich, Germany

Filed Jan. 15, 1971, Ser. No. 106,859

Claims priority, application Germany, Jan. 20, 1970, P 20 02 260.0

Int. Cl. H04n *5/22, 1/38*

U.S. Cl. 178—6.8 13 Claims



For TV monitor display of image portions of certain brightness or of certain dimensions as they may occur within a total image taken by a television camera, the invention contemplates feeding the video signal to an adjustable amplitude discriminator. The output signal of the amplitude discriminator is operative upon the video signals in such manner as to blank out or suppress that portion of the total image which is outside the determined image portions. The resulting signal is fed to the monitor. The monitor screen displays a total field, within which the determined image portions appear in correct gray value shading, while the rest of the image field appears in a constant gray value.

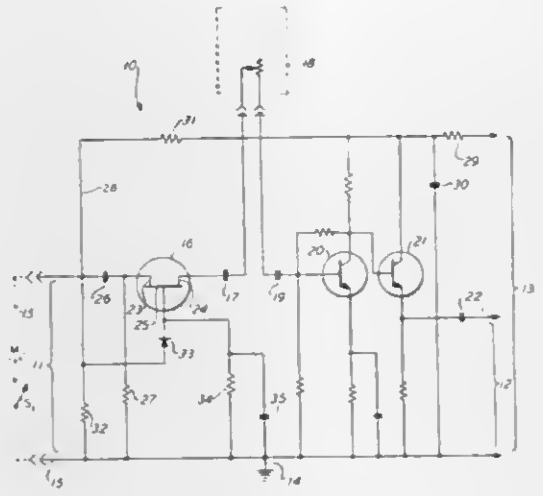
3,706,852
QUIET TURN-ON CIRCUIT FOR CARBON MICROPHONES

Alexander C. Angus, Bedford, N.H., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Jan. 4, 1971, Ser. No. 103,567

Int. Cl. H04b *1/04, 1/02;* H03g *3/20*

U.S. Cl. 179—1 A 4 Claims



A preamplifier for a carbon microphone is provided at its input with a field effect transistor biased to a non-conductive state. When the microphone switch is turned on to connect the microphone to the amplifier the source of the bias is substantially cut off but an RC delay circuit is provided to maintain the bias momentarily to keep the amplifier inoperative until the rush of current through the microphone subsides so that the usual "click" sound is not heard when the microphone is turned on.

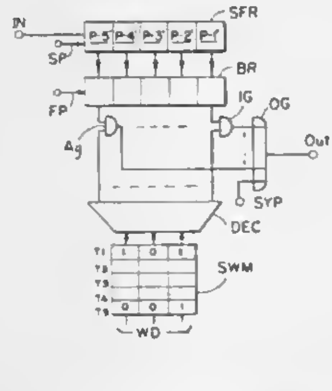
3,706,853
TIME DIVISION COMMUNICATION APPARATUS

Noriaki Saito, and Shinsuke Kadota, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Feb. 24, 1971, Ser. No. 118,323

Int. Cl. H04j *3/08*

U.S. Cl. 179—15 AL 4 Claims



A time division communications system employs central control apparatus for effecting bilateral signaling for a plurality of cascaded system stations. Each station includes receiving and transmitting apparatus for receiving and inserting pulses occurring in a particular time interval of a composite pulse train sequence. The central control unit changes the relative position of the incoming and outgoing pulse digits to effect a desired communications interconnection pattern between the system stations.

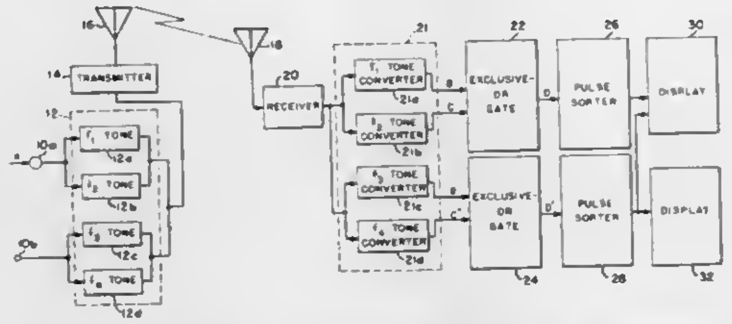
3,706,854
PERFORMANCE MONITOR UNIT FOR FREQUENCY MULTIPLEXED HF MODEMS

Robert L. Dickson; George B. Johnson, both of San Diego, Calif., and Kirby W. Hansen, Jr., Springfield, Va., assignors to The United States of America as represented by the Secretary of the Navy

Filed Jan. 14, 1971, Ser. No. 106,522

Int. Cl. H04b *7/02;* H04l *1/04*

U.S. Cl. 179—15 BT 2 Claims



In an HF digital communications system, apparatus for monitoring the error rate of frequency multiplexed FSK transmissions. Transmitted tones carrying mark-space sequence signals are twinned, i.e., transmitted using frequency-diversity, to provide in-band diversity reception which is utilized to provide simple, comparative performance measurements of approximate bit error rates between the two twinned tones, or between two or more different twinned pairs of tones. At the receiving end of the system, each of the two frequency-diversity tones is separately demodulated by a different tone converter into a digital bit stream. The two resultant bit streams are then compared with respect to the transmitted mark-space sequence signals in a single-channel mode. The mark-space sequence signals are subtracted and counted in a pulse sorter which produces an output pulse whenever a difference greater than a selectively predetermined value arbitrarily defined as a bit error is detected. Twinned tones or systems are then compared by counting the number of pulses occurring during a predetermined time period.

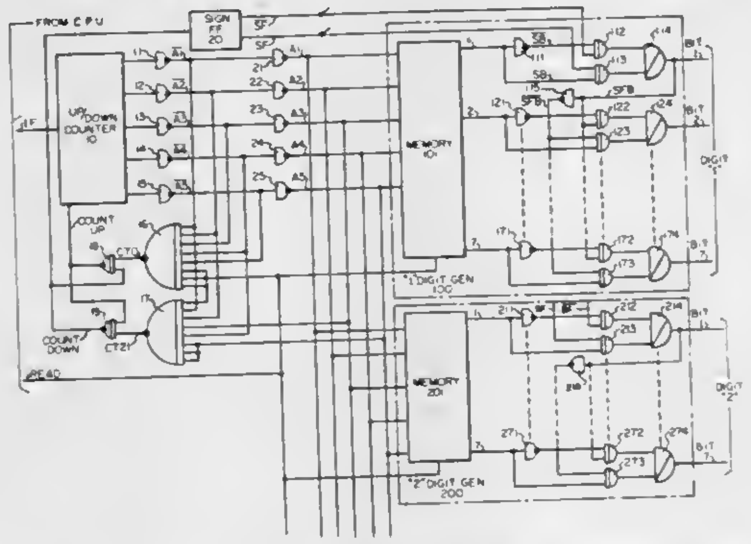
3,706,855
GENERATOR FOR DIGITAL PULSE SIGNALS REPRESENTATIVE OF ANALOG SIGNAL PAIRS

Satyan G. Pitroda, Villa Park, Ill., and Bernard J. Rekiere, Addison, Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Oct. 2, 1970, Ser. No. 77,487

Int. Cl. H04g *3/12*

U.S. Cl. 179—18 ES 3 Claims



A technique of multifrequency pulsing consisting of transmitting a digitally valid number over pulse code modulated carrier from a time division multiplex office. The signals generated thereby after passing through a conventional carrier channel bank would be accepted by conventional analog multifrequency receivers as utilized in the telephone industry.

3,706,856
MEANS FOR SUPERVISION OF THE CONTROL OF TELECOMMUNICATIONS SWITCHING NETWORKS

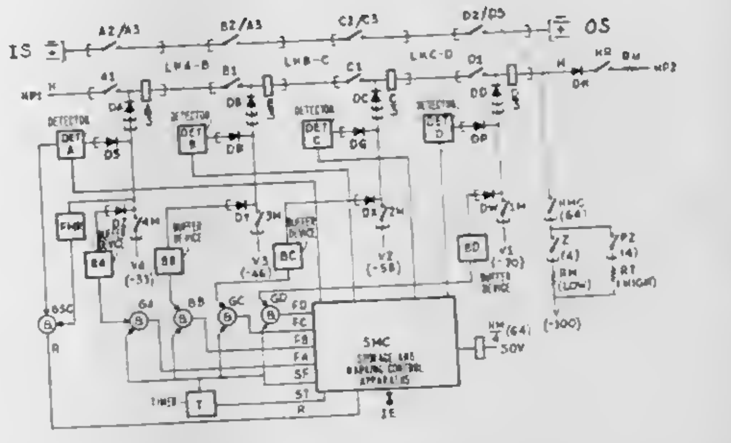
Brian Grundy, Ashton-In-Makerfield, and Peter Samuel Hampson, Leigh, both of England, assignors to Plessey Handel und Investments A.G., Zug, Switzerland

Filed March 31, 1971, Ser. No. 129,903

Claims priority, application Great Britain, April 8, 1970, 16,629/70

Int. Cl. H04q *3/52*

U.S. Cl. 179—18 GE 3 Claims



A switching network formed by a succession of link-connected stages of crosspoint matrix switches A, B, C and D and having marking means, for marking salient points of any connection required to be established over the network, in which the control equipment includes or has associated with it a separate detecting means for each stage of the network and each of these detecting means is connected to all marking conductors from which marking diodes of all inlets of matrix switches of the particular stage are branched and in which the marking means appropriate to a required inlet of a matrix switch of that stage is only rendered operative as a result of said detecting means responding to a valid signal emanating over particular ones of the marking diodes and resulting solely from the application of a significant source of potential to the marking/holding conductor of the matrix switch outlet to which said inlet is required to be connected.

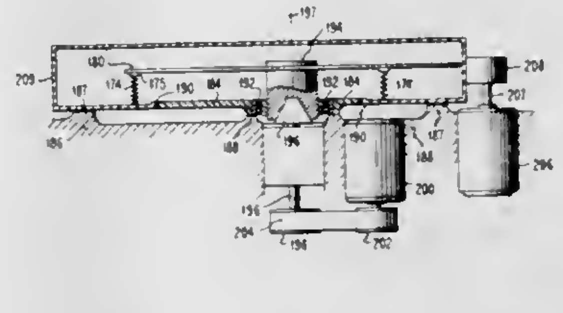
3,706,857
DISK CARTRIDGE WITH ROTATABLY ADJUSTABLE HEAD

John J. Lynott, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 5, 1971, Ser. No. 104,107

Int. Cl. G11b *5/52, 23/04*

U.S. Cl. 179—100.2 T 11 Claims



A sealed cartridge, low cost disk memory system wherein the disk and the head rotate in parallel planes about offset axes. The disk contains a data band between first and second radii and is rotated about the first axis. The head is mounted for rotation about an axis which is offset from said first axis by at least one half the width of the data band, and less than the width of the data band.

3,706,858

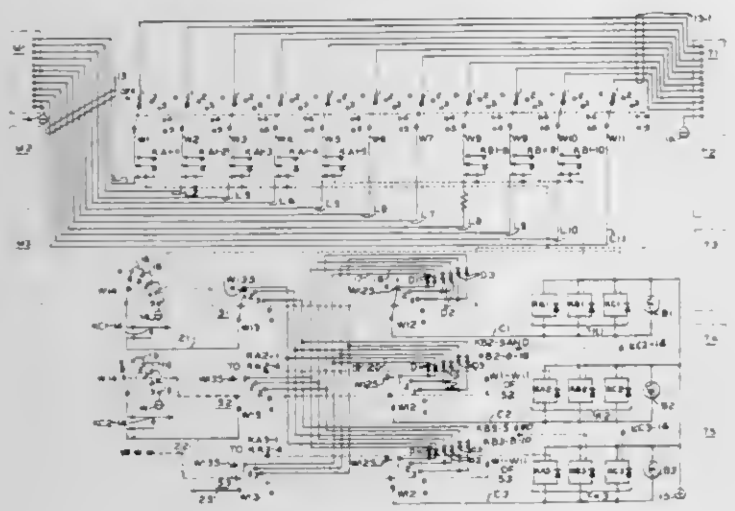
SUPERVISORY CONTROL SYSTEM FOR SELECTIVELY CONNECTING RECORDERS AND TRANSCRIBING STATIONS

John C. Keitel, Iselin, N.J., assignor to McGraw-Edison Company, Elgin, Ill.

Filed April 14, 1971, Ser. No. 133,842

Int. Cl. H04m *11/10*

U.S. Cl. 179—100.1 DR **5 Claims**



A supervisory control system is provided for selectively connecting any one of a plurality of endless tape recorder-reproducers to any one of a plurality of remote transcribing stations by simply turning respective selector switches for the recorder-reproducers to the desired stations. A relay control circuit is provided for each switch which cuts out the inter-station circuits automatically of a recorder-reproducer when the respective switch is moved to an active transcribing station already connected to another recorder-reproducer.

3,706,859

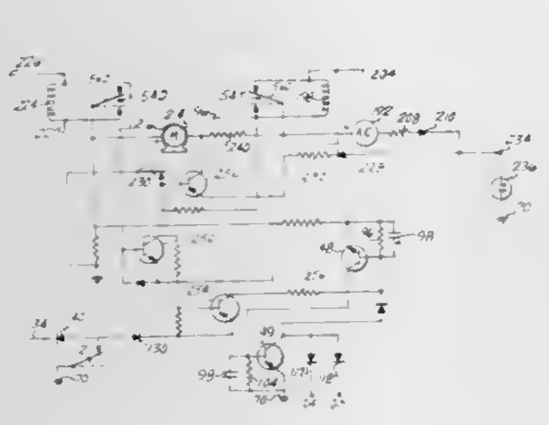
UNIDIRECTIONAL TAPE MOTION DETECTION APPARATUS AND AUTOMATIC TAPE RETURN

William M. Nye, Bellevue, Wash., assignor to Lanier Electronics Laboratory, Inc., Atlanta, Ga.

Filed Sept. 26, 1969, Ser. No. 861,304

Int. Cl. G11b *15/10, 15/20, 27/20*

U.S. Cl. 179—100.2 R **5 Claims**



In dictation systems in which magnetic tape is stored in bins, unidirectional tape motion switches and related control and monitor circuits are provided to automatically return previously reversed but unlistened tape to the place where the dictation was terminated. Also provided are unidirectional switches and circuitry to determine the accumulative length of tape transcribed and/or dictated and awaiting transcription.

3,706,860

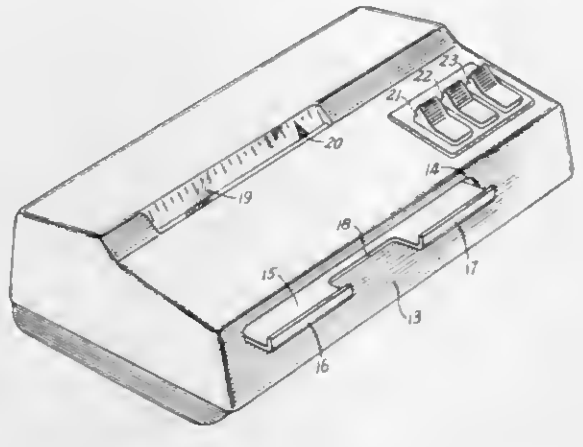
MAGNETIC CARD DATA RECORDER/REPRODUCER

John Emerson Burbank, III, Ridgefield, Conn., assignor to Wiltek, Inc., Wilton, Conn.

Filed Aug. 20, 1970, Ser. No. 65,631

Int. Cl. G11b *15/26, 25/04*

U.S. Cl. 179—100.2 CA **5 Claims**



A compact desk top recorder-reproducer apparatus is disclosed employing a card coated with magnetic oxide as the record medium. In the recording mode the record card is moved in a first linear direction with respect to a stationary magnetic recording head to record a line of incoming signals. Upon completing each line of recording the record card is rapidly moved in the opposite direction to its starting position while the recording head is stepped a discrete distance normal to direction of card traverse, and successive parallel tracks of data are recorded. Typically the device requires an electronic input register or character buffer to store one line or block of incoming data at a first reception rate and deliver such data to the recording transducer at a rate compatible with the motions of the recording apparatus. In the read mode the same relative motions are performed, with the magnetic transducer serving to detect and playback the previously recorded data. This data is first stored in the electronic registers and then delivered to other devices at a different speed. Anti-backlash means in combination with a transducer advancing mechanism provides precise positioning of closely spaced record tracks, while automatic card centering means and rapid reverse drive means assure maximum density data packing and high speed recording and read-out operation. In the preferred embodiment a dual track transducer head provides for either clock pulses on tracks parallel to data pulses or self synchronizing methods such as NRZI encoded data on one track and NRZI encoded complement on the second track. By employing alternative electrical circuitry the apparatus may record and play back continuous analog signals, such as speech or other sound.

3,706,861

APPARATUS FOR MOUNTING AND SPACING A SIGNAL TRANSDUCER WITH RESPECT TO A RECORDING MEDIUM

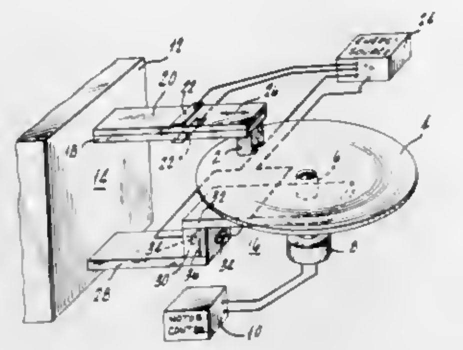
George James Giel, Los Angeles, Calif., assignor to RCA Corporation

Filed Sept. 18, 1969, Ser. No. 859,057

Int. Cl. G11b *5/58, 21/20*

U.S. Cl. 179—100.2 P **1 Claim**

A device for supporting and controlling the position of a signal transducer with respect to a recording medium. A body of material which exhibits dimensional change in the presence of an electric or magnetic field applied to the material, is utilized as part of the support structure for the transducer and/or the recording medium. The value of the field applied to the material determines the relative spacing of the transducer and recording medium. Servo means, responsive to the relative spacing between the transducer and medium, may be provided for controlling the field, to establish and maintain a desired spaced relation therebetween.



3,706,862

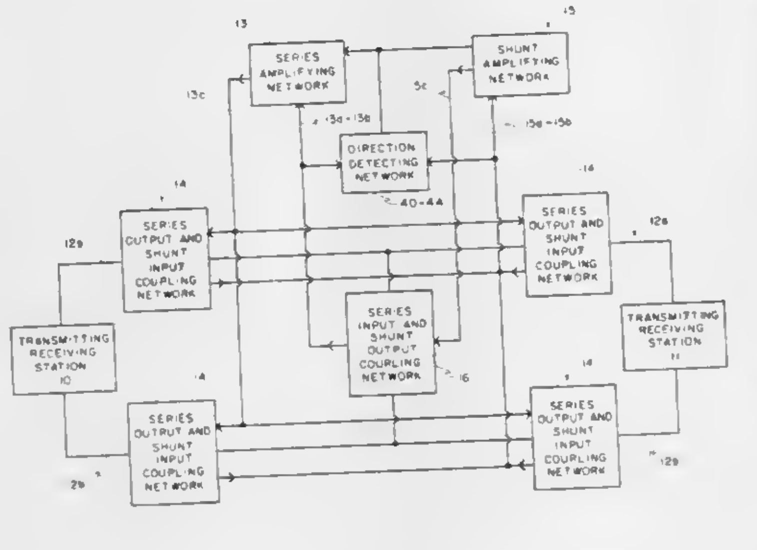
AMPLIFIER CIRCUIT FOR TRANSMISSION LINES

Charles W. Chambers, Jr., Amherst, Ohio, assignor to Lorain Products Corporation

Filed June 28, 1971, Ser. No. 157,471

Int. Cl. H04b *3/36*

U.S. Cl. 179—170 T **24 Claims**


SERIES AMPLIFYING NETWORK
SHUNT AMPLIFYING NETWORK
DIRECTION DETECTING NETWORK
SERIES OUTPUT AND SHUNT INPUT COUPLING NETWORK
SERIES INPUT AND SHUNT OUTPUT COUPLING NETWORK
TRANSMITTING RECEIVING STATION 10
TRANSMITTING RECEIVING STATION 11
13
15
13c
5c
40-44
14
12a
16

A circuit for increasing the amplitude of signals transmitted through a bi-directional voice transmission line. A series amplifying network energized in accordance with the voltage across the line produces a signal voltage in aiding relationship to a transmitted signal. A shunt amplifying network energized in accordance with the current through the line produces a signal current in aiding relationship to that transmitted signal. A switching circuit controls the phase relationship between the input and output quantities of each amplifying network in accordance with the direction of transmission of the signal of highest amplitude at any given time, to amplify signals transmitted in that dominant direction and to suppress echo signals transmitted in the other or non-dominant direction. Circuitry is provided to vary the amplitudes of the input signals to the series and shunt amplifying networks as a function of the impedance of the line to provide stable amplification and fidelity of reproduced signal over a wide range of frequencies and transmission line impedances.

3,706,863

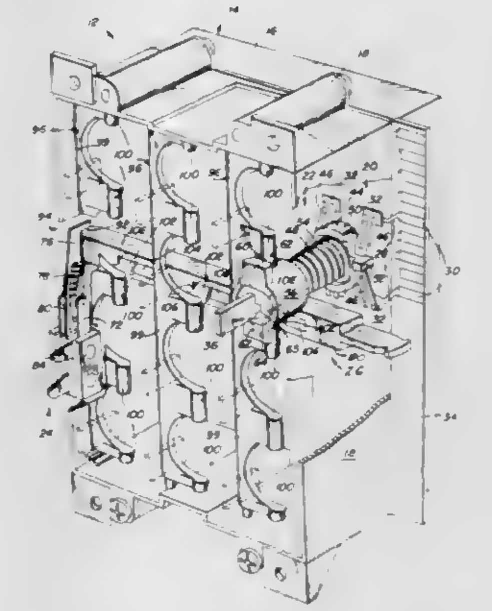
MULTIPLE SWITCH ASSEMBLY FOR VENDING MACHINE SELECTING APPARATUS WITH IMPROVED MASTER SWITCH CONTROL

Leon R. Britton, Chicago, and Joseph K. Semerjian, Franklin Park, both of Ill., assignors to The Seeburg Corporation, Chicago, Ill.

Filed Sept. 11, 1970, Ser. No. 71,620

Int. Cl. H01h *9/20*

U.S. Cl. 200—5 R **17 Claims**



A selecting apparatus includes a plurality of selector input switches, each of which is representative of a character utilized to identify selections in a vending machine and each of which is individually actuatable by an associated actuator. Additional input switches are provided for supplemental switching functions. The actuators are adapted for displacement beyond the contact mating position in order to close a common master switch, which controls energization of the circuits containing the selector input switches, after the input switch has been closed. Each input switch actuator has a spring-biased contact holder and is assembled by utilizing a restraining collar with a latching member to position the spring.

3,706,864

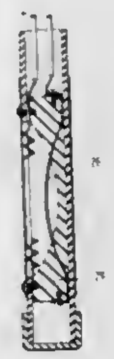
DEPTH SENSING SWITCH WITH TUBULAR HOUSING HAVING A DIAPHRAGM ENCOMPASSING A PORTION OF SAID HOUSING

Ralph S. Gamble, Chester, Vt., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed June 15, 1971, Ser. No. 153,269

Int. Cl. H01h *35/34*

U.S. Cl. 200—83 B **5 Claims**



A depth sensing device has an extensible resilient switch contact, contraposed behind a diaphragm, said contact having the form of a helical spring with both ends fixed and having its axis parallel to the surface of the diaphragm; said contact further flexes inwardly and establishes contact with a fixed contact when liquid pressure deflects the diaphragm. The diaphragm is formed by a flexible sheath that encompasses a portion of the tubular housing that houses the switch contacts, thereby sealing the contacts from the environment.

3,706,865

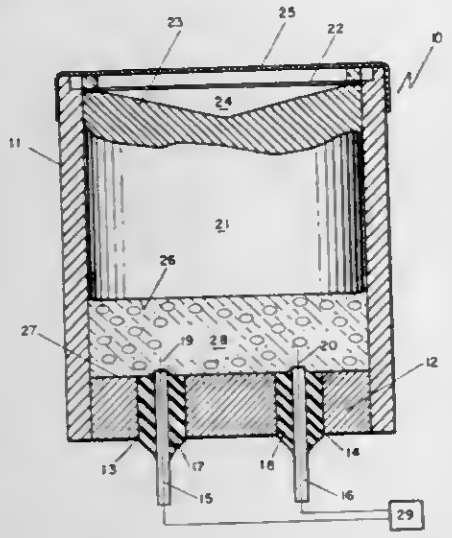
ELAPSED TIME INDICATOR

Frank K. Porter, Jr., Billerica, and Boris Sonjara, Sudbury, both of Mass., assignors to The United States of America as represented by the Secretary of the Army

Filed Dec. 7, 1971, Ser. No. 205,586

Int. Cl. H01b *35/34*

U.S. Cl. 200—83 T **7 Claims**



An elapsed time indicator or delay switch including a cylindrical housing of non-magnetic material closed at one end by a base of magnetic material. A pair of spaced apart electrically conducting terminals insulated from and extending into and through the base. A permanent magnetic piston slidably positioned within the housing, spaced from said base and having a viscous fluid therebetween. A pressure releasable piston retainer disposed above the piston for limiting the movement thereof and a flexible deformable diaphragm, proximate the retainer, closing the opposite end of the housing. The device is initiated upon pressure being applied to the diaphragm which thereupon deflects the retainer and releases the piston that in turn is attracted toward the base and moves theretoward at a rate dependent, among other factors, on the fluid viscosity, the magnetic force, initial spacing and the clearances between the housing and the piston. Piston travel terminates upon contact with the inner terminals and electrical shorting thereof which may be used to indicate the end of the elapsed period.

3,706,866

ROCKER SWITCH INTERLOCK WITH SPRING LATCH MEMBER

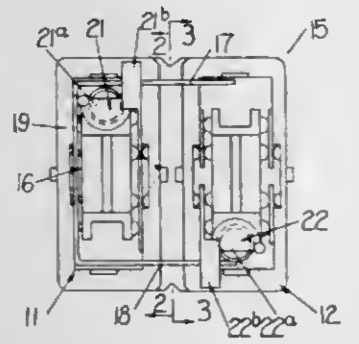
David Foley, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Feb. 23, 1971, Ser. No. 117,980

Claims priority, application Great Britain, Feb. 28, 1970, 9796

Int. Cl. H01h *9/26*

U.S. Cl. 200—50 C **2 Claims**



A rocker switch assembly includes first and second rocker switches positioned side-by-side, with the pivot axis of the operating member of the first switch aligned with the pivot axis of the operating member of the second switch. A U-shaped resilient member is carried by the switches with the parallel limbs of the U-shaped member extending parallel to and on opposite sides respectively of the pivot axis of the operating members of the switches. The limbs of the resilient member constitute first and second latch pieces, the first latch piece co-operating with the operating members of the first and second switches to prevent movement of the second switch from an off position to an on position until the first switch has been moved to an on position, and the second latch piece co-operating with the operating members of the first and second switches to prevent movement of the first switch from an on position to an off position until the second switch has been moved to an off position.

3,706,867

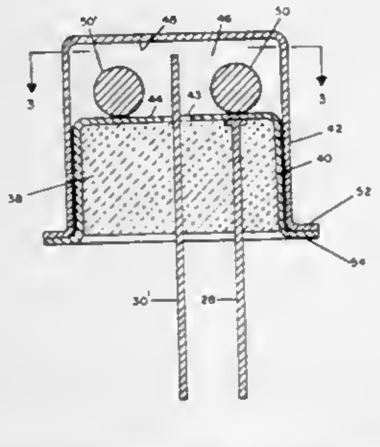
ELECTRONIC ANTI-INTRUSION DEVICE

Henry T. Rand; Maxine Bohacz, both of Denville, N.J.; Jerry Lyon, Stanhope, N.J.; Robert L. Pitman, Wayne, N.J.; Donald N. Shaw, Mt. Lakes, N.J., and John Bianchi, Newark, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed Feb. 18, 1971, Ser. No. 116,362

Int. Cl. H01h *35/02, 35/14*

U.S. Cl. 200—61.52 **1 Claim**



An electronic anti-intrusion device having an electric noisemaker activated by an anti-disturbance switch, which is sensitive to specific physical movement, a mechanical switch for simultaneously energizing the device and unshorting the noisemaker after dispersal, an electronic timing circuit for delaying activation during a first interval of time and an electronic circuit for activating the noisemaker any time after the first interval of time regardless of whether the anti-disturbance switch is in an open or closed position.

3,706,868

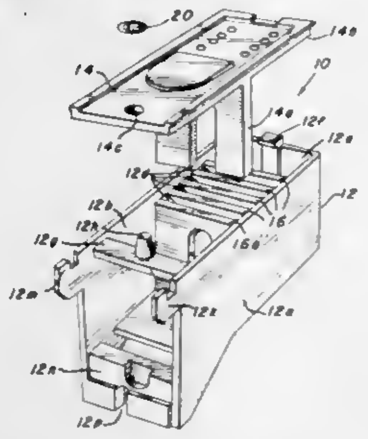
ARC CHUTE

Tadeusz J. Rys, Monroe, Ohio, assignor to Square D Company, Park Ridge, Ill.

Filed Oct. 18, 1971, Ser. No. 189,947

Int. Cl. H01h *33/08*

U.S. Cl. 200—144 R **6 Claims**



The arc chute includes a plurality of metal arc-splitting plates and a two-part casing formed of dielectric material and assembled with a single push-type fastener. A top portion of the casing includes a shielding and retaining portion for the metal arc-splitting plate closest to the origin of an arc.

3,706,869

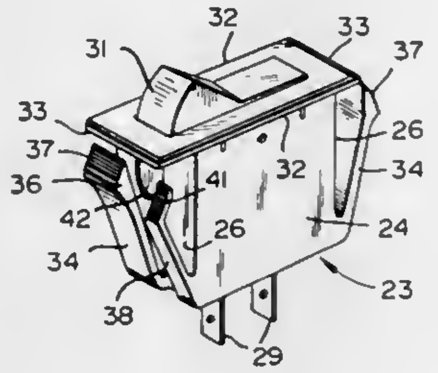
MULTIPLE WING SWITCH CASE

Richard W. Sorenson, West Hartford, Conn., assignor to Carling Electric, Inc., West Hartford, Conn.

Filed March 24, 1972, Ser. No. 237,725

Int. Cl. H01h *9/08*

U.S. Cl. 200—168 C **9 Claims**



An electrical switch case, on each opposite end of which is located a set of resilient wings of different dimensions and positioned at different angles, said wings individually and selectively operating in conjunction with a flange on said case to removably secure the latter upon mounting plates of different ranges of thickness.

3,706,870

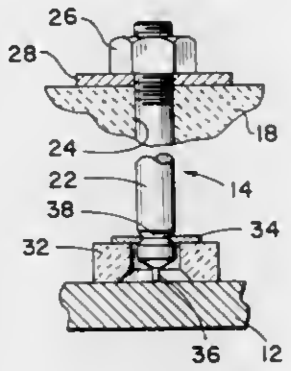
METHOD AND APPARATUS FOR STUD WELDING

Robert A. Sauder, and Gary R. Kendrick, both of Emporia, Kans., assignors to Sauder Industries, Inc., Emporia, Kans.

Filed June 28, 1971, Ser. No. 157,432

Int. Cl. B23k *9/20, 11/14*

U.S. Cl. 219—98 **5 Claims**



Method and apparatus for stud welding which includes an electrically conductive metallic stud having a head at one end thereof and a stud tip of reduced diameter at the other end. The stud is positioned against a metallic object to which the stud is to be welded by contacting the tip of reduced cross section directly against the metallic object. A circular ceramic arc shield surrounds the tip of the stud. Immediately above the arc shield, the stud shank is provided with a peripheral groove and a fusible retaining ring is mounted on the stud with a plurality of inwardly directed fingers on the retaining ring being received in the groove. A stud gun is placed against the head of the stud and a manual force is applied in the direction of the metallic object, and, simultaneously, a current of predetermined duration is passed through the stud and into the metallic object. The stud tip, because of its relatively small cross section, burns away and starts an arc. The stud itself does not move at this time because the retaining ring, resting against the arc shield, prevents movement of the stud towards the metallic object. However, as the current continues for a brief period of time and the heat increases, the fingers of the retaining ring will burn away and melt thus allowing the stud to plunge into the molten metal formed by the arc.

3,706,871

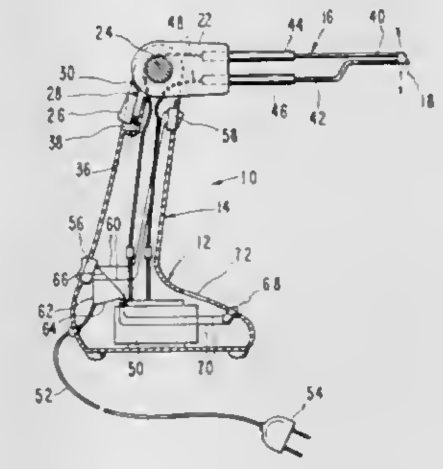
SELF-SUPPORTED SOLDERING DEVICE

William W. Witherow, deceased, late of San Jose, Calif., and by Susan M. W. Rosenburg, legal representative, 3183 El Capitan Avenue, Merced, Calif.

Filed May 8, 1970, Ser. No. 35,780

Int. Cl. H05b *3/02;* **B23k** *3/04;* **F16m** *11/10*

U.S. Cl. 219—242 **3 Claims**



A soldering device having means for permitting it to be supported on a surface to allow the user to hold workpieces in both hands adjacent to the soldering tip of the device. The device is free-standing and has means for pivotally mounting the soldering unit on the upper end of an inclined extension secured to and extending upwardly from a hollow base. The soldering unit is pivotable on the extension into any one of a number of operating positions with respect to the surface on which the base is supported. Means is provided to releasably hold the soldering unit in a fixed position on the extension in any of such operating positions. Switch means on the extension permits the soldering unit to be used while being supported on a surface or when hand-held.

3,706,872

SYSTEM FOR ELECTRICALLY HEATING FLUID-CONVEYING PIPE LINES AND OTHER STRUCTURES

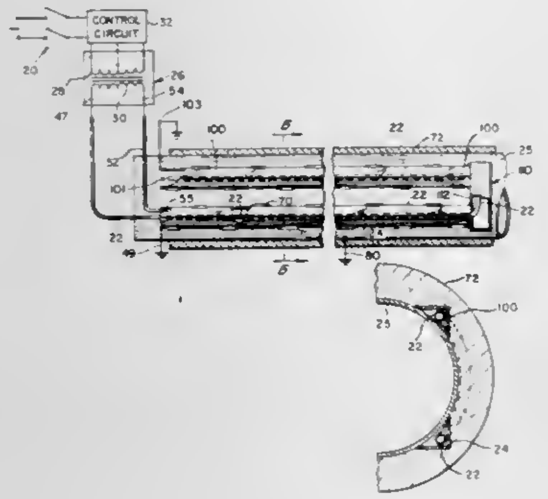
William J. Trabilcy, 280 Prospect Ave., Hackensack, N.J.

Filed May 15, 1970, Ser. No. 37,768

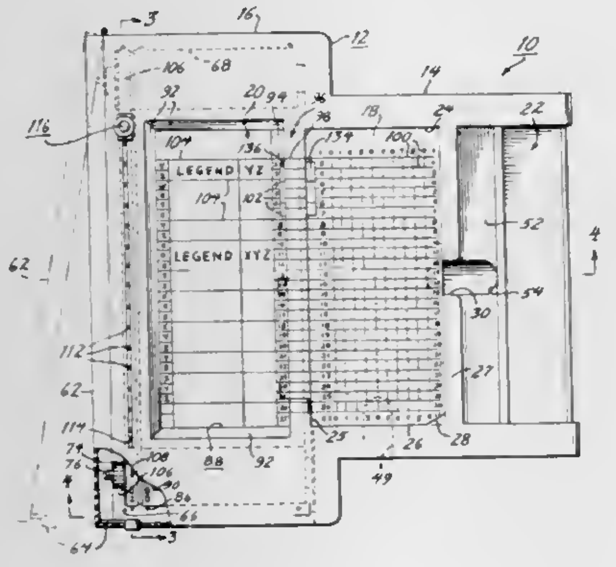
Int. Cl. H05b *3/00;* **F24j** *3/04*

U.S. Cl. 219—300 **5 Claims**

A heating system for electrically heating an electrically conductive fluid-transportation pipe or other electrically conductive structure by positioning an electrically conductive cover or shroud on the pipe to cover a peripheral portion of the pipe and an electrical conductor extending along the periphery of the pipe so as to complete a magnetic field path through the covered, peripheral pipe portion. The cover and the conductor are serially connected in a load circuit across an A.C. power supply source that alternating current flowing in the pipe and the cover is concentrated at and thereby substantially confined to the covered peripheral pipe portion and the inner surface of the cover as a result of the magnetic field that is produced by alternating current flowing through the conductor. The cover is fixed to the pipe by spaced apart stitch welds extending along opposite sides of the cover. The stitch welds on one side of the cover are staggered relative to the stitch welds on the other side thereof. Means are provided for substantially cancelling any current leakage straying along the outer periphery of the pipe from the portion that is covered by the cover.

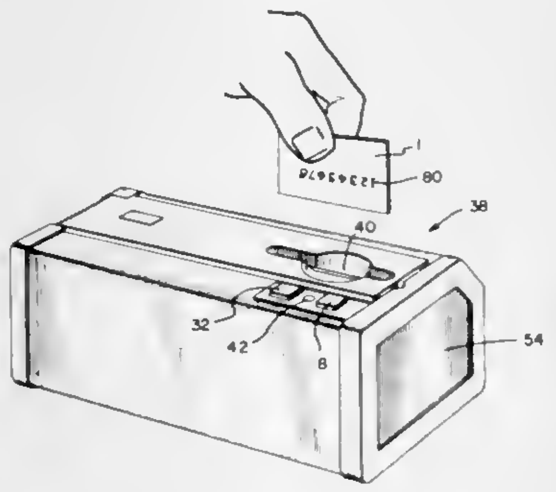


3,706,873
DIGITAL DATA ENTRY DEVICE
John H. Nodine, 523 Richards Road, Wayne, Pa.
Filed July 31, 1969, Ser. No. 846,383
Int. Cl. B26d *7/28*; **G06k** *1/06, 1/14*
U.S. Cl. 235—61.1 **3 Claims**



Format charts are used to direct the manual entry of digital data into record cards such as sense-mark cards that are processed in an automatic data processor. The format charts have parallel indexing lines that define different combinations of the sense-mark data columns, as well as means for identifying the class of data to be entered in each of the combinations of columns. The charts are linked as a string of sequential charts, and a mechanism is provided for moving the format charts and positioning them one at a time with their indexing means adjacent to and in parallel relation to the columns of the sense-mark cards, so that the various combinations of columns are visually related to the format identifications of data classes and data may be manually entered in a sequence of the cards.

3,706,874
EMBOSSED CARD READER
Joseph Larue Lockard, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed May 18, 1971, Ser. No. 144,503
Int. Cl. G02b *5/14*; **G06k** *7/10*
U.S. Cl. 235—61.11 E **4 Claims**

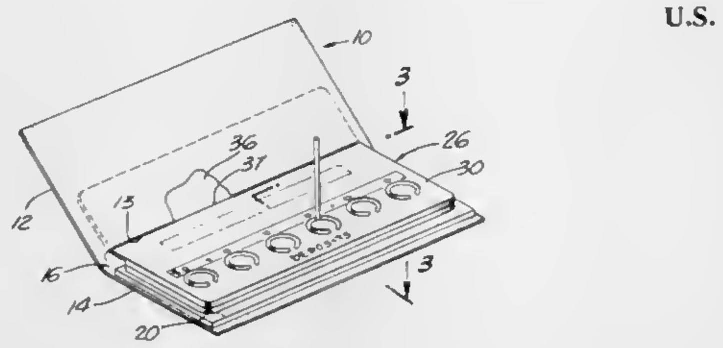


The disclosure relates to a card reader for reading embossed indicia cards utilizing an optical scanner of the embossing which scans various parts of the indicia by means of reflection of light therefrom, reflection being dependent upon whether or not an embossment appears at that point. Fiber optic devices are utilized to conduct the optical scanning. The card is accurately located in the card carriage by means of a knife edge which abuts the extreme upward or downward row of indicia along the entire length thereof to accurately position the indicia relative to the read head. The card reader also includes an ejector device for ejecting the card after a reading has beem completed.

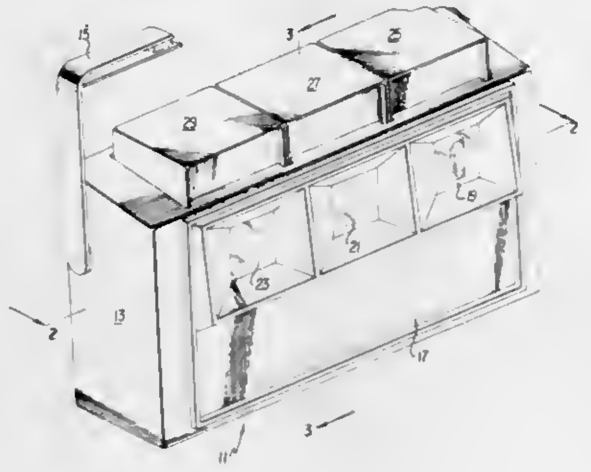
3,706,875
CALCULATOR
William Kasner, 1330 Hollydale, Fullerton, Calif.
Filed Dec. 2, 1970, Ser. No. 94,222
Int. Cl. G06c *27/00*
U.S. Cl. 235—74 **9 Claims**

A calculator of the type having digit or counter wheels which can be manually actuated for addition and subtraction. The calculator is in a relatively thin case or housing with opposite sides so constructed that access can be had to the digit or counter wheels from either side of the housing to actuate them with a stylus. The counter is hinged within a check book so that it can be readily moved to expose either side for making calculations. A digit or number is put in as an input by rotating any digit wheel with a stylus. Thus, a movement by the stylus on one side causes the machine to add and the same type or kind of movement on the opposite side causes the

machine to subtract, the digit wheel being rotated in the opposite direction. The transfer means between digit wheels comprises idler wheels. Each idler wheel meshes with a digit wheel that is driven by it. Each idler wheel is driven by a digit wheel; each digit wheel has a single tooth positioned to effect the one-step transfer to an idler wheel when the digit wheel makes a complete revolution. The teeth on the idler wheels and the digit wheels are relatively displaced axially with respect to their hubs, alternate digit wheels and idler wheels being inverted to permit closer spacing with each idler wheel driving the next digit wheel but not meshing with the preceding digit wheel.



3,706,876
EDUCATIONAL TOY ADDING MACHINE
Michael Langieri, Jr., Butler, N.J., and Lennox Watts, Bronx, N.Y., assignors to Questor Corporation, Toledo, Ohio
Filed Jan. 31, 1972, Ser. No. 221,936
Int. Cl. G06c *27/00*
U.S. Cl. 235—74 **4 Claims**



An educational toy adding machine having a plurality of rotatable discs with indicia on one face thereof viewable through windows in the housing of the machine. Driver discs coaxially mounted and rotatable with the viewed discs have pins extending outwardly from the face thereof. A driving spindle is biased upwardly above the pins on the driven discs. A large key extends through said housing and contacts the upper end of the spindle. The upper surface of the spindle in inclined so that depression of the key moves the spindle downwardly and laterally so as to contact said pins.

3,706,877
DENSITOMETER HAVING AN ANALOG COMPUTER FOR CALCULATING A FRACTION OF THE TOTAL AREA UNDER A CURVE
George F. Clifford, Jr., and Robert C. Woodward, both of Natick, Mass., assignors to Clifford Instruments, Inc., Natick, Mass.
Continuation of Ser. No. 27,067, April 9, 1970. This application Jan. 18, 1971, Ser. No. 107,140
Int. Cl. G01d *1/04*
U.S. Cl. 235—151.35 **27 Claims**

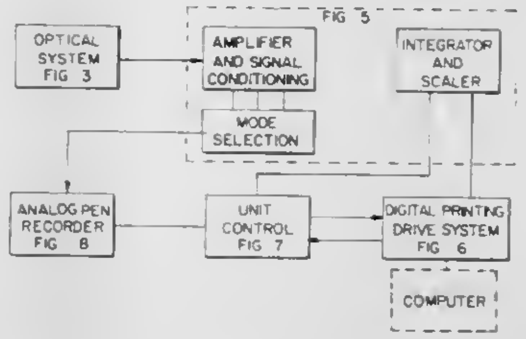


FIG 5
OPTICAL SYSTEM FIG 3
AMPLIFIER AND SIGNAL CONDITIONING
INTEGRATOR AND SCALER
MODE SELECTION
ANALOG PEN RECORDER FIG 8
UNIT CONTROL FIG 7
DIGITAL PRINTING DRIVE SYSTEM FIG 6
COMPUTER

A densitometer which provides complete electrophoresis results on a single sheet. An electrophoresis sample is scanned by a beam of light energy. The light energy transmitted through the sample is converted to an electrical signal. An analog trace of the density profile is made on a recording chart. At the same time, the total area under the curve is integrated. After the trace and integration have been completed, the portions of the trace from which additional information is required such as area percents and protein levels are marked. The sample is rescanned and reintegrated within the selected portions of the trace. The area percents and protein levels are printed on the recording chart in digital form when the rescanning of the selected portion of the trace has been completed.

3,706,878
EXCESS 3 TO BCD CODE CONVERTER
Wayne Spani, San Diego, Calif., assignor to Eastman Kodak, Rochester, N.Y.
Filed March 16, 1971, Ser. No. 124,684
Int. Cl. H04l *3/00*
U.S. Cl. 235—155 **6 Claims**

An excess 3 to binary coded decimal converter is described which includes a plurality of EXCLUSIVE-OR gates and means for coupling the EXCLUSIVE-OR gates so that in response to excess 3 coded input signals, the EXCLUSIVE-OR gates provide binary coded decimal output signals.

3,706,879
Patent Not Issued For This Number

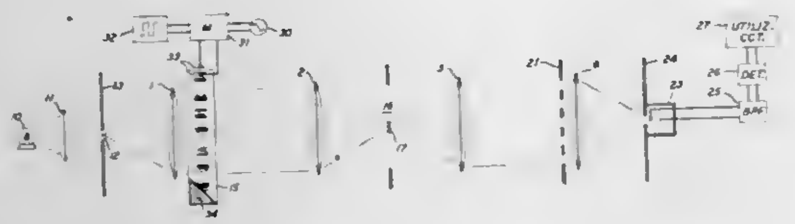
3,706,880
BCD TO EXCESS 3 CODE CONVERTER
Wayne Spani, San Diego, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed March 16, 1971, Ser. No. 124,683
Int. Cl. H04l *3/00*
U.S. Cl. 235—155 **6 Claims**

A binary coded decimal to excess 3 code converter is described which includes a plurality of EXCLUSIVE-OR gates and means for coupling the EXCLUSIVE-OR gates so that in response to BCD input signals the EXCLUSIVE-OR gates provide excess 3 coded output signals.

3,706,881

OPTICAL WAVE CORRELATION

MacLellan Emshwiller, Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y.
Filed March 27, 1962, Ser. No. 182,758
Int. Cl. G06g *7/19*
U.S. Cl. 235—181 **11 Claims**



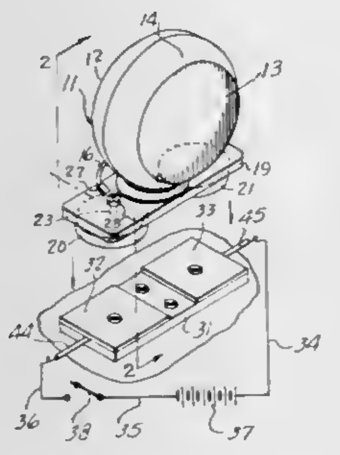
1. Apparatus for determining the correlation between a message wave and a reference wave which comprises

a source of light,
a light-transparent compression wave-supporting medium,
means for establishing in said medium,
a traveling compression wave counterpart of said message wave, for diffracting light of said source,
a space pattern mask counterpart of said reference wave disposed beyond said medium,
a light-responsive device disposed beyond said mask,
optical means for projecting the light of said source as a beam through said medium and said mask and onto said light-responsive device,
and a partially transparent phase-retarding member disposed between said medium and said mask and in the path of said beam,
said member being dimensioned to intercept and partially transmit only the undeflected light of said beam but to leave unaffected light that has been diffracted by localized nonuniformities of density of said medium due to traveling compression waves therein, whereby all of said diffracted light passes around said member.

3,706,882

EMERGENCY SIGNAL LIGHT WITH MAGNETIC CONTACTS

George W. Eby, 1614 Pierce Street, Oregon City, Oreg.
Filed Feb. 23, 1971, Ser. No. 117,969
Int. Cl. B60q *1/24;* **H01r** *11/30, 33/00*
U.S. Cl. 240—7.1 R **2 Claims**

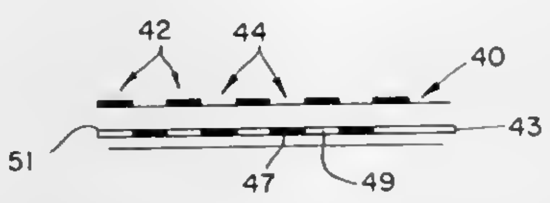


An auto lamp assembly having a base of insulating material to the bottom of which is attached a pair of spaced permanent magnets wired to the respective terminals of the associated lamp. The magnets are used as contacts engagable with spaced contact plates of magnetic material insulatingly mounted on a portion of an automobile and connected to the automobile battery, so that the lamp can become energized when the magnets engage the contact plates and also be supported by the magnets.

3,706,883

RADIOLOGICAL APPARATUS FOR MEASURING LENGTH WHICH COMPRISES TWO RELATIVELY MOVABLE RADIO OPAQUE MARKS

Kevin M. McIntyre, V. A. Hospital, 1400 V.F.W. Parkway, Boston, Mass.
Filed Nov. 21, 1969, Ser. No. 878,761
Int. Cl. G03b *41/16;* **G01b** *15/00*
U.S. Cl. 250—59 **8 Claims**

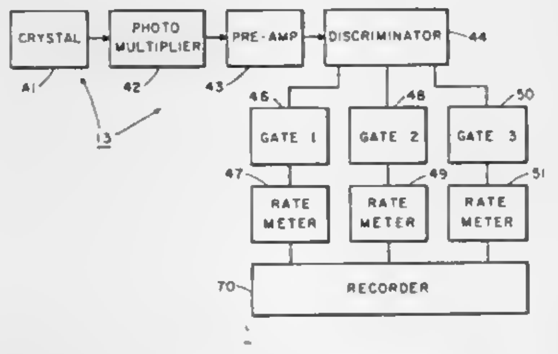


An elongated probe including at least one segment of X-ray-opaque material of known length along the dimension parallel to the axis of the probe is used to provide a standard scale for dimensional determination of objects not accessible to direct measurement. The probe is brought into proximity to the object to be measured, X-rays illuminate the object and probe to produce an image, and the image size of the X-ray-opaque material, or of known intervals between adjacent X-ray-opaque segments, is compared with the image size of the object to be measured.

3,706,884

PULSED NEUTRON WELL LOGGING APPARATUS HAVING FOR DETERMING BACKGROUND RADIATION

Arthur H. Youmans, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed June 30, 1967, Ser. No. 650,442
Int. Cl. G01v *5/00*
U.S. Cl. 250—83.3 R **5 Claims**



Three gates provide means for eliminating the radiation background count in pulsed neutron well logging. Circuitry provides the determination of the extrapolated counting rate at time zero.

3,706,885

PHOTOCATHODE-PHOSPHOR IMAGING SYSTEM FOR X-RAY CAMERA TUBES

Karoly G. Fister, and Martin D. Gibbons, both of Camillus, N.Y., assignors to General Electric Company
Filed Jan. 29, 1971, Ser. No. 111,045
Int. Cl. G01t *1/16;* **H01j** *39/00*
U.S. Cl. 250—83.3 R **4 Claims**

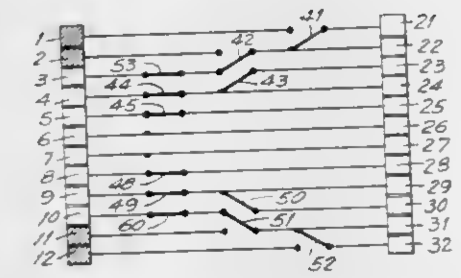
An improved system for emission of electrons in response to x-rays comprises a phosphor layer separated from a photocathode layer by a light transparent barrier layer which protects the phosphors and the binders in the phosphor layer

from attack by the chemicals in the photocathode layer. The system is useful in various types of camera tubes including image orthicons and intensifier vidicons as well as direct view tubes to convert a light image of X-rays into a corresponding electron emission pattern.

3,706,886

OPTICAL ELECTRONIC PROCESS AND APPARATUS FOR RECORDING TEMPERATURE PICTURES

Hans Siebecker, 6906 Leimen; Gunter Wichmann, 69 Heidelberg, and Georg Kurotschka, 75 Karlsruhe, all of Germany, assignors to Eltro GmbH & Company, Heidelberg, Germany
Filed Dec. 2, 1968, Ser. No. 781,304
Claims priority, application Germany, Dec. 1, 1967, P 16 23 426.7
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 HP **10 Claims**



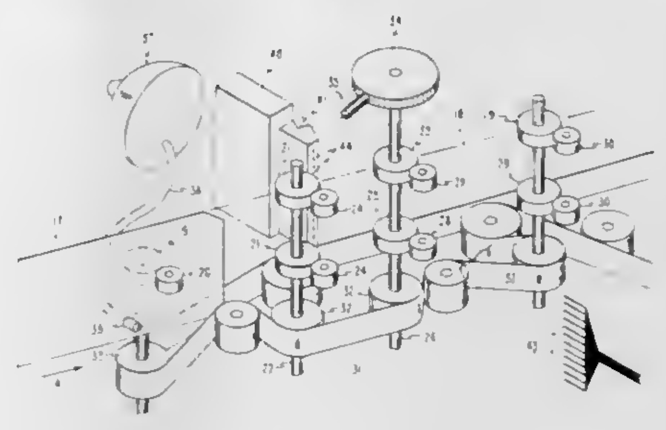
A technique is provided for recording temperature or thermal pictures by optically scanning a thermally characterized scene in stripwise manner to produce electrical signals which are converted into visible strips which are juxtaposed to give a visible image. The scanning is effected by the use of a displaceable scanning element located at a scanning station as a result of which there is an increased field of scan as the element scans further from the station. The increased field results in distortion and undesirable overlap in the juxtaposed strips. The method of the invention deals with compensating the increased field of scan to avoid the aforenoted distortion and overlap. One manner by which the compensation is effected is by selectively turning off certain receiving elements during the scanning operation. Another way relates to the fact that the receiving elements are coupled to luminescent diodes, each of which represents an increment of the final picture. In this arrangement the invention provides for uniquely coupling the luminescent diodes to a recording film by means of fiber optics peculiarly shaped and/or disposed for purposes of compensating the peculiarity of the scanning arrangement noted above.

3,706,887

OPTICAL CARD READER

Jerome R. Bickford, and James O. Nicholson, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed March 4, 1971, Ser. No. 120,949
Int. Cl. G08c *9/06*
U.S. Cl. 250—219 DC **9 Claims**

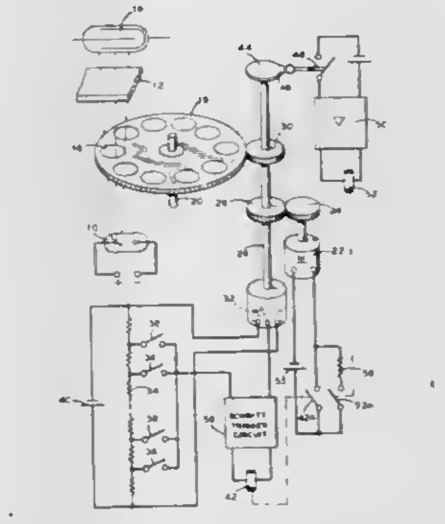
The optical reader of the invention uses a discrete number of pulses to time the passage of each column position, samples hole data at four selected count positions and interrogates the samples to ascertain whether the condition of the samples indicates the presence or absence of data or an error condition. When valid data is sensed by data indications adjacent one end of the sample sequence, the interpreting circuit also indicates whether the presence of the hole occurred early or late with respect to nominal timing. In addition mark read data may be read at the same read station using selected samples that are interpreted as presence or absence of data or an error condition using the same interpreting circuitry.



3,706,888

POSITIONING DEVICE FOR THE RADIATION ABSORBER OF THICKNESS MEASURING DEVICES

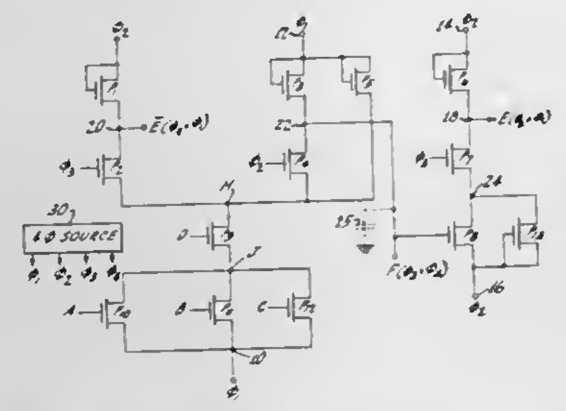
Bruno Wunsch, New York, N.Y., assignor to Exatest Messtechnik GmbH, Leverkusen, Germany
Filed Sept. 28, 1970, Ser. No. 75,929
Claims priority, application Germany, Oct. 1, 1969, P 19 49 558.0
Int. Cl. G01n *23/16*
U.S. Cl. 250—83.3 D **7 Claims**



A radiation-type thickness measuring device has a radiation source for irradiating the object whose thickness is to be measured and a radiation detector for detecting the radiation transmitted by the object. A radiation absorber sheet is introduced into the radiation path, this sheet being of the appropriate thickness, according to the thickness of the object to be measured, to standardize the amount of radiation reaching the detector. Sheets of various thicknesses are carried circumferentially by a disk and the disk must be positioned accurately so that the correct sheet lies precisely where it should in the radiation beam. A positioning device is provided for the disk, having a bridge circuit of which two branches are formed by a potentiometer whose sliding tap is connected to the disk so that its position is dependent on the real position of the disk. The other two branches of the bridge are formed by a resistance chain whose intermediate tap can be selected in accordance with the desired position of the disk. A threshold switch in the form of a Schmitt trigger is controlled by the diagonal voltage of the bridge and controls a relay. When the diagonal voltage exceeds the threshold of the Schmitt trigger the relay connects the drive motor of the disk to a relatively high voltage source to operate the motor at a relatively high speed in the direction which reduces this diagonal voltage. When the bridge diagonal voltage falls within the threshold, the relay disconnects the motor from the high voltage source. A fine switch then takes over. This fine switch connects the motor to a relatively low voltage for driving it at a low speed. When the disk reaches its exact desired position, a cam which is connected to the disk causes the fine switch to disconnect the motor from the low voltage source so as to stop the motor.

3,706,889
MULTIPLE-PHASE LOGIC CIRCUITS

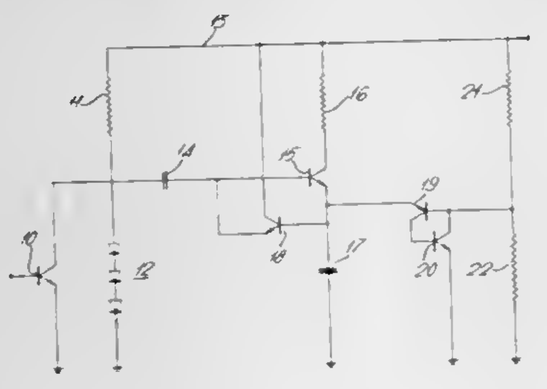
Adolph Karl Rapp, Plymouth Meeting, Pa., and Utpalananda Bharali, Raritan, N.J., assignors to RCA Corporation
Filed Nov. 16, 1970, Ser. No. 89,596
Int. Cl. H03k *19/08*
U.S. Cl. 307—205 **8 Claims**



A multiple-phase field-effect transistor logic circuit of the type normally capable of indicating the logic function of a plurality of variables during only a single portion of a clock pulse period is controlled in such a way that the same logic function is also produced during a second portion (which may overlap the first) of the same clock period. This is accomplished by placing one circuit node at a voltage level indicative of the desired function of the variables during a first clock pulse, storing this voltage for a given interval of time following the first clock pulse, and during a second clock pulse within this interval of time, charging the distributed capacitance present at a second circuit node to this same voltage level.

3,706,890
STAIRCASE COUNTER

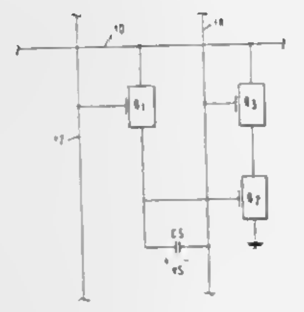
John Anthony Clements, Shipton Under Wychwood; Alan Patrick Goss, Carterton, and Brian Shepherd, Witney, all of England, assignors to Smiths Industries Limited, London, England
Filed March 5, 1971, Ser. No. 121,334
Int. Cl. H03k *25/04*
U.S. Cl. 307—225 **6 Claims**



An electrical dividing circuit in which an input circuit including an input capacitor supplies pulses of predetermined voltage amplitude to the input of a transistor switching arrangement that for each pulse causes a flow of charging current to a storage capacitor until a predetermined voltage difference exists between the input and the storage capacitor. A feedback arrangement, comprising a further transistor or alternatively a high value resistor, maintains the input at a reference voltage dependent on the storage capacitor voltage in between successive input pulses, each of which supplements the reference voltage resulting from the immediately preceding input pulse. The storage capacitor voltage thus increases by a predetermined voltage increment for each input pulse until it reaches a predetermined value, corresponding to a predetermined number of said increments, when it triggers an output circuit to provide an output pulse.

3,706,891
A. C. STABLE STORAGE CELL

Nicholas M. Donofrio, Wappingers Falls, N.Y., and Richard H. Linton, Poughkeepsie, N.Y., assignnrs to Internatinnal Business Machines Corporation, Armonk, N.Y.
Filed June 17, 1971, Ser. No. 154,104
Int. Cl. H03k *23/08*
U.S. Cl. 307—238 **1 Claim**

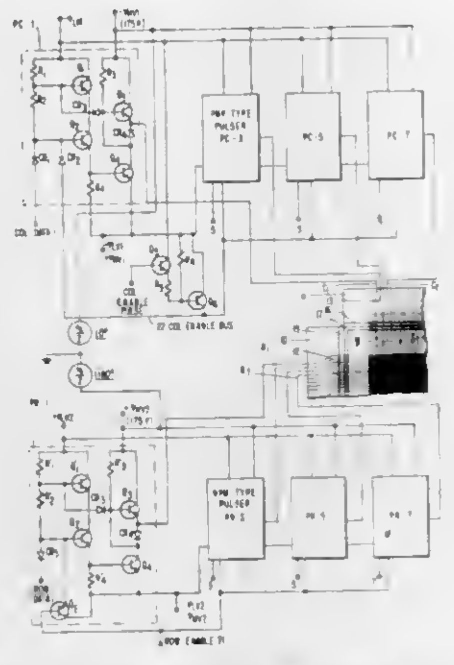


This specification discloses an A.C. stable or stored charge storage cell for use in monolithic memories. The cell includes a capacitor that couples a drive line to a sense line. The capacitance of this capacitor is voltage dependent so that when charged it provides a high capacitance to couple signals on the drive line to the sense line and when discharged it provides a low capacitance to prevent the coupling of signals from the drive line to the sense line.

3,706,892
HIGH VOLTAGE PULSER CIRCUIT FOR DRIVING ROW-COLUMN CONDUCTOR ARRAYS OF A GAS DISCHARGE DISPLAY CAPABLE OF BEING MADE IN INTEGRATED CIRCUIT FORM

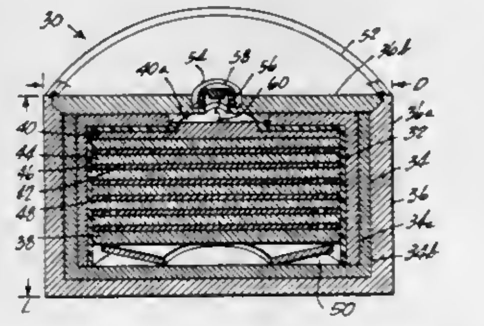
Thomas Edward O'Brien, Philadelphia, Pa., assignor to Owens-Illinois, Inc.
Filed May 28, 1971, Ser. No. 147,765
Int. Cl. H03k *17/56*
U.S. Cl. 307—241 **4 Claims**

There is disclosed an interfacing system for driving row-column conductor arrays to the gas discharge display panel in a low cost integrated circuit assembly. Due to the requirement of opposite polarity or bidirectional signals being applied to the conductors in the arrays, although the integrated circuits are functionally identical in translating low level logic signals to relatively high voltage (150 volts) pulse signals which are algebraically added to sustainer voltages, one of the circuits includes as a part of the logic circuit an inverting transistor; and to reduce current loading by the logic circuit on external data sources and at the same time serve as a part of a logic gate; and the high voltage switching circuits include a feedback diode for enhancing the response time.



3,706,893
NUCLEAR BATTERY

Larry C. Olsen, Richland; Stephen E. Seeman, Kennewick; Bobby I. Griffin, and Charles J. Ambrose, both of Richland, all of Wash., assignors to McDonnel Douglas Corporation
Filed Sept. 19, 1969, Ser. No. 859,266
Int. Cl. G21d *7/00*
U.S. Cl. 310—3 B **12 Claims**



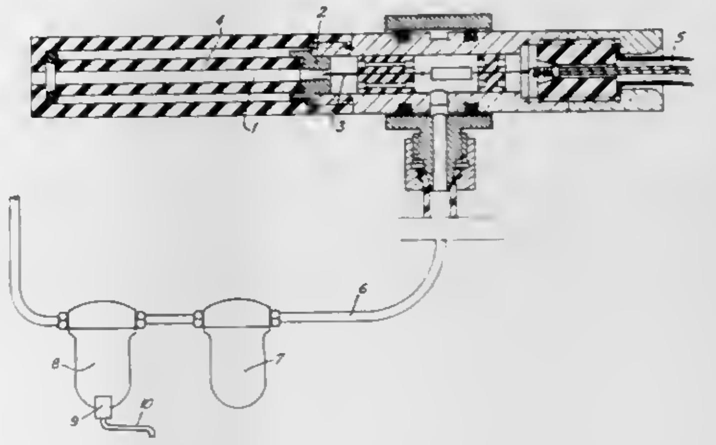
Nuclear battery including one or more cells each comprising a radioactive fuel element or source and a semiconductor element positioned contiguously to the source and irradiated by it. The fuel element includes a radioactive material which is preferably promethium-147 metal or its oxide, promethia, and the semiconductor element includes a N^+/P or $N^+/P/P^+$ semiconductor wafer which is preferably silicon.

The semiconductor wafer has an energy threshold of radiation damage which is compatible with the maximum energy of the nuclear particles or radiation emitted by the radioactive material, to provide a long-life (minimal radiation damage) cell of optimum power output. Other versions include a nuclear battery utilizing a bi-directional fuel element, and certain compact and useful embodiments utilizing a multiple section cell therein.

3,706,894
ELECTRO-AERODYNAMIC GENERATOR

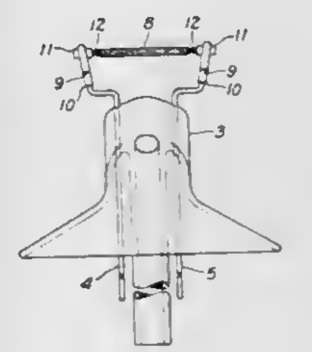
Roger Tholome, 38 Meylan, France, assignor to Tuozinl-Sames, Grenoble, France
Filed July 31, 1970, Ser. No. 59,910
Int. Cl. H02n *3/00*
U.S. Cl. 310—10 **3 Claims**

This invention relates to an electrodynamic generator of the type comprising a passage for the flow of a fluid at least partially at supersonic speed from an upstream portion constituted by a convergent-divergent region in which is disposed ionization means substantially in the neck of the said region, to a downstream region at high potential in the neighborhood of the outlet from the passage. The invention is characterized in that the passage is constituted of a ceramic material or vitrified material and in that the internal wall is very smooth. Moreover, filters are provided in order to obtain an air supply substantially free from impurities. Such a generator which provides low currents at high voltages (several tens of kilovolts) is particularly suitable for the electrostatic deposition of coating products.



3,706,895
FLUORESCENT LAMP HAVING COATED INLEADS

William C. Martyny, Lyndhurst; Victor W. Miller, Highland Hts., and Ronald J. Olwert, Willoughby, all of Ohio, assignors to General Electric Company
Filed Feb. 17, 1971, Ser. No. 116,170
Int. Cl. H01j *1/02*
U.S. Cl. 313—42 **7 Claims**



A fluorescent lamp in which the inleads or clamps of the electrodes are coated with a high temperature plastic containing a filler of an insulating inorganic material. The plastic is not removed by baking but remains in place in the completed lamp. One suitable material consists of an aromatic polyimide wherein the filler is zirconium oxide. The coating eliminates or lessens light-absorbing oxide rings and brown patches which form on the envelope ends as a result of the arc taking off from the inleads instead of from the electrode coil, a condition to which instant start lamps are particularly prone.

3,706,896

CATHODE-RAY TUBE HAVING PLANAR GRID ACCELERATOR ADJACENT AND ON SCREEN SIDE OF BEAM DEFLECTORS

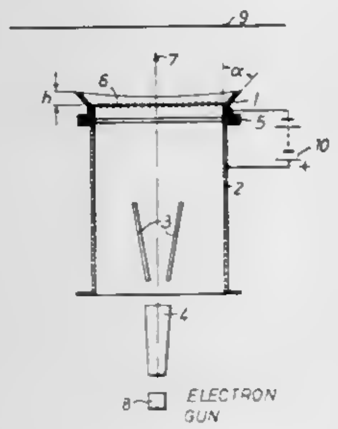
Klaus Schaffernicht, and Gottfried Schadlich, both of Ulm, Danube, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

Filed July 15, 1970, Ser. No. 54,883

Claims priority, application Germany, July 16, 1969, P 19 36 229.9

Int. Cl. H01j *29/80, 29/82*

U.S. Cl. 313—78 **2 Claims**



A cathode-ray tube having a luminescent screen and deflecting means surrounding the path of an electron beam impinging on the screen deflecting the beam in two perpendicular directions. A planar grid electrode having a rectangular periphery is arranged between the screen and the deflecting means for producing a post-acceleration field between the screen and the grid electrode. A correction rim is mechanically and electrically connected to the periphery of the grid electrode and is designed to extend beyond the grid electrode toward the screen. An electrode, separate from the grid electrode, is arranged adjacent to and electrically insulated from the grid electrode and extends in the direction toward said deflecting means to enclose the electron beam. The deflecting means is preferably a pair of parallel deflecting plates, each pair spaced from one another along the path of the electron beam and effective to deflect the electron beam in one perpendicular direction; the pair of plates nearest the screen being arranged within the separate electrode.

3,706,897

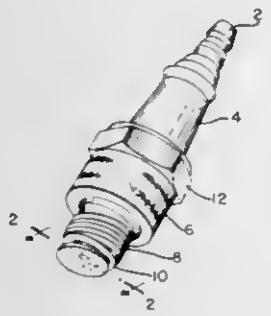
SPARK PLUGS

Harvey K. Shepardson, P.O. Box 161 North Filliwaup, Jefferson County, Wash.

Filed Jan. 19, 1971, Ser. No. 107,626

Int. Cl. H01t *13/20*

U.S. Cl. 313—141 **3 Claims**



A sparkplug for use in internal combustion engines having a disk shaped electrode mounted at an angle to the uniplanar base of the plug which serves as the other electrode. The fact that the disk electrode substantially overlies the other electrode and is mounted at an angle causes the disk to be cleaned by a sweeping action of gaseous movement during the explosion and further permits the generation of a variable spark which is directly related to the voltage and thus the speed of the internal combustion engine.

3,706,898

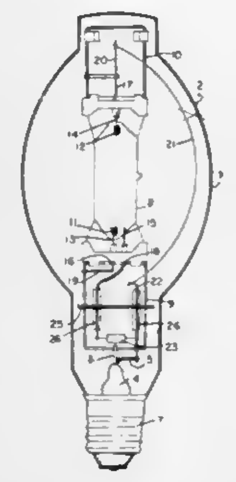
HIGH PRESSURE ELECTRIC DISCHARGE LAMP

Carl L. Peterson, Gloucester, Mass., assignor to GTE Sylvania Incorporated

Filed Jan. 22, 1971, Ser. No. 108,838

Int. Cl. H01j *17/00*

U.S. Cl. 313—197 **5 Claims**



The arc tube of an arc discharge lamp has two main electrodes and a starter electrode adjacent to one of them, the starter electrode being electrically connected to the other main electrode through a ceramic capacitor. The capacitance and voltage rating of the capacitor are such as to provide sufficient capacitive reactance for limiting the current to the starter electrode and to function as a direct current blocking capacitor during normal operation of the lamp.

3,706,899

GAS DISCHARGE DISPLAY PANEL WITH MINERAL POWDER BETWEEN APERTURED MATRIX AND ENVELOPE SEAL

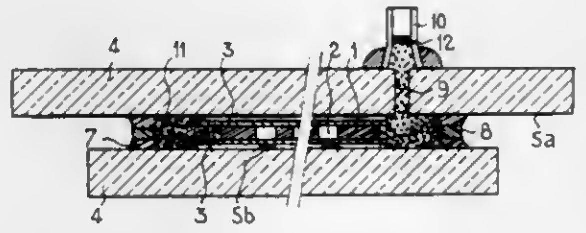
Jean-Pierre Galves; Henri Monfroy, and Jean-Philippe Reboul, all of Paris, France, assignors to Thomson - C.S.F.

Filed Jan. 19, 1971, Ser. No. 107,688

Claims priority, application France, Jan. 30, 1970, 7003281

Int. Cl. H01j *61/06, 61/30*

U.S. Cl. 313—188 **3 Claims**



In a gas-discharge panel comprising a matrix inserted between two thick slabs scaled to one another by a bond surrounding the matrix, the filling of the space extending between the matrix and the bond by a mineral powder, of small glass balls for instance.

3,706,900

PROJECTION FILAMENT LAMP

Ferdinandus Maria Josephus Van Beek, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 9, 1971, Ser. No. 113,876

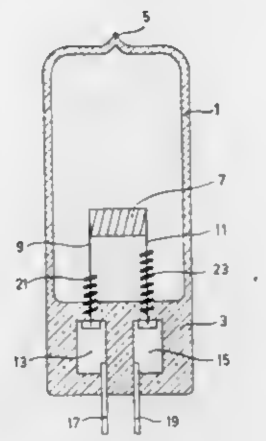
Claims priority, application Netherlands, Feb. 18, 1970, 7002305

Int. Cl. H01k

U.S. Cl. 313—222 **4 Claims**

An electric filament lamp for projection purposes in which the two straight ends of the filament body are incorporated in

a pinch seal and are each surrounded by a member supporting said ends; said members are preferably constructed as helically wound wires of unequal lengths and are incorporated at their ends in the pinch seal.



3,706,901

DISCHARGE LAMP PROVIDED WITH A SUBSTANTIALLY STRAIGHT OBLONG DISCHARGE TUBE

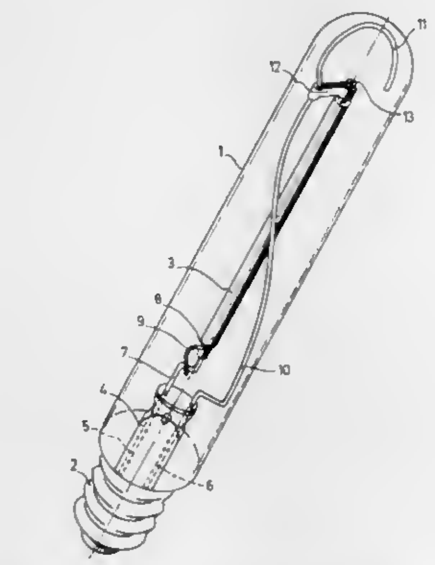
Gerard Marie Jules De Neve, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed March 1, 1971, Ser. No. 119,488

Claims priority, application Netherlands, March 14, 1970, 7003667

Int. Cl. H01j *1/96, 19/50*

U.S. Cl. 313—285 **3 Claims**



The invention relates to a discharge lamp provided with a substantially straight oblong discharge tube and an outer envelope surrounding this tube.

The invention provides a solution in which a simple positioning of the discharge tube in the outer envelope can be obtained with the aid of an elongated part of the terminal wire. This solution is combined with an anti-shadow winding of that part of the terminal wire, which extends along the straight part of the discharge tube. By using this anti-shadow winding there need not be the risk of cracks in the outer envelope as a result of expansion of the terminal wire (by heat produced in the discharge tube).

3,706,902

ELECTRIC LAMP WITH RESILIENT BASE

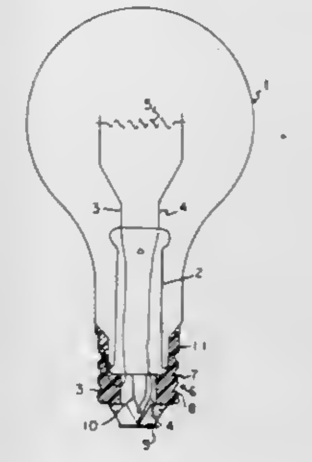
Robert Wilbur Cookson, Reading, Mass., assignor to Sylvania Electric Products

Filed June 1, 1970, Ser. No. 42,334

Int. Cl. H01j *1/18*

U.S. Cl. 313—318 **4 Claims**

An electric lamp having a light-transmitting envelope, such as a bulb, attached to a contact base by a resilient cement such as a di-methyl silicone rubber, and spaced from the base by said cement, to resist the transmission of vibration and shock from the base to the bulb.



3,706,903

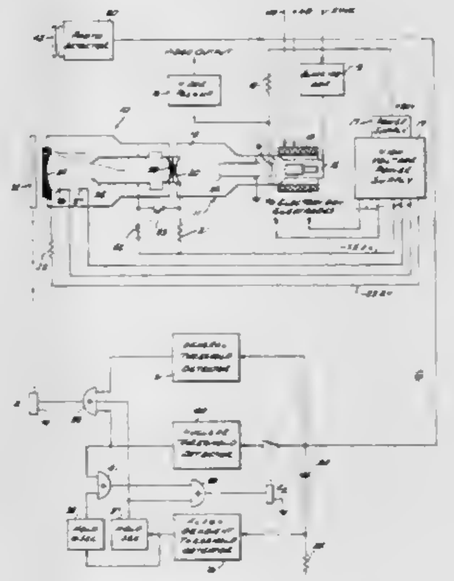
SEC CAMERA TUBE AND IMAGE INTENSIFIER PROTECTION AGAINST EXCESSIVE LIGHT DAMAGE

Jay M. Hansen, Santa Monica; Donald J. Holscher, Playa Del Rey, and Paul R. Prince, Manhattan Beach, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 3, 1969, Ser. No. 870,544

Int. Cl. H01j *31/48*

U.S. Cl. 315—10 **13 Claims**



Protection of a low level television camera tube used with an image intensifier tube is provided by a shutter and a current limiting element in series with the photocathode of the image intensifier tube to cause the electron image in the intensifier to defocus, thereby providing protection for the camera tube while the shutter is being closed. A current limiting element in series with the photocathode of the camera tube further aids in protecting the target of the camera tube by reducing the kinetic energy of photoelectrons produced in response to a light image from the intensifier. A photodetector responds to excessive illumination to cause a control circuit to close the shutter.

3,706,904

SWEEP HOLD-OFF CIRCUIT

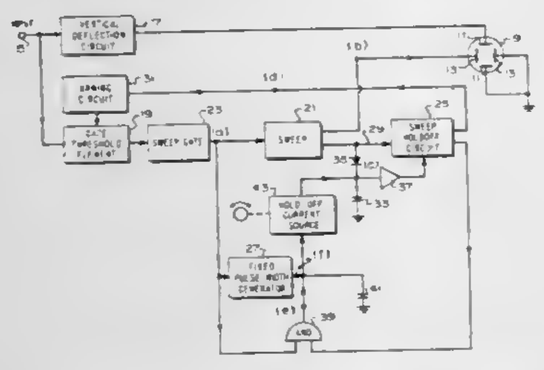
William J. Mordan, Colorado Springs, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed June 10, 1970, Ser. No. 44,983

Int. Cl. H01j *29/70*

U.S. Cl. 315—19 **4 Claims**

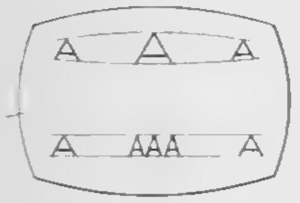
A circuit for use with an oscilloscope sweep circuit includes an integrator for producing a control signal that establishes a substantially fixed hold-off time between the arming and triggering of the sweep as a function of the deviation from a



reference value of the time between the arming and triggering of the sweep circuit.

3,706,905
DEFLECTION COMPENSATION SYSTEM

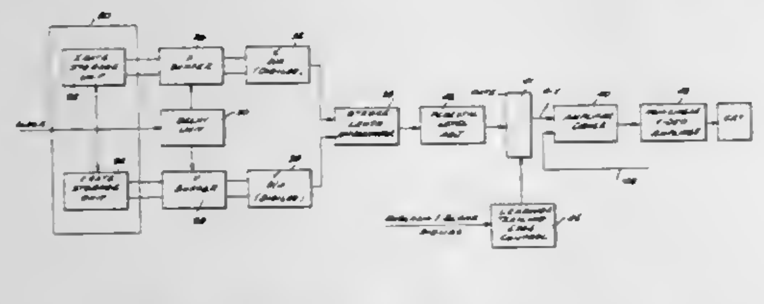
Jack F. Alexander, San Antonio, Tex., assignor to Computer Terminal Corporation, San Antonio, Tex.
Filed May 14, 1970, Ser. No. 37,322
Int. Cl. H01j *29/70*
U.S. Cl. 315—21 CH **18 Claims**



A system for correcting distortion in the deflection of the beam in a cathode ray tube used to display lines of alphanumeric characters as in a computer terminal unit. Characters are generated one at a time rather than in a TV type raster. This requires a horizontal deflection signal of sawtooth form to create lines, and two separate vertical deflection systems, a major vertical deflection to generate the desired number of lines on the screen, and a minor vertical deflection of much higher frequency to write the characters on a given line. Correction is applied to the horizontal deflection signal and to the minor vertical deflection signal to compensate for the distortion caused by using a short, flat screened tube. The correction signal for both horizontal and vertical may be derived from a single source.

3,706,906
BEAM INTENSITY CONTROL FOR DIFFERENT WRITING RATES IN A DISPLAY SYSTEM

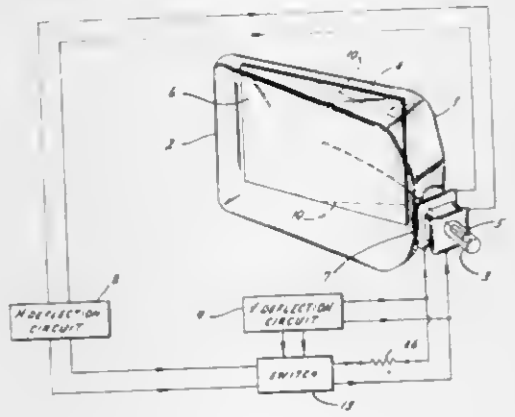
Edward T. Koussa, Yorba Linda, and Lawrence K. Iboshi, Fullerton, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed June 8, 1970, Ser. No. 44,465
Int. Cl. H01j *29/70*
U.S. Cl. 315—22 **19 Claims**



The invention comprises an arrangement for controlling the uniform intensity of different length displayed strokes, produced at different writing rates by a deflectable beam of a CRT, during a series of equal duration clock periods. The arrangement which is provided with the writing rates of each stroke along the X and Y axes of the display surface, estimates stroke length L; L is derived by implementing $k(X/2 + Y/2 + P/2)$, where X and Y are the writing rates along the two axes, P is the greater of the two rates and k is either 1 or preferably 0.94. The estimated stroke length is used to control beam intensity as the beam is deflected from the stroke's start point to its end point.

3,706,907
DEFLECTION CIRCUIT WITH MEANS FOR GENERATING CORRECTION WAVEFORM

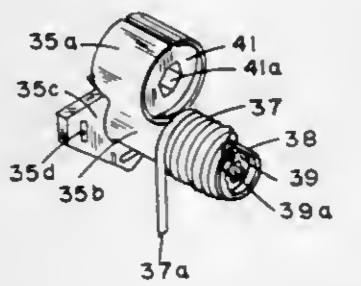
Paul G. Wolfe, Oreland, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.
Filed May 1, 1970, Ser. No. 33,640
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 GD **7 Claims**



A circuit for developing, in a deflection system for a cathode ray tube in which the electron gun is disposed at an angle other than normal to the cathode ray tube screen, a correction waveform to insure the production of a rectangular raster on the screen. A voltage waveform corresponding substantially to the uncorrected vertical deflection current waveform is applied to the vertical deflection coil through a resistor and a switch circuit which is rendered conductive during horizontal sweep intervals and non-conductive during horizontal flyback intervals of the deflection system. Energy thus supplied to the vertical deflection coil during these intervals cooperates with the inductance of the deflection coil to generate the desired correction waveform within the deflection coil. This avoids the need for specially designing the amplifying stages and the vertical deflection circuits to accommodate a modified vertical deflection waveform produced at low level and supplied to the vertical deflection coil.

3,706,908
HORIZONTAL DEFLECTION CONTROL MEANS

Chris A. Petri, La Grange, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Aug. 3, 1970, Ser. No. 60,484
Int. Cl. H01j *29/76*
U.S. Cl. 315—27 SR **5 Claims**



A saturable reactor for providing picture horizontal scan width and scan linearly control for a television horizontal

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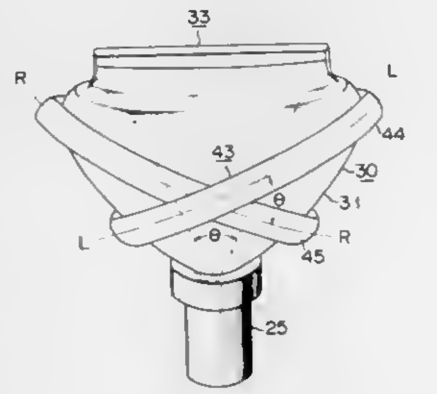
deflection system is connected in series with standard cathode ray tube magnetic-deflection coils. A core of the saturable reactor is adjusted lengthwise of its encompassing coil to vary the scan width by directly altering the inductance of the coil. Independently therefrom, a permanent magnet is rotatably mounted adjacent to one end of the coil opposite of and spaced from an extended portion of the core, the magnet having a preselected one of its poles selectively rotated closer to and further away from the core to vary the scan linearity by directly altering the premagnetization level of the core. The magnet is effective to either add or to buck respectively the induced polarization of the core during periods of forward or reverse deflection current to give linearity control during both the initial and final portions of a sawtooth sweep current waveform having a zero-reference axis.

3,706,909
CATHODE RAY TUBE WITH MUTUALLY INTERSECTING FOCUSING COILS

Asahide Tsuneta, Kawasaki, and Norio Harao, Yokohama, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 23, 1970, Ser. No. 83,507
Claims priority, application Japan, Oct. 28, 1969, 44/85716
Int. Cl. H01j *29/66*
U.S. Cl. 315—27 GD **5 Claims**

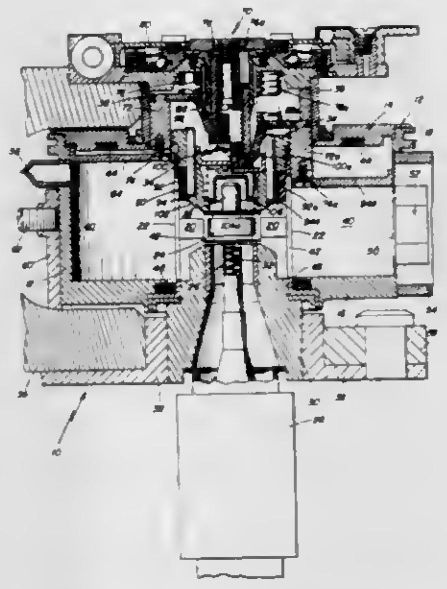


A cathode ray tube comprising an envelope, a target disposed at the front of the envelope, an electron gun emitting electron beams toward the target, a deflecting coil and a focusing device comprised of a pair of mutually intersecting focusing coils positioned between the target and deflecting coil, the focusing device providing an electromagnetic field acting in the same direction as that in which the electron beams are deflected so as to focus them.

3,706,910
COAXIAL MAGNETRON SLOT MODE SUPPRESSOR

Robert J. Foreman, Southboro, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed May 28, 1971, Ser. No. 147,914
Int. Cl. H01j *25/50*
U.S. Cl. 315—39.51 **13 Claims**

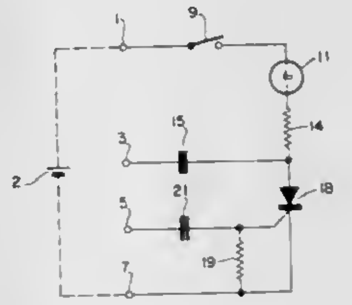
The invention discloses a coaxial cavity magnetron provided with a tunable slot mode absorber adapted to be picked up and moved in consort with the main cavity tuning means. A lossy ceramic ring member is operatively associated with a main tuner mechanism to be actuated and carried a varying distance adjacent to coupling slots in a common boundary wall between two resonant systems. In an embodiment covering a tuning range of 1,100 MHz the slot mode absorber is actuated over a portion of the frequency range approaching the upper limits. Improved starting performance through reduced time jitter due to mode instability renders the applicable device acceptable for short pulse operating conditions. The positioning of the mode suppressor within the slots also



presents a lossy structure to the working modes of the device in the region of the tuning means to level power outputs during the tuning excursion.

3,706,911
CORRECT EXPOSURE ANNUNCIATOR CIRCUIT

Dennis J. Wilwerding, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Jan. 28, 1971, Ser. No. 110,700
Int. Cl. H05b *41/36*
U.S. Cl. 315—158 **23 Claims**

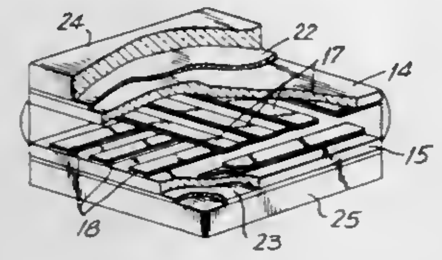


A switching means connects a light annunciator with a voltage source. The annunciator indicates that a scene has been sufficiently illuminated to properly expose a light sensitive film of an associated camera. The switching means is responsive to the operation of a light quenching means of a computer-flash system for providing an effective contact closure thereby energizing the annunicator. The switching means is then responsive to a manual switch opening or a subsequent operation of a light flashing means of the computer-flash system, for opening the switching means and de-energizing the annunciator.

3,706,912
GASEOUS DISCHARGE DISPLAY DEVICE UTILIZING CYCLOTRON RESONANCE OF ELECTRON

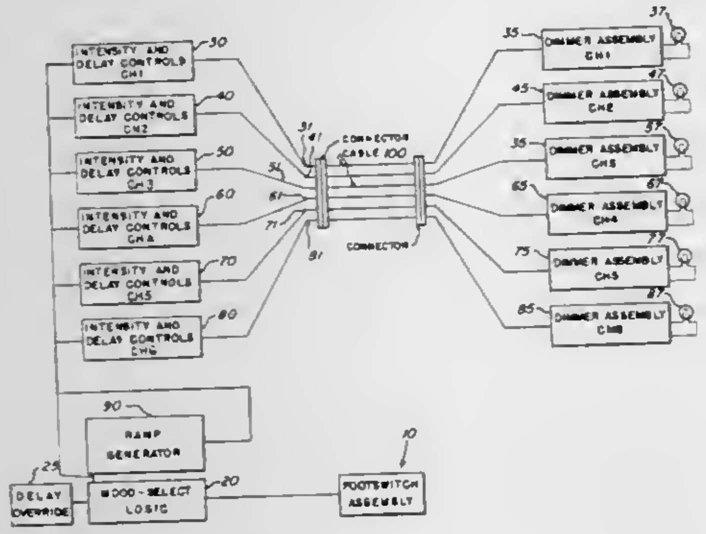
Hideo Ikegami, Nagoya, Japan, assignor to Fujitsu Limited, Kawashi, Japan
Filed Aug. 9, 1971, Ser. No. 170,084
Claims priority, application Japan, Sept. 10, 1970, 45/69890
Int. Cl. H01j *61/64;* **H05b** *41/02*
U.S. Cl. 315—169 TV **6 Claims**

An addressable gaseous discharge device utilized for information display comprises a pair of spaced parallel oppositely positioned insulating walls forming between them a gas cell filled with ionizable gas. At least one of the insulating walls is transparent. The perimeters of the insulating walls are hermetically sealed. Field electrodes mounted on the insulating walls apply a microwave electric field to the gas cell and field electrodes mounted on the insulating walls partly and selectively apply a magnetic field in a direction crossing the microwave electric field. A glow discharge occurs in a selected part of the gas cell when the two applied fields meet the condition of cyclotron resonance of an electron.



3,706,913
PLURAL CHANNEL LIGHT DIMMING SYSTEM

James M. Malatchi, 120 North Park Ave., Montrose, Colo.
Filed July 12, 1971, Ser. No. 161,653
Int. Cl. G05f *1/40;* **H05b** *37/02, 39/04*
U.S. Cl. 315—292 **16 Claims**

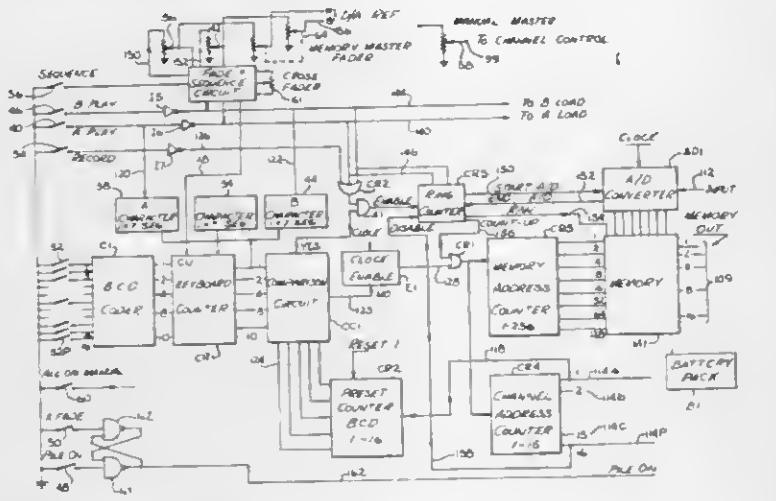


A remote controlled lighting system in which a foot switch assembly operates through a logic network to selectively energize intensity and delay controls in the form of resistance networks controlling the energization of a capacitor which with an output voltage from a ramp generator providing pulsed signals corresponding to an alternating current supply will control operation of a triac connecting the lights to the alternating current supply for proportionate periods of time in each alternating half cycle of the alternating current supply. The circuit includes provisions for delaying the changing in energization levels in a shift from one desired level to a level of energization through switching and further includes a master kill switch to de-energize all controls.

3,706,914
LIGHTING CONTROL SYSTEM

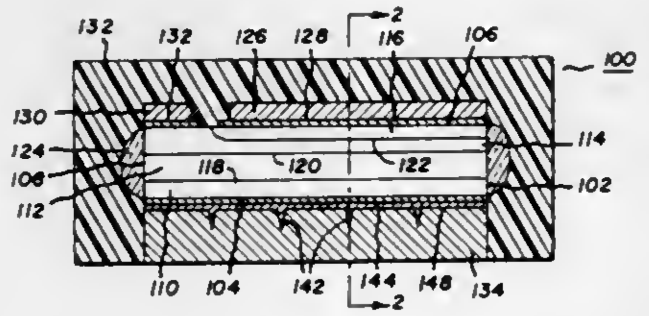
George F. Van Buren, 4437 Vista Del Monte, Sherman Oaks, Calif.
Filed Jan. 3, 1972, Ser. No. 214,878
Int. Cl. H05b *39/00*
U.S. Cl. 315—316 **16 Claims**

A light control system for the control of a plurality of lights in a pre-programmed lighting sequence. The system is comprised of a keyboard module and one or more controller modules. Each controller module contains 16 manually operated light controllers and a semiconductor memory capable of storing 16 individual settings for each of the 16 light controllers. The keyboard has 16 pushbuttons through which any of the 16 lighting combinations may be put into memory or selected out of memory for control of the lights. First and second registers are provided for retaining any pair of lighting combinations, with a cross fade control on the keyboard being adapted to provide a smooth transition from one of such lighting combinations to the other combination. An automatic sequencing selection is provided whereby each of the 16 lighting combinations will be automatically selected in sequence through the use of the cross fade control. Other features of the system include the ability to program one lighting combination while playing another lighting combination, to have one or more light controls under manual control while the rest are under control by the memory, and a means for displaying on a meter any stored light control setting.



3,706,915
SEMICONDUCTOR DEVICE WITH LOW IMPEDANCE BOND

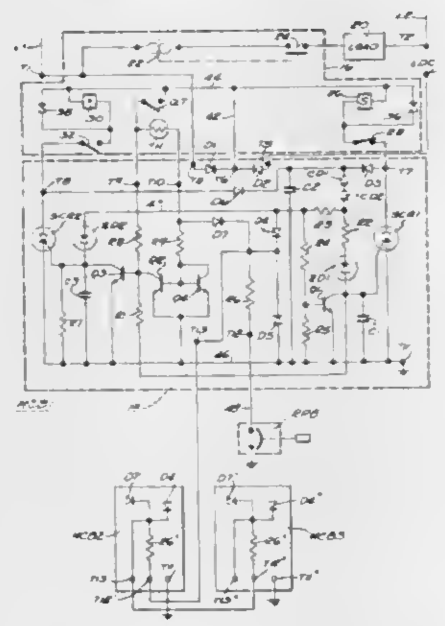
William F. Looteos, and Joseph K. Flowers, both of Skaneateles, N.Y., assignors to General Electric Company
Filed March 9, 1970, Ser. No. 17,713
Int. Cl. H01l *5/02*
U.S. Cl. 317—234 R **5 Claims**



A semiconductor device is formed by scoring a conductive surface of a substrate and locating a semiconductive element over a portion of the capillary formed by scoring. Solder in molten form is associated with the portion of the capillary remote from the semiconductive element and is drawn by the capillary under the semiconductive element to form a tenacious, low impedance interconnection therewith. The substrate may be a dielectric or a metal heat sink. Leads may be secured to the substrate similarly as the semiconductive element is secured. A dielectric substrate may be similarly secured to a metal heat sink. Multiple interconnecting or parallel capillaries may be employed. The capillaries may be provided with a remote interconnection, an interconnection for solder receipt, or an indicator portion remote from solder receipt. Plural semiconductive elements may be mounted to a single substrate with solder fed to the semiconductive elements simultaneously or sequentially. On a dielectric substrate the semiconductive elements may be electrically isolated by removing a conductive surface portion after soldering. The capillaries may also take the form of apertures.

3,706,916
REMOTE CONTROL CIRCUIT BREAKER SYSTEM

Werner B. Halbeck, Cedarburg; John A. Quaal, Wauwatosa; Clyde F. Robbins, Milwaukee; Walter L. Rutchik, Wauwatosa, and Lawrence J. Ryczek, Milwaukee, all of Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.
Filed Jan. 19, 1972, Ser. No. 218,955
Int. Cl. H02h *3/08*
U.S. Cl. 317—33 SC **8 Claims**

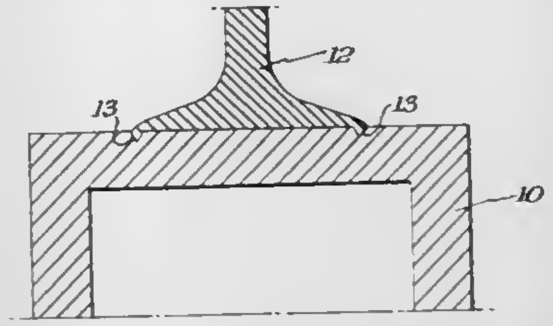


A remote control circuit breaker system in which an electronic logic unit is built into a main electromagnetically operated circuit breaker to act as the controlling interface between the latter and a remotely located pilot control-circuit breaker unit. In addition to directing main circuit breaker operation to provide closing and opening of the same in correspondence with the operation of the pilot unit, the logic unit responds on overload trip open of the main circuit breaker to subject the pilot unit to a controlled value of simulated overload current as will cause the latter to trip open and afford indication of the occurrence of overload tripping in the main circuit breaker. The logic unit also affords coordination of a plurality of such circuit breakers in a multiphase A.C. system so that all will be responsive to the operation of a single remote pilot unit, and will also trip open following overload response of any thereof. Further the logic unit automatically functions in the event of a fault occurring in the pilot unit or the line connecting it with the main breaker to limit the value of fault to a non-destructive value, and prevents repeated circuit breaker cycling in the event the pilot breaker fails to open. The main circuit breaker uses double-break contacts and permanent magnet latching to improve its arc rupture withstandability and eliminate the necessity of continuous energization of its electromagnetic operating coils. The overload trip mechanism in the main circuit breaker uses a low friction latch, and together with ambient temperature compensation in the bimetal latch release enhances the trip point precision.

3,706,917
CONTROLLED WELDING TECHNIQUE FOR A SILVER CONTAINER

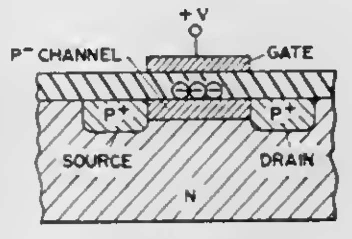
Dominick John Zeppieri, North Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.
Filed Sept. 28, 1971, Ser. No. 184,398
Int. Cl. H01g *9/08*
U.S. Cl. 317—230 **6 Claims**

A technique for welding which controls the depth of penetration of a nickel wire into the bottom of a silver capacitor can having a thickness range of approximately 0.010 to 0.020 inch. The technique limits and advantageously controls the formation of columnar structure in the weld area. This control is achieved by forming serrations or the like on the bottom of the can prior to the attachment of the nickel wire to be welded thereon, so that a proper heat balance is created thereon that permits a strong bond between the nickel wire and the silver can to be formed.



3,706,918
SILICON-SILICON DIOXIDE INTERFACE OF PREDETERMINED SPACE CHARGE POLARITY

Frank J. Barone, 711 East Manhattan Drive, Tempe, Ariz., and Donald L. Tolliver, 75 East Hoover Avenue, Phoenix, Ariz.
Division of Ser. No. 748,036, June 26, 1968. This application Oct. 5, 1970, Ser. No. 78,242
Int. Cl. H01l *3/00*
U.S. Cl. 317—235 R **1 Claim**



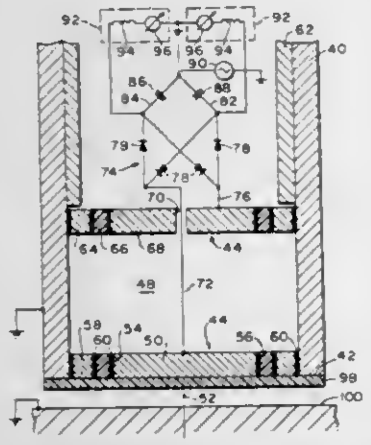
P-CHANNEL DEPLETION MODE MOS DEVICE

In the fabrication of a semiconductor device having a silicon-silicon dioxide interface, the polarity of the space charge region associated with the interface is predetermined by a method which begins with the step of pretreating the silicon surface with a selected reagent capable of inducing the desired space charge polarity. For example, a pretreatment with chromic acid induces a negative space charge region, whereas a pretreatment with nitric acid induces a positive charge. The interface is then formed by vapor deposition of a silicon dioxide layer on the silicon surface. The pretreatment has been found capable of inducing a predetermined charge when the interface is provided by vapor deposition, but is wholly ineffective when the interface is provided by thermal oxidation. It is well known that thermal oxidation of a silicon surface inherently produces an interface having a positive space charge region.

3,706,919
CAPACITIVE GAUGE

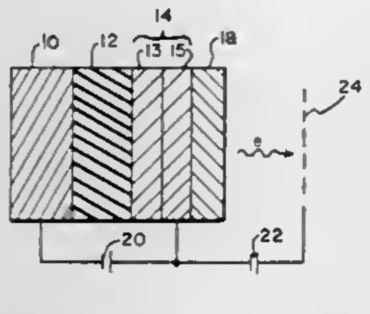
Robert C. Abbe, Newton, Mass., assignor to ADE Corporation, Newton, Mass.
Filed Aug. 17, 1970, Ser. No. 64,240
Int. Cl. H01g *7/00*
U.S. Cl. 317—246 **59 Claims**

A capacitive probe having at least two electrically conducting probe tips or electrodes centrally placed within an electrically conducting housing and axially displaced from each other within the housing. A physical dimension is measured by determining the capacitance between one probe tip and a surface, the capacitance therebetween varying with the dimension being measured. Precise machining of planar probe tips and assemblies to make them identical, their close placement, and the use of a moisture impenetrable dielectric for supporting the tips within the housing insure precision measurement and environmental independence. This precision and its maintenance is augmented by electronic excitation circuitry for the probe tips which maintain the instantaneous electric potential on each tip approximately equal and which gives an output signal whose average variation from a ground or common potential is directly indicative of the distance being gauged. Modifications to the basic probe construction include: provisions for guarding each probe tip with a substantially equal potential: thin or thick film deposition probe tip constructions; and probes having a plurality of tips for sensing a multiplicity of factors influencing the capacitance between the probe and a surface with circuits for separating the factors. A specific application of this for dielectric strip width measurement is presented.



3,706,920
TUNNEL ELECTRON EMITTER CATHODE

Larry V. Caldwell, and Briao S. Miller, both of Alexandria, Va., assignors to The United States of America as represented by the Secretary of the Army
Filed March 18, 1971, Ser. No. 125,825
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 317—234 R **7 Claims**



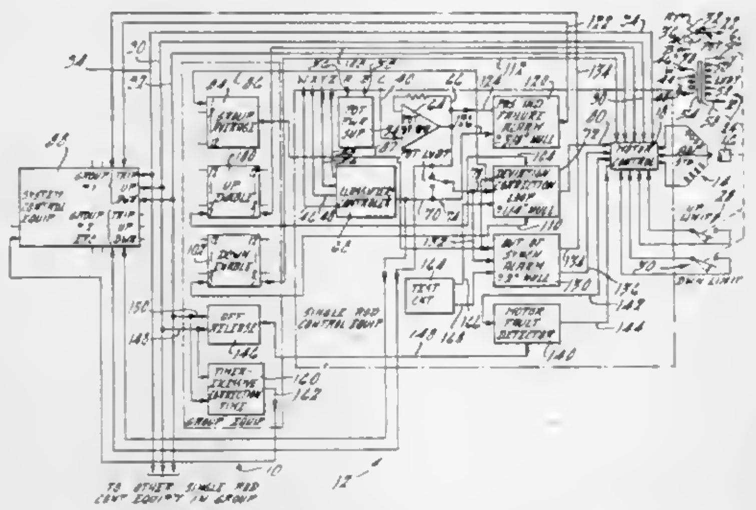
A high efficiency tunnel electron emitter in which a unique emitting layer is applied to the insulator layer of a metal-insulator-emitting layer structure. The emitting layer consists of a low work function material such as cesium that is deposited directly on the insulator layer, a thin layer of a conductive metal that is deposited onto the cesium, and an exposed surface of the conductive metal having a layer of cesium oxide applied thereto to lower the work function. The amount of cesium deposited on the insulator layer is critical and is monitored for the proper amount during deposit.

3,706,921
REACTOR CONTROL INCLUDING INDIVIDUAL AND GROUP ROD MOTOR CONTROLS

Phllp J. Rosen, Oak Park, Mich., assignor to Diamond Power Specialty Corporation, Lancaster, Ohio
Filed Aug. 8, 1968, Ser. No. 751,216
Int. Cl. G05b *9/02;* **G21c** *7/08*
U.S. Cl. 318—564 **8 Claims**

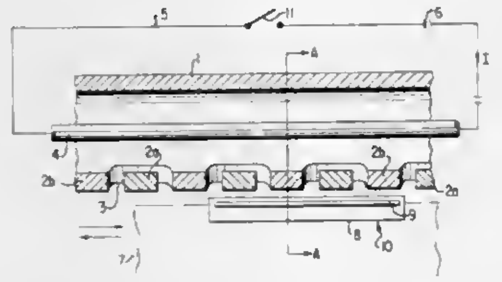
A control system for controlling the relative position of a plurality of control rods within a nuclear reactor, thus controlling the energy output of the nuclear reactor. The control system includes a single rod control subsystem for controlling the motion of the individual rods within the nuclear material and a group control subsystem for controlling a plurality of rods of a group.

The system includes a circuit for precluding any single rods or group of rods from being actuated in a direction opposite to that commanded to achieve synchronism of that particular rod. Thus, the rods moving from a first position to a second position, a reference position is established which is the average of the position of all the rods and the only rods which will move to position 2 will be those which deviate further from position 2 than the reference level. The system also includes a fault detection system.



3,706,922
LINEAR COMB-SHAPED SYNCHRONOUS MOTOR

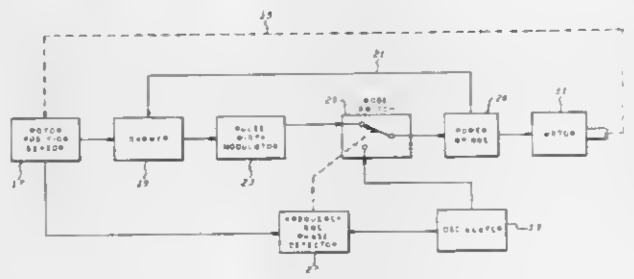
Junpei Inagaki, Yokohama, Japan, assignor to Tokyo Shibaura Electric Company, Limited, Kanagawa-ken, Japan
Filed June 8, 1971, Ser. No. 151,077
Claims priority, application Japan, June 11, 1970, 45/49986
Int. Cl. H02k *41/02*
U.S. Cl. 318—135 **9 Claims**



A linear comb-shaped synchronous motor includes a tubular-shaped reaction rail, an excitation conductor extending through said tubular shaped reaction rail, and a moving member containing an armature. The tubular shaped reaction rail has at least one zigzag slit along the longitudinal direction thereof and each side of the reaction rail is provided with comb-shaped pole members. As current flows through the excitation conductor, the comb-shaped pole members are magnetized such that the comb-shaped pole members aligned along one side of the zigzag slit make a trail of south poles and the comb-shaped pole members aligned along the other side of the zigzag slit make a train of north poles. The moving member is placed near the reaction rail through an air gap between the armature and the pole members, and the same is driven along the reaction rail.

3,706,923
BRUSHLESS D.C. MOTOR ACCELERATION SYSTEM

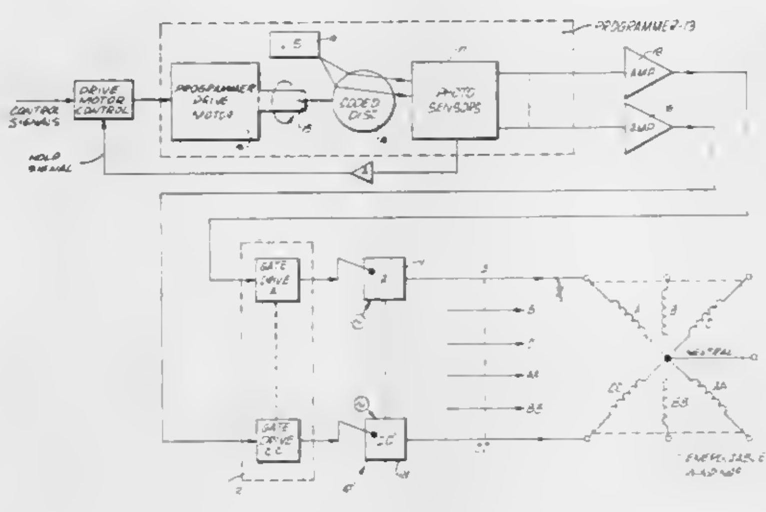
John C. G. Dunfield, Phoeniz, Ariz., assignor to Sperry Rand Corporation
Filed April 28, 1971, Ser. No. 138,160
Int. Cl. H02k *29/00*
U.S. Cl. 318—254 **6 Claims**



A brushless d.c. motor containing a permanent magnet rotor and wound stator includes a resolver for sensing the rotor angular position. The position sensor is used in conjunction with a pulse width modulator and switching circuit in bringing the motor up to rated speed. An oscillator provides an alternating current of the proper frequency for driving the motor at its desired speed. A frequency phase detector compares the output of the oscillator with the output of the position sensor. Until the motor reaches the desired speed, the switch permits the motor to be driven in a closed loop fashion in response to signals from the position sensor. When the detector senses frequency and phase coincidence, the switch transfers operation of the motor from the sensing means to the oscillator.

3,706,924
POWER SUPPLY FOR A STEPPING MOTOR

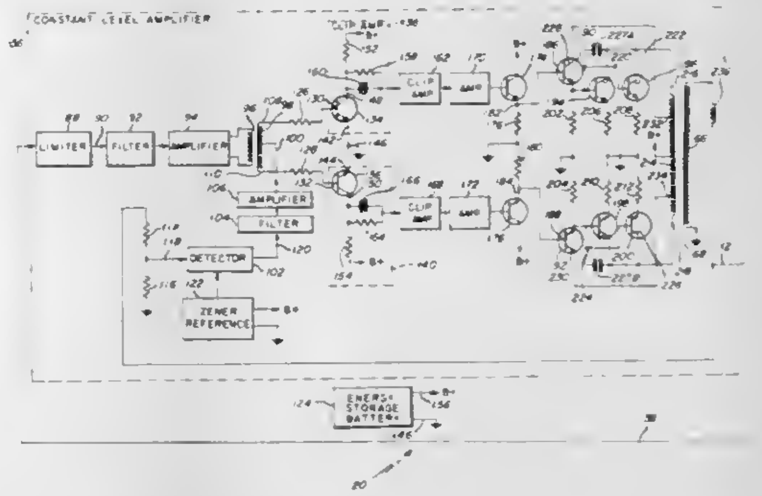
Jason A. Adler, Costa Mesa, Calif., assignor to Royal Industries, Inc., Pasadena, Calif.
Filed Dec. 4, 1969, Ser. No. 882,035
Int. Cl. G05b *19/40*
U.S. Cl. 318—685 **3 Claims**



A programmed power supply rectifies multi-phase A.C. power to produce signal polarity D.C. voltage and applies the D.C. voltage to the stator windings of a multi-phase motor in a predetermined sequence so as to develop a rotating magnetic field, and the motor responds thereto by rotating discrete mechanical increments in a step-by-step fashion. The stator windings are arranged in a star configuration having a neutral and each winding is energizable independently of the others. The power supply includes a triggerable rectifying element for each winding and a programmer which is responsive to an external source of signals for triggering the rectifying elements in the predetermined sequence.

3,706,925
POWER REGULATING AMPLIFIER SYSTEM

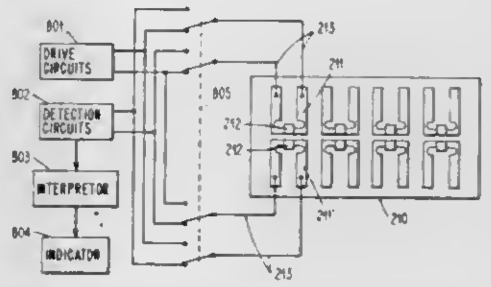
Bjorn H. Engelhardt, Barrington, R.I., assignor to Raytheon Company, Lexington, Mass.
Filed May 25, 1971, Ser. No. 146,716
Int. Cl. G05f *1/44;* **H04b** *13/02*
U.S. Cl. 323—22 T **12 Claims**



A directional transducer system adapted for generating signals indicative of the direction of a source of radiant energy submerged in a fluid medium. This system is particularly useful in sonar applications which contemplate the use of a multisectioned transducer with arithmetic means for combining the signals received by each of these transducer sections to provide a set of three signals, namely, a reference signal and two coordinate signals which are suitable for transmission via a telemetry link to a utilization device such as a display. Means are also disclosed for compressing the dynamic range of the signals to facilitate their transmission via a telemetry link as well as means for energizing a transducer with a signal having an average power independent of a variation in the supply voltage utilized in energizing the circuitry of the invention.

3,706,926
METHOD AND APPARATUS FOR TESTING BATCH FABRICATED MAGNETIC HEADS DURING MANUFACTURE UTILIZING MAGNETIC FIELDS GENERATED BY OTHER MAGNETIC HEADS

Stephen M. Barrager, Palo Alto, Calif.; Geoffrey Bate, Boulder, and Sidney H. Smith, Broomfield, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 4, 1971, Ser. No. 149,976
Int. Cl. G01r *35/00*
U.S. Cl. 324—34 R **10 Claims**



Magnetic head elements are batch fabricated on areas of a substrate. During manufacture, and before final separation and processing of the areas into discrete multi-track magnetic heads, defective areas are identified for removal. An electric signal source subjects the head areas to a magnetic field which is detected as electric current in each head area. The detected current value in acceptable head areas falls within a predefined range. All head areas having a current outside the range are defined as defective. The magnetic field emanates from one set of head areas in the vicinity of another set of head areas being tested.

3,706,927

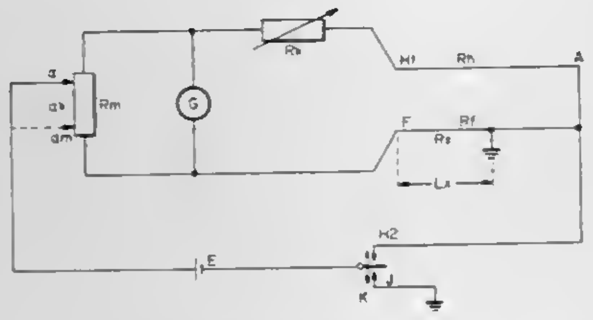
METHOD FOR MEASURING THE ABSOLUTE DISTANCE TO A LEAKAGE FAULT IN AN ELECTRICAL CONDUCTOR

Gustaf I. Jedvall, deceased, late of Stockholm, Sweden, by Arne Mogensen, administrator, Crusebjoerns Veg 27, S-140 30 Uttran, Sweden

Filed April 27, 1971, Ser. No. 137,911

Int. Cl. G01r *31/08*

U.S. Cl. 324—52 **1 Claim**



A bridge circuit is calibrated with a variable resistor in the loop across the current detector which includes an unfaulted as well as the faulted conductor. A potentiometer resistor making up the other loop across the current detector is set in accordance with the known length of the faulted conductors prior to adjustment of the variable resistor. This calibration occurs with the current source connected between the potentiometer contact and another unfaulted conductor. The measurement is accomplished by adjusting the contact when the current source is connected between the potentiometer contact and the fault.

3,706,928

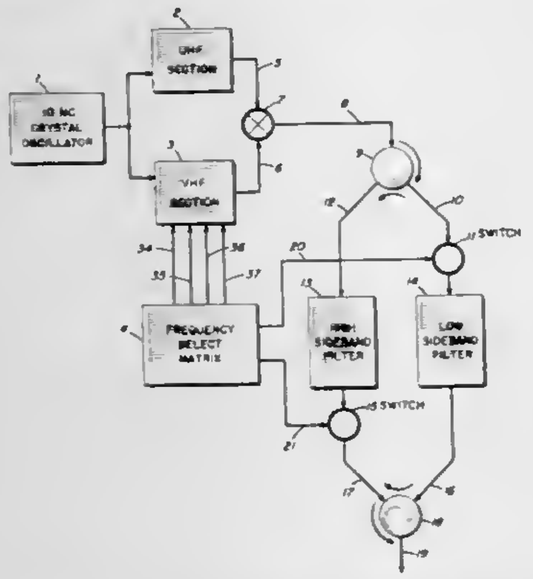
COHERENT FREQUENCY MULTIPLIER AND ENCODER

Emanuel A. Beck, Silver Spring, and Arthur J. Bassnett, Lewisdale, both of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Nov. 12, 1964, Ser. No. 410,817

Int. Cl. H03b *25/00*

U.S. Cl. 325—33 **5 Claims**



The present invention provides a signal generator capable of producing randomly selected coherent output frequencies. Specifically, the proposed generator comprises a first section which generates a carrier frequency, and a second section, containing a chain of frequency multipliers, which is capable of producing a plurality of coherent modulating frequencies. The carrier frequency is first selectively modulated with random ones of the plurality of modulating frequencies to produce high and low sideband and the high and low sidebands are then selectively connected to the output of the generator by a random code.

ERRATUM

For Class 324—33 see:
Patent No. 3,706,938

3,706,929

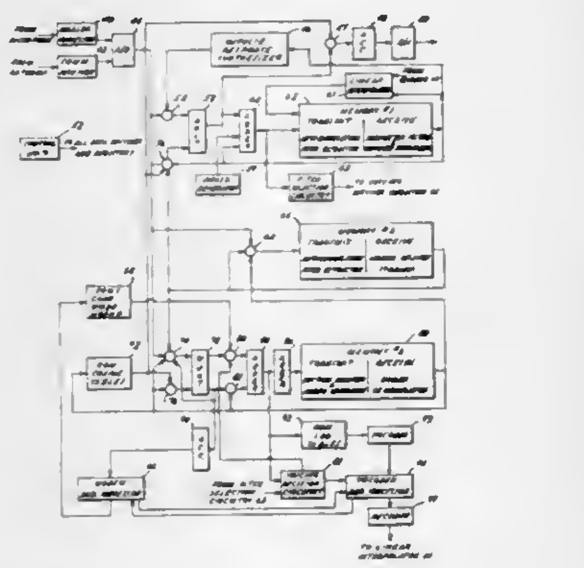
COMBINED MODEM AND VOCODER PIPELINE PROCESSOR

John L. Robinson, Wenonah, N.J., and Robert F. Munnich, Willow Grove, Pa., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 4, 1971, Ser. No. 103,503

Int. Cl. H04b *1/00*

U.S. Cl. 325—15 **4 Claims**



A digital pipeline processing system for implementing both vocoder and data modem functions. The pipeline capability is provided by three circulating memories and two associated arithmetic units. The first circulating memory and its arithmetic unit implement the functions of vocoder spectrum analysis modem modulation and modem demodulation. The second circulating memory and its arithmetic unit implement the functions of vocoder pitch extraction, vocoder parameter filtering, and vocoder speech synthesis. The third circulating memory is used for temporary storage of data while computations are carried out by the other circulating memories and their arithmetic units. The processing system also comprises a control unit which provides timing and gating signals for control of the remainder of the processor, an impulse response synthesizer which provides sinusoids used in speech synthesis, encoding and decoding circuitry for formating data, and a plurality of read-only memories for permanent storage of functions required by the processor.

3,706,930

REDUNDANT, RADIO TRANSMITTER AND RECEIVER CONTROL SYSTEMS FOR TELEMETERING SYSEMS

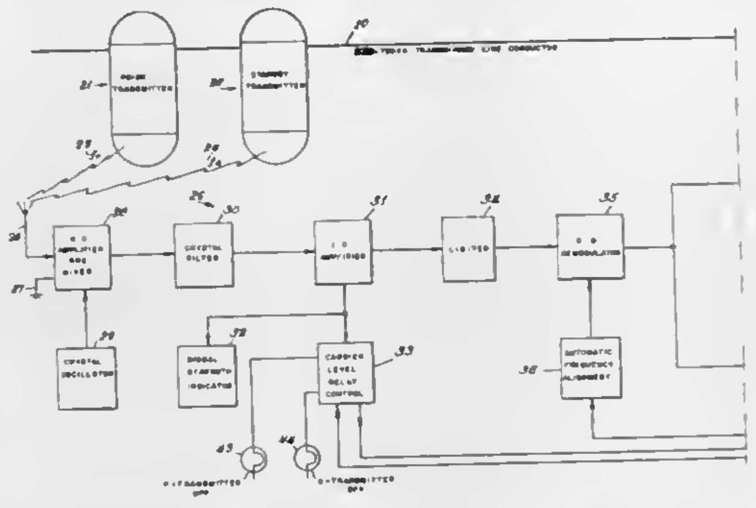
Robert H. Harner, Park Ridge, Ill., assignor to S & C Electric Company, Chicago, Ill.

Continuation of Ser. No. 777,402, Nov. 20, 1968, abandoned. This application Nov. 27, 1970, Ser. No. 93,488

Int. Cl. H04b *7/02*

U.S. Cl. 325—56 **15 Claims**

For continuity in monitoring a variable, such as current flow, in a conductor of a high voltage electric power transmission line, prime and standby radio transmitters are mounted on each conductor of a polyphase system and are arranged to operate at the same nominal but slightly different carrier frequencies and at different field strength levels. A radio receiver for each set of prime and standby radio transmitters is located at a remote point, is responsive to both frequencies and both field strength levels and is arranged to control the operation of relaying and metering equipment and to indicate the operating status of the transmitters. Additionally, prime and standby receivers for each phase conductor are located at the remote point and are arranged to be responsive to a single transmitter on each phase conductor or to prime and standby transmitters on each phase conductor operating at independent carrier frequencies or to prime and standby transmitters on each phase conductor operating at the same nominal but slightly different carrier frequencies and at different field strength levels. Prime and standby relaying and metering equipment is operated by the prime and standby radio receivers. Signals received by the prime and standby radio receivers are combined to provide an indication of the operating status of the individual receivers.



3,706,931

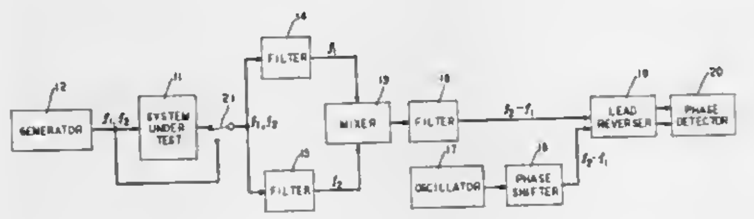
APPARATUS FOR USE IN MEASURING PHASE DISPERSION PRODUCED BY APPARATUS OR A SYSTEM

Mahadevan Subramanian, Whippany, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed April 1, 1971, Ser. No. 130,269

Int. Cl. H04b *3/46*

U.S. Cl. 325—67 **4 Claims**



First and second waves at distinct frequencies are mixed to produce a third wave at their difference frequency. The phase difference between this third wave and a wave at the same frequency from a local oscillator is then detected to produce an output which is directly related to the phaseal relationship between the first and second waves.

3,706,932

AMPLITUDE INDEPENDENT, AUTOMATIC FREQUENCY CONTROL/DISCRIMINATOR

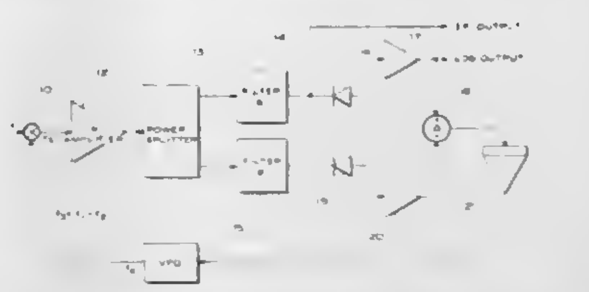
Richard Smith Hughes, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 7, 1971, Ser. No. 104,618

Int. Cl. H04b *1/26*

U.S. Cl. 325—438 **6 Claims**

A system for deriving a constant intermediate frequency output over a band of input frequencies comprising a mixer, a power splitter for splitting the output of the mixer into two segments of equal power, two band pass filters connected to the power splitter and a servo loop incorporating a variable frequency local oscillator whose output is connected to the mixer such that the output of the local oscillator is controlled to maintain the output of the mixer at an essentially constant frequency.



3,706,933

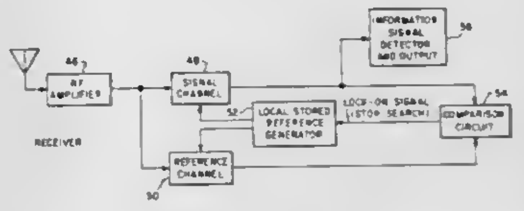
SYNCHRONIZING SYSTEMS IN THE PRESENCE OF NOISE

Frederick W. Bidell, Grand Island, N.Y.; Carl D. Herold, Jr., Sunnyvale, Calif., and James H. Lindholm, Kenmore, N.Y., assignors to Sylvania Electric Products Inc.

Filed Sept. 17, 1963, Ser. No. 310,969

Int. Cl. H04l *7/00, 9/00;* **H04b** *3/28*

U.S. Cl. 325—479 **14 Claims**


RF AMPLIFIER
SIGNAL CHANNEL
INFORMATION SIGNAL DETECTOR AND OUTPUT
LOCAL STORED REFERENCE GENERATOR
LOCK-ON SIGNAL (STOP SEARCH)
COMPARISON CIRCUIT
RECEIVER
REFERENCE CHANNEL

11. In the receiver of a pseudo-random communication system in which a locally generated coded signal is to be correlated with a received similarly coded signal, means for recognizing the synchronization of said local and received signals in the presence of undesired received energy, such as noise, interference, jamming or combinations thereof, which comprises: a signal channel having input and output terminals and including in series connection between said input and output terminals a first mixer circuit, a first intermediate frequency amplifier having a bandwidth much narrower than the bandwidth of said received signal, and a first detector and filter circuit; a reference channel having an input terminal in common with said signal channel, and an output terminal, said reference channel including in series connection between its input and output terminals a second mixer circuit, a second intermediate frequency amplifier having substantially the same bandwidth as said first intermediate frequency amplifier, and a second detector and filter; means for applying said received coded signal plus undesired energy to said common input terminal; means for applying said locally generated coded signal to said first mixer; means for applying an orthogonally related version of said locally generated coded signal to said second mixer; said signal channel having a gain factor to produce a signal level at the output terminal of said signal channel lower than the signal level at the output terminal of said reference channel when said received and locally generated coded signals are not synchronized and to produce a larger signal level at the output terminal of said signal channel than the signal level at the output terminal of said reference channel when said received and locally generated coded signals are synchronized; and, means connected to the output terminals of said signal and reference channels for comparing the levels of signals appearing thereat and operative to provide an output signal indicative of which level is higher.

3,706,934

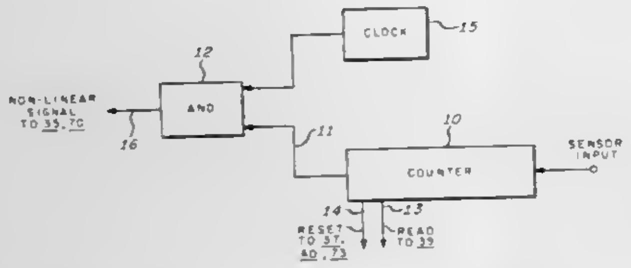
APPARATUS FOR LINEARIZING A NON-LINEAR SIGNAL

Robert W. Robinson, Phoenix, Ariz., assignor to Sperry Rand Corporation

Filed Jan. 28, 1971, Ser. No. 110,694

Int. Cl. H03k *17/00*

U.S. Cl. 328—1 **18 Claims**



Linearizing apparatus comprising a controllable frequency divider responsive to the signal to be linearized for providing a second signal with frequency selectively controlled multiples of the input signal to be linearized. A pulse counter accumulates the cycles of the second signal and controlling means responsive to the count conditions attained by the pulse counter selects the controlled multiples in accordance with the attainment of predetermined count conditions.

3,706,935

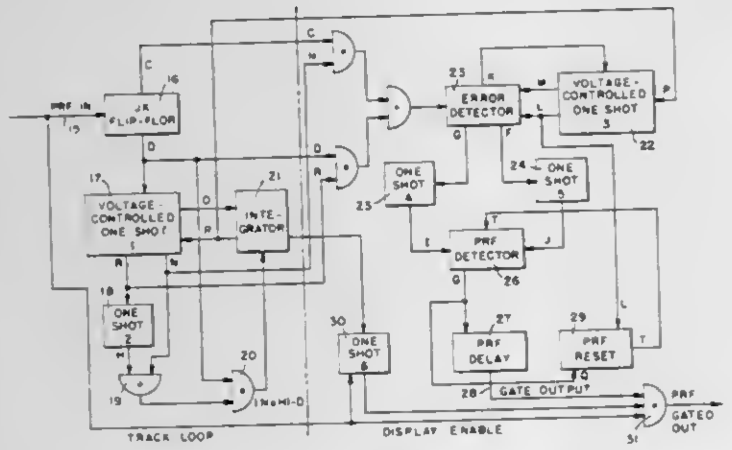
PULSE REPETITION FREQUENCY DETECTION AND LOCK-ON SYSTEM

Richard Smith Hughes, Code 4022 USNOTS, China Lake, Calif.

Filed July 11, 1966, Ser. No. 564,439

Int. Cl. H03b *3/04;* **H03k** *5/18*

U.S. Cl. 328—155 **1 Claim**



A system for detecting the pulse repetition frequency of incoming pulse trains, determining when a particular pulse repetition frequency is present as a majority in a pulse train for a preset time and locking onto and continuously tracking the particular pulse repetition frequency.

3,706,936

SELECTIVELY SWITCHED MULTI PURPOSE ELECTRICAL FILTER

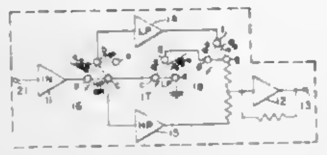
Earl H. Krohn, Brookline, Mass., assignor to Krohn-Hite Corporation, Cambridge, Mass.

Filed Oct. 28, 1970, Ser. No. 84,566

Int. Cl. H03l *3/04*

U.S. Cl. 330—21 **9 Claims**

A universal electronic filter includes a high pass section with an adjustable high cutoff frequency, a low pass section with an adjustable low cutoff frequency and a switching arrangement for interconnecting the two sections to provide high pass operation, low pass operation, band pass or band reject operation, all with adjustable cutoff frequencies. The high pass section includes means for adjusting the gain on one output while keeping it constant on another and applying the output from the constant gain portion to a shunt section to peak at a corner frequency without the peak changing as the gain is adjusted. In the low pass section there is a PNP stage in cascade with an NPN stage with the same number of PNP's as NPN's to cancel d-c drift. In both low and high pass sections the degree of feedback is varied with change in slope. In the low pass section feedback to both collector and emitter with the feedback to the emitter through a capacitor helps keep the section operating at higher frequencies.



3,706,937

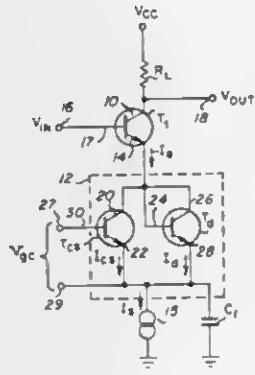
GAIN CONTROLLED AMPLIFIER FOR INTEGRATED CIRCUIT APPLICATIONS

John E. Hanna, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Dec. 3, 1970, Ser. No. 94,683

Int. Cl. H03g *3/30*

U.S. Cl. 330—28 **8 Claims**



A gain controlled amplifier circuit in which the amplifying element, such as a transistor, has its emitter-collector circuit connected to a gain control circuit which supplies a constant operating current and changes its AC impedance in accordance with an AGC signal. The gain control circuit includes a first branch having an impedance which varies with the externally applied AGC signal and a second branch having an impedance which varies with the current flow therethrough and which is connected to ground through an AC bypass. These two branches are connected in parallel to a constant current source so that the impedance of the first branch controls the current flow in the second branch and thereby its impedance.

3,706,938

DIRECTIONAL ION ANEMOMETER

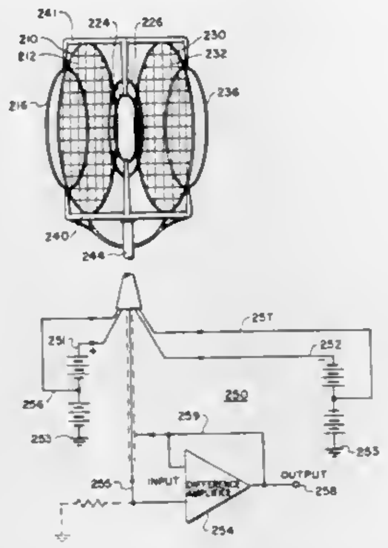
Andrew Petriw, West Belmar, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed March 10, 1971, Ser. No. 122,895

Int. Cl. G01m *27/00, 27/62*

U.S. Cl. 324—33 **1 Claim**

This disclosure relates to anemometers and particularly to ion anemometers. More particularly, this disclosure relates to a directional, ion anemometer where an alpha nuclear radiation source is positioned between two electrodes of opposing polarity in a balanced electrical field. The ion cloud concentration generated by the radiation source is changed by motion of the air to cause a differential voltage or current, between the source and the electrodes, proportional to the wind velocity.



3,706,939

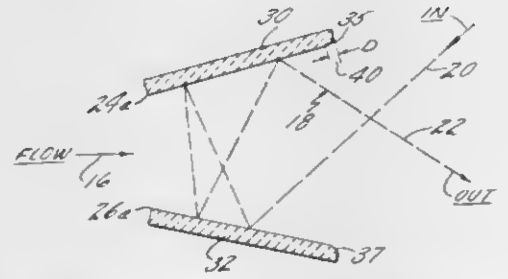
DIFFRACTION COMPENSATED MIRROR FOR LASER AMPLIFIER

George H. McLafferty, Manchester, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 16, 1970, Ser. No. 11,717

Int. Cl. H01s *3/05*

U.S. Cl. 330—4.3 **2 Claims**



Mirrors used in multi-pass laser amplifiers are compensated for diffraction of electromagnetic radiation, caused by abrupt surface transitions at the mirror edges, by rounding of the mirror edges.

3,706,940

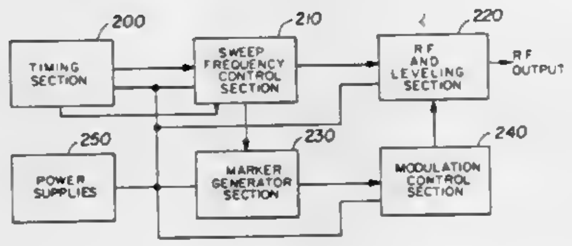
HIGH FREQUENCY SWEEP GENERATOR

Jerry Hausner, Flushing, N.Y., assignor to The Narda Microwave Corporation, Plainview, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,779

Int. Cl. H03b *23/00*

U.S. Cl. 331—76 **17 Claims**



A broad band high frequency sweep generator operating in the gigahertz range. A basic oscillator sweeps a band at the lower region of this range and a frequency amplifier is used to select harmonics for the upper frequencies of the band. Unique amplification and control circuitry is employed to obtain consistent power output and high resolution frequency coverage.

3,706,941

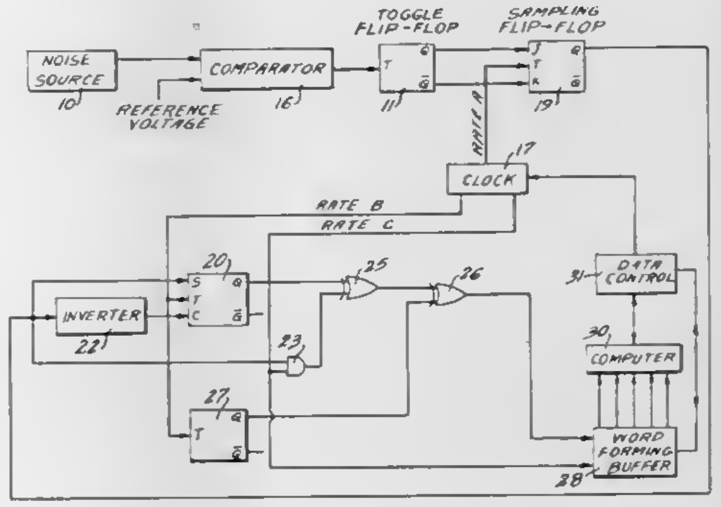
RANDOM NUMBER GENERATOR

Charles E. Cohn, Clarendon Hills, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 28, 1970, Ser. No. 84,674

Int. Cl. H03b *29/00*

U.S. Cl. 331—78 **3 Claims**



A physical noise source is used to develop a first sequence of random bits. A second sequence of random bits is formed from the first sequence by comparing the bits in each pair of bits of the first sequence. Every other bit of the second sequence is complemented to form a sequence of random numbers. The random numbers can be combined to form words.

3,706,942

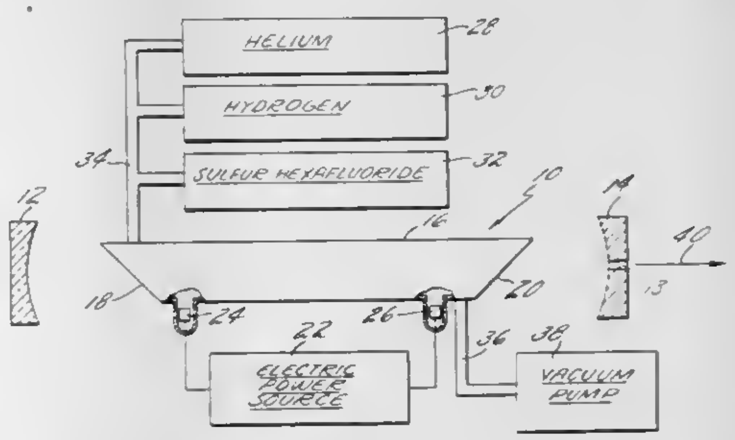
PULSED HYDROGEN FLUORIDE LASER

Casper J. Ultee, Glastonbury, Conn., assignor to United Aircraft Corporation, Hartford, Conn.

Filed July 17, 1970, Ser. No. 55,712

Int. Cl. H01s *3/00*

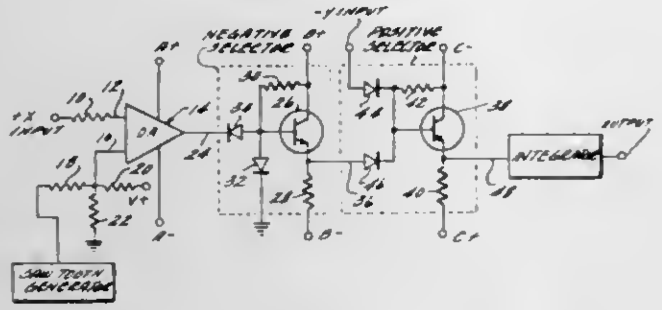
U.S. Cl. 331—94.5 G **1 Claim**



A hydrogen fluoride gas laser produces output pulses of relatively long duration and high power by the addition of helium to the interacting gases. Various fluorine-containing gas molecules enclosed in an optical cavity are caused to break down by the intermittent discharge of an electric discharge across the gas, providing fluorine atoms which react with hydrogen molecules to form vibrationally excited hydrogen fluoride in the presence of helium atoms; the excited hydrogen fluoride molecules emit laser energy in the 2.7 to 3 micron range.

3,706,943
MODULATING CIRCUIT

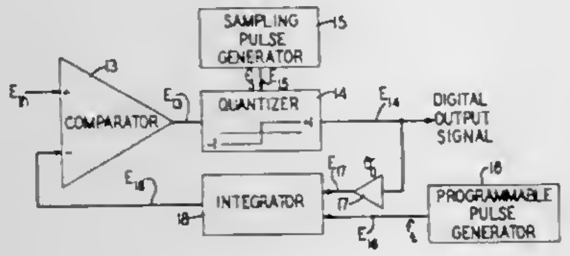
Vernon R. Duncan, Erlanger, Ky., and Louis L. Owen, West Chester, Ohio, assignors to General Electric Company
Filed Oct. 20, 1971, Ser. No. 190,748
Int. Cl. H03k *7/10*
U.S. Cl. 332—9 T **8 Claims**



A temperature compensated circuit for multiplying together two input voltages, displays an output signal which is both pulse height and pulse width modulated as a function of two input voltage signals of opposite polarity. The area enveloped by the output signal may be integrated to display an output voltage potential representative of the multiplication of the two input signals.

3,706,944
DISCRETE ADAPTIVE DELTA MODULATOR

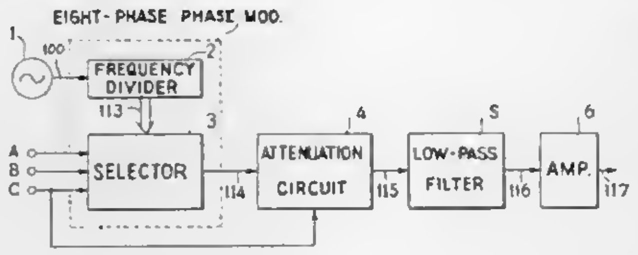
Stuart Keene Tewksbury, Long Branch, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 2, 1970, Ser. No. 94,458
Int. Cl. H03k *13/22*
U.S. Cl. 332—11 D **13 Claims**



A discrete adaptive delta modulator (DADM) comprising a comparator, a quantizer and a sampling pulse generator operating at the rate f_2 is characterized in that complex analog feedback circuitry is replaced by a programmable pulse generator operating at the rate f_t, which provides a controlled number of pulses k during each sampling period $1/f_2$ to a single step-size analog feedback integrator. The number of pulses k provided by the programmable generator multiplied by the basic step size σ_o of the feedback integrator determines the step-size σ_k in the feedback signal. This DADM is readily implemented in integrated circuit form and retains such advantages of the nonadaptive delta modulator as circuit simplicity and the requirement of only a single adjustable basic step size σ_o. The number n of available step sizes σ_k, which is determined by the ratio of the generator rates f_t and f_s, can be several hundred compared to a maximum of ten in a conventional DADM.

3,706,945
AMPLITUDE-MODULATED EIGHT-PHASE PHASE-MODULATION SYSTEM

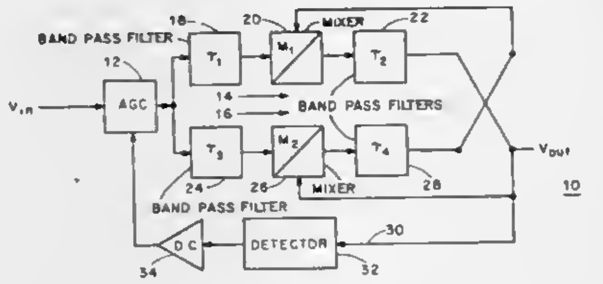
Hidetaka Yanagidaira, Ohmiya; Sotokichi Shintani, and Hisakichi Michishita, both of Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan
Filed Aug. 16, 1971, Ser. No. 172,150
Claims priority, application Japan, Aug. 14, 1970, 45/71226
Int. Cl. H04l *27/20*
U.S. Cl. 332—17 **6 Claims**



A multiple modulation system for obtaining an amplitude-modulated eight-phase phase-modulated wave employed for transmitting three channels of binary information, in which the amplitude of an eight-phase phase-modulated wave is deviated by substantially six decibels when the eight-phase phase-modulated wave assumes any of four phase-positions alternately predetermined from possible eight-phase positions.

3,706,946
DEVIATION MODIFIER

William J. Bickford, Weston, and Richard G. Cease, Westwood, both of Mass., assignors to Raytheon Company, Lexington, Mass.
Continuation of Ser. No. 846,854, Aug. 1, 1969, abandoned. This application Oct. 26, 1970, Ser. No. 84,126
Int. Cl. H03c *3/06*
U.S. Cl. 332—23 **7 Claims**

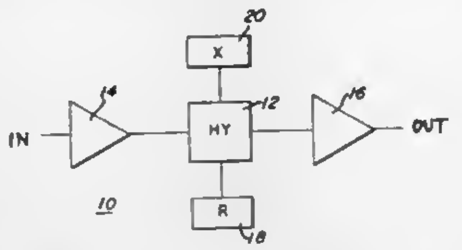


A deviation modifier which utilizes the principle of synthetic phase isolation to extend or reduce the deviation on an incoming F.M. or P.M. signal. The modified deviation signal is then filtered and demodulated or interfaced at IF. This modifier permits IF interfacing of signals without demodulation and remodulation and IF demodulated provides threshold extension.

3,706,947
VARIABLE PHASE EQUALIZER

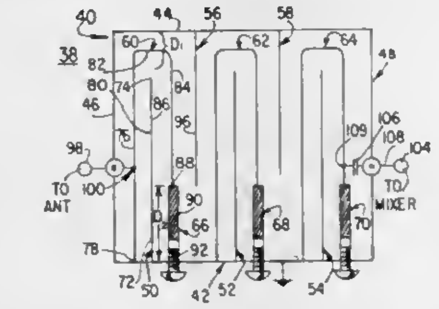
Jerzy L. Jedrychowski, Foxboro, and Peter Robinson, Needham Heights, both of Mass., assignors to Raytheon Company, Lexington, Mass.
Continuation of Ser. No. 821,188, April 2, 1969, abandoned. This application Dec. 7, 1970, Ser. No. 95,943
Int. Cl. H03h *7/34, 7/36;* **H01p** *5/14*
U.S. Cl. 333—28 R **7 Claims**

A variable phase equalizer employing a hybrid network wherein one of the pairs of opposite hybrid terminations is used as input and output and the second pair of hybrid terminations has a variable reactance in one arm and a resistance in the opposite arm. This equalizer has the advantage that its insertion loss is constant, independently of the reactive components to be varied within the range provided with no restriction on the value selected.



3,706,948
COMB-LINE FILTER STRUCTURE HAVING REDUCED LENGTH AND WIDTH

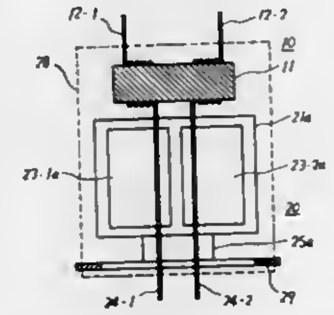
Charles Choi, Hoffman Estates, and Maynard H. McGhay, Schaumburg, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Feb. 18, 1971, Ser. No. 116,376
Int. Cl. H01p *1/20, 7/04*
U.S. Cl. 333—73 C **12 Claims**



The comb-line filter is formed by a housing and a plurality of U-shaped resonator elements each having one end connected directly to the grounded housing and the other end connected to the housing through a lumped capacitor. Each of a first set of partitions is disposed between the legs of the U-shaped elements to form a coaxial structure therewith and each of a second set of partitions is disposed either between adjacent resonator elements, between adjacent lumped capacitors, or between an adjacent resonator element and lumped capacitor to control the coupling between resonant cells.

3,706,949
HIGH FREQUENCY FILTER

Takaya Kawakami; Toshinori Kitamura; Yoshio Ajichi, and Masayoshi Ono, all of Kyoto, Japan, assignors to Nichicon Capacitor, Limited, Kyoto, Japan
Filed Feb. 9, 1971, Ser. No. 114,010
Claims priority, application Japan, Feb. 17, 1970, 45/15501; Feb. 17, 1970, 45/15502; Feb. 17, 1970, 45/15503; Feb. 17, 1970, 45/15504
Int. Cl. H03b *7/04*
U.S. Cl. 333—79 **5 Claims**



A high frequency filter having a feed-through capacitor and inductances, the latter being wound on a single magnetic core and precisely positioned relative to the capacitor.

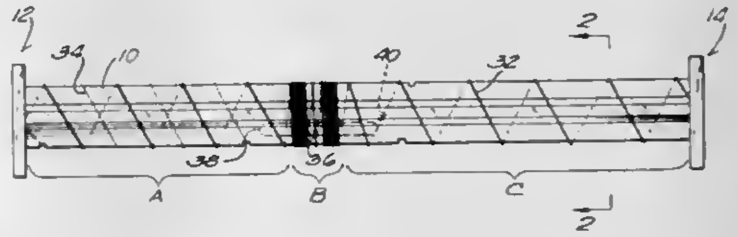
3,706,950
PROTEIN ADHESIVE COMPOSITIONS

John T. Stephan, Longview, and A. J. Golick, Seattle, both of Wash., assignors to Commercial Solvents Corporation, New York County, N.Y.
Division of Ser. No. 815,197, April 10, 1969, Pat. No. 3,640,740. This application Jan. 18, 1971, Ser. No. 107,434
Int. Cl. B32b *21/00, 29/00;* **C09j** *3/18*
U.S. Cl. 156—336 **1 Claim**

An adhesive composition having particular utility for the manufacture of laminated cellulosic products wherein one component is an aqueous alkali-dispersed protein and the other component is an oxazolidine, e.g. (5-hydroxymethyl-1-aza-3,7-dioxabicyclo[3,3,0]octane).

3,706,951
FUSIBLE ELEMENT ARRANGEMENT FOR FUSE

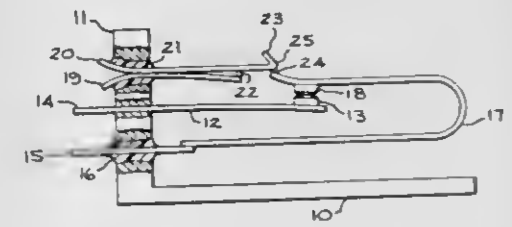
Harvey W. Mikulecky, Racine, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis.
Filed Nov. 30, 1970, Ser. No. 93,679
Int. Cl. H01h *85/06, 85/14*
U.S. Cl. 337—163 **9 Claims**



A low ampere current limiting fuse includes a fusible element spirally wound on an elongated, cruciform in cross section support and carrying an M-spot. The turns of the fusible element are wound on a smaller or tighter pitch in the area of the M-spot to locate a relatively large number of turns in the area of the M-spot so that heat generated in the fusible element is concentrated in the area of the M-spot. An indicator wire is also spirally wound on the cruciform support and passes between the smaller pitch turns and the support. A cement holds the indicator wire away from the fusible element and also engages and holds the smaller pitch turns.

3,706,952
AUTOMATICALLY RESETTABLE THERMAL SWITCH

Robert P. Alley, Danville, Ill., assignor to General Electric Company
Filed Feb. 2, 1972, Ser. No. 222,951
Int. Cl. H01h *37/52*
U.S. Cl. 337—348 **5 Claims**

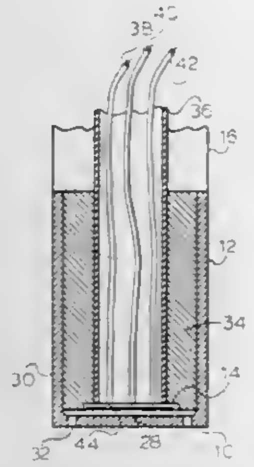


A thermal switch is provided which uses a bimetal element to provide the force to open and close a set of contacts. The bimetal element is initially restrained from opening the contacts by a latch mechanism which uses an eutectic material for determining the temperature at which the latch mechanism will release. Upon a sufficient drop in the ambient temperature, sufficient force is generated in the bimetal element to cause the bimetal to slip past a shaped surface on the latch mechanism thereby resetting of the switch.

3,706,953

PARTICLE IMPACT PROTECTORS AND ASSEMBLIES THEREOF FOR PRESSURE SENSING TRANSDUCERS HAVING DIAPHRAGMS

John C. Kicks, and Howard P. Louth, both of Seattle, Wash., assignors to Kulite Semiconductor Products, Ridgefield, N.J.
Filed May 7, 1970, Ser. No. 34,877
Int. Cl. G01l *7/08*
U.S. Cl. 338—4 9 Claims



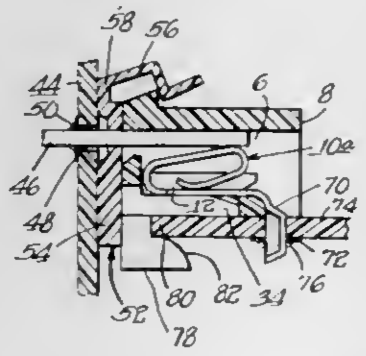
In wind tunnels and elsewhere whenever localized pressures, pressure fluctuations, pressure patterns, etc., are being monitored by pressure sensing transducers in which diaphrams are being used as the initial sensing elements, protectors are provided upstream to direct unwanted particles moving in the fluid streams to impact absorbing structures before reaching the diaphrams Such protectors in their assemblies are arranged in reference to the diaphragms so the directional changes of the fluid streams will not interfere with the accuracy of the observed and/or recorded pressures.

In a preferred embodiment of a protected pressure transducer having such a flexible diaphragm as the pressure sensing means, the diaphragm is mounted within a tubular housing which incorporates a protector plate fitted across the entire cross-sectional area of the tubular housing and it is formed with a plurality of holes near its circumference with all these holes being radially spaced beyond the circumference of the diaphragm to direct the fluid stream, possibly carrying particles, to energy absorbing structure located radially beyond the circumference of the diaphragm.

3,706,954

CONNECTOR AND ARRANGEMENT FOR CIRCUIT BOARD ASSEMBLY THEREWITH

Kerry M. Krafthefer, Downers Grove, Ill., assignor to Molex Incorporated, Downers Grove, Ill.
Continuation-in-part of Ser. No. 57,689, July 23, 1970. This application Dec. 28, 1970, Ser. No. 101,468
Int. Cl. H01r *9/08;* H05k *1/02*
U.S. Cl. 339—17 L 16 Claims

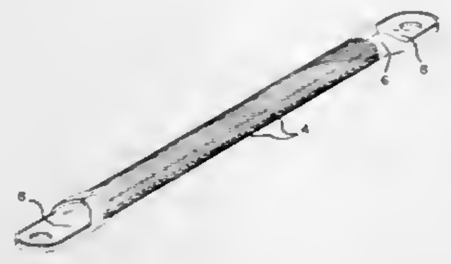


An electrical connector has a series of terminals therein each with a tongue that projects from the connector, the tongue being soldered to a circuit board. The connector has depending ledges which support an edge portion of the circuit board remote from the soldered connection to resist rupture of the soldered connection upon bending of the circuit board. In another arrangement a circuit board has pin conductors and a lock wafer adjacent to the board and through which the pins project and are secured. The pins also are adapted to project into the connector for connection with the terminals. The lock wafer has a flexible lip that engages a shoulder on the connector to prevent separation of the circuit board and connector.

3,706,955

ELECTRICAL CABLE HAVING INTEGRAL TERMINALS

Edward Dennman Bunnell, Palm Harbor, Fla., assignor to AMP Incorporated, Harrisburg, Pa.
Filed April 28, 1971, Ser. No. 138,162
Int. Cl. H01r *11/00*
U.S. Cl. 339—28 9 Claims

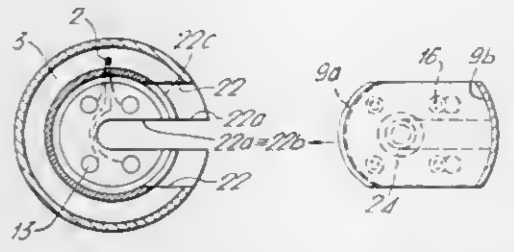


Electrical cable comprises an elongated strip of sheet metal which is axially slit intermediate its ends to define a plurality of strands. The slit strands of the cable are integral with a transition section at each end of the cable which in turn is integral with a terminal. The cable is preferably manufactured by forming the sides of the transition section inwardly and towards each other and then twisting the entire cable to impart a helical configuration to the strands. Insulation may be provided by dipping the intermediate portion of the cable into a plastisol which hardens on the surface of the strands, which penetrates between the strands, and which seals the ends of the cable.

3,706,956

JOINT DEVICE FOR A DISCONNECTABLE MECHANICAL AND ELECTRIC CONNECTION OF AN ELECTRIC LIGHT PENDANT OR OTHER SUSPENDED ELECTRIC APPARATUS, TO A CARRYING MEANS

Corrado Epilani, Via Benaducci, 26-Foligno, and Luigi Pucci, Via Flaminia Vecchia, Frazione S. Eraclio, both of Italy
Filed Dec. 21, 1970, Ser. No. 100,262
Int. Cl. H01r *13/62*
U.S. Cl. 339—66 M 4 Claims

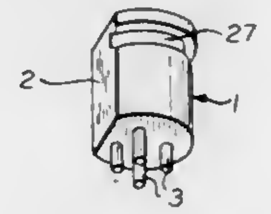


A device for joining the mechanical and electrical connections of an electrical apparatus to its carrying assembly including a stationary member fixedly connected to the carrying assembly, a movable member connected to the electrical apparatus capable of being removed with said apparatus and including an inner chamber on the bottom of which are located a plurality of entrance orifices of vertical electric sockets together with vertical guiding grooves, the movable member comprising a contact disk, from the lower surface of which projects downwardly a plurality of vertical metal pins so spaced therebetween as to be able to enter the respective sockets arranged in the stationary joint member, a peripheral flange adapted to be engaged by the guiding grooves to define the correct mutual positioning between the stationary and movable members in operation, the inner chamber having a height higher than the total height of the contact plug including the pins and communicating with the outside by means of an entrance opening having a width equal to that of the plug, while at the part of the stationary member which is placed below the inner chamber bottom the entrance opening has a width equal to the diameter of the stem at the other end of which is fixed the contact plug, the stem having at its lower end a sleeve provided with an inner vertical threaded hole in which is screwed the threaded end of the pendant stem, the sleeve forming an outer projection with respect to the lower stem and adapted be held by a fork-like means mounted at the upper end of a stick.

3,706,957

FASTENING SYSTEM

James Iantorno, Mamaroneck, N.Y., assignor to Sealectro Corporation, Mamaroneck, N.Y.
Filed June 17, 1970, Ser. No. 46,962
Int. Cl. H01r *13/48*
U.S. Cl. 339—126 R 3 Claims



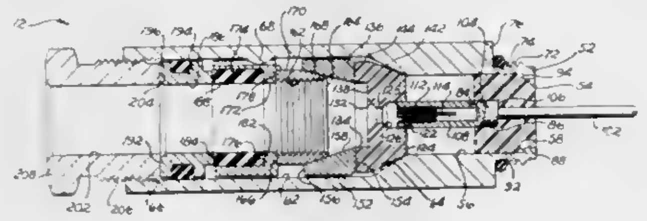
A fastening system or device for general use in a variety of applications such as panels, doors, and general cover fastenings, but with special advantages in transistor sockets, bushings, terminals and spacer mountings.

This invention is also suitable for use in ¼ turn fasteners. Specifically, the invention comprises an irregularly shaped opening in a base or mounting plate and a corresponding irregular shape in a complementary piece permitting the piece to pass through the opening securely locking the two elements together when relative motion occurs.

3,706,958

COAXIAL CABLE CONNECTOR

John P. Blanchenot, Agincourt, Ontario, Canada, assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Oct. 28, 1970, Ser. No. 84,792
Int. Cl. H01r *17/04, 7/06*
U.S. Cl. 339—177 E 6 Claims

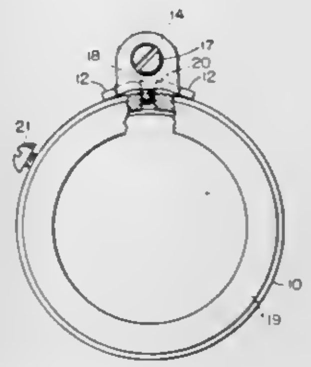


A coaxial cable connector for securing the inner and outer conductors of the cable. A connector housing has a radially deformable inner conductor seizing member, a radially deformable outer conductor seizing member and a radially deformable contact member interconnecting the inner conductor seizing member and the outer conductor seizing member. A gland nut is rotated in the housing, thereby applying an axial force to the seizing members and causing the inner conductor and the outer conductor seizing members to contract radially, while simultaneously causing the contact member to expand.

3,706,959

GROUND CONNECTOR FOR CONDUIT

Alexander R. Norden, New York, N.Y., assignor to O. Z. Electrical Manufacturing Company, Inc., New York, N.Y.
Filed April 8, 1971, Ser. No. 132,462
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 R 9 Claims

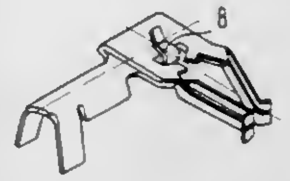


A grounding device is disclosed wherein a bushing is adapted to be threaded onto an end of conduit extending through a wall of a housing and a grounding lug is secured on the periphery of the bushing. The lug has a resilient C-shaped wire clamping portion and resilient wings extending from opposite ends thereof formed so as to provide spring tensioned connections to the periphery of the bushing. The wings have teeth adapted to make grounding connections with the wall of an enclosure or box upon threading of the bushing onto conduit extending through the enclosure, additionally providing anti-turning means to prevent the lug from rotating on its mounting screw.

3,706,960

FORK-SHAPED ONE-PIECE ELECTRICAL SPRING CONTACTS

Hans August Herbert Grenda, D-7758 Meersburg, Germany, assignor to W. Holzer & Co. KG, Meersburg, Bodensee, Germany
Filed March 29, 1971, Ser. No. 128,840
Claims priority, application Germany, March 28, 1970, G 70 11 611.9
Int. Cl. H01r *11/22*
U.S. Cl. 339—258 8 Claims



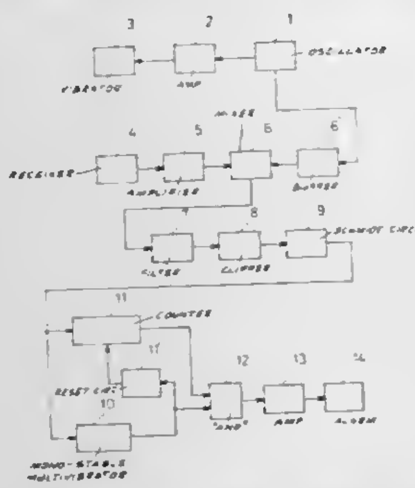
An electrical contact folded from one piece of conductive sheet having sets of fork shaped contact finger projecting from the folded body. A projecting tongue located between fingers on one side of the body engaged with projections on the other side of the body holding the folded body portions juxtaposed.

3,706,961

AUTOMATIC ALARM SYSTEM

Kaku Sugiura, Machida-shi, Tokyo, Japan, assignor to Nippon Electronics Co., Ltd., Tokyo, Japan
Filed March 10, 1970, Ser. No. 18,216
Claims priority, application Japan, May 2, 1969, 44/33558; July 9, 1969, 44/53741
Int. Cl. G08b *13/16*
U.S. Cl. 340—1 R 2 Claims

An automatic alarm system for detecting trespasser and the occurrence of fire is provided which is arranged to direct an ultrasonic wave into the space to be covered and to receive the wave reflected from a moving object to be detected. By Doppler effect, the received wave is shifted in frequency from the frequency of the emitted wave, and hence both waves are fed to a mixer to produce an electrical signal indicative of the frequency shift. This signal is clipped at an adjustable level, and part of the clipped waveform above that level is shaped into a pulse. Successive pulses are supplied to an accumulator means which produces an output to operate an alarm unit only when a number of pulses in excess of a given value occurs within a predetermined time period.



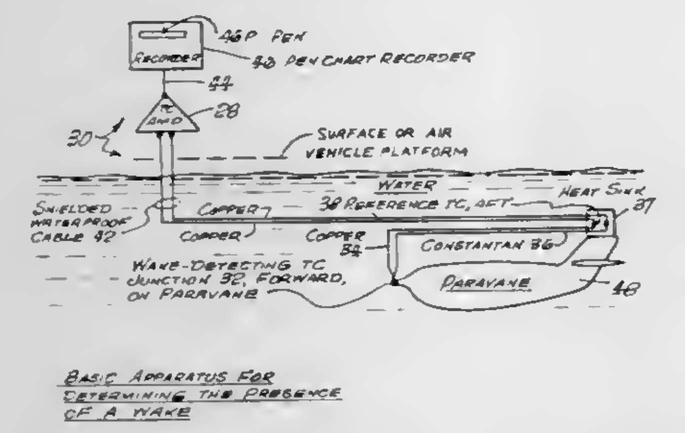
3,706,962
APPARATUS FOR DETERMINING THE PRESENCE OF A VESSEL BY DETECTING ITS WAKE

Joseph P. Strapp, Glendora, and Neri E. Cornford, Pasadena, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed March 5, 1971, Ser. No. 121,421

Int. Cl. G01k *7/12*

U.S. Cl. 340—4 R **10 Claims**


46P PEN
40 PEN CHART RECORDER
RECORDER
44
28
30
SURFACE OR AIR VEHICLE PLATFORM
WATER
HEAT SINK
SHIELDED WATERPROOF CABLE 42
COPPER
38 REFERENCE TC, AFT
COPPER 34
CONSTANTAN 36
37
WAKE-DETECTING TC JUNCTION 32, FORWARD, ON PARAVANE
PARAVANE
48
BASIC APPARATUS FOR DETERMINING THE PRESENCE OF A WAKE

Apparatus for determining the presence of a vessel, such as a submarine in the ocean, by detecting its wake, comprising a test thermocouple (TC) junction connected to a length of two thermocouple conductors, and a heat sink, into which the free ends of the conductors are immersed, to form a reference thermocouple junction. An electrical instrument, such as a pen chart recorder, is connected to the free ends of the two conductors, the pen of the instrument being adapted for setting to a reference level, generally zero, when the voltage across the two conductors is constant, indicating that the test TC junction is in an environment where the temperature of the water is static. A submersible tow is used capable of being towed by a vehicle, generally a surface vessel. The test TC junction is mounted on the submersible tow, and thus monitors the temperature of the water, whereby a marked deviation in the temperature of the water from its static value, which indicates the presence of the wake of the vessel, is detectable on the scale of the electrical instrument by a corresponding deviation in the reading of the instrument from the reference level reading.

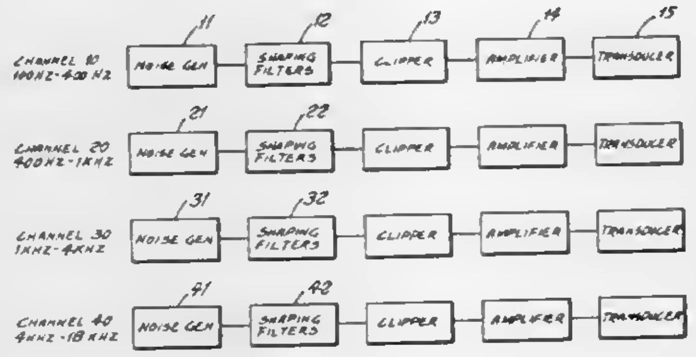
3,706,963
ACOUSTIC TARGET SOURCE

Wallace C. Norstrom, Waterford, and Albert W. Welles, Mystic, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy

Filed Oct. 7, 1970, Ser. No. 78,715

Int. Cl. H04b *11/00*

U.S. Cl. 340—5 D **2 Claims**



A plurality of separate channels, each generating a different acoustic frequency band, have connected, in tandem, a random noise generator, a shaping filter, an amplitude clipper, an amplifier and an electro-acoustic transducer. The resulting overall projected acoustic energy level can be selectively shaped with respect to frequency to simulate various target sources.

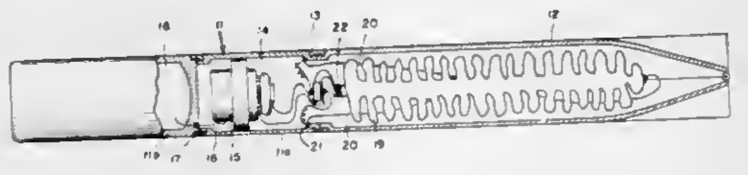
3,706,964
EXPANDING DEEP WATER SOUND SOURCE VEHICLE

Oscar R. Vass, Adelphi, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 31, 1964, Ser. No. 393,269

Int. Cl. F42b *3/00*

U.S. Cl. 340—5 R **8 Claims**



1. An expandable deep water sound source comprising:
a housing,
a flexible bag collapsed and folded within said housing,
a motor,
a power source for said motor,
a pump driven by said motor and connected to said bag for filling said bag with the surrounding medium,
an explosive cord wrapped in a helix about said bag to form a helical charge when said bag has been filled and thereby expanded to a substantially cylindrical-shaped configuration,
means for releasing the bag from said housing and for starting said motor after the housing has reached a preset depth,
means connecting the bag and the power source, whereby the power source may act as a balance weight for supporting the expanded bag in a horizontal position as the bag and power source continue to sink in the water,
and means for detonating the explosive cord at a predetermined depth.

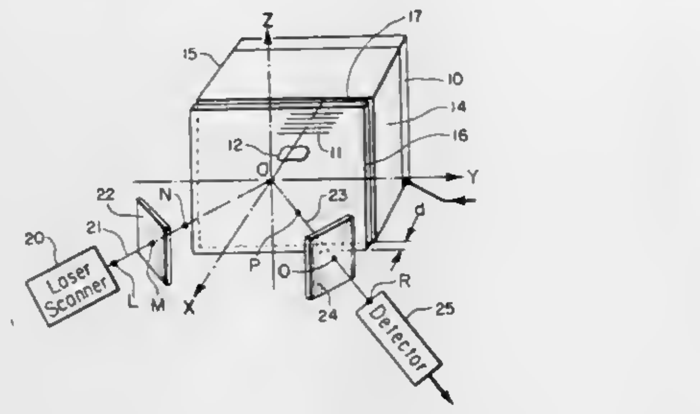
3,706,965
REAL-TIME ACOUSTIC IMAGING SYSTEM

Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 4, 1971, Ser. No. 169,019

Int. Cl. G01n *29/00*

U.S. Cl. 340—5 MP **8 Claims**



To produce an acoustic image or hologram of an object irradiated by acoustic waves, a system includes a sheet of elasto-optically anisotropic material that responds to the acoustic waves by exhibiting unequal strain-optic coefficients in orthogonal directions related to the path of the acoustic waves. A linearly polarized monochromatic beam of light is projected toward a point in the sheet, while a detector responds to light reflected from the sheet and develops a signal that represents variations caused by the sheet. Disposed in the light path is a quarter-waveplate that converts the original linear polarization into circular polarization. A polarization analyzer, disposed in the light path beyond the sheet and between the quarter-waveplate and the detector, is oriented to select a polarization component of the light that exhibits an amplitude modulation component at the frequency of the acoustic waves.

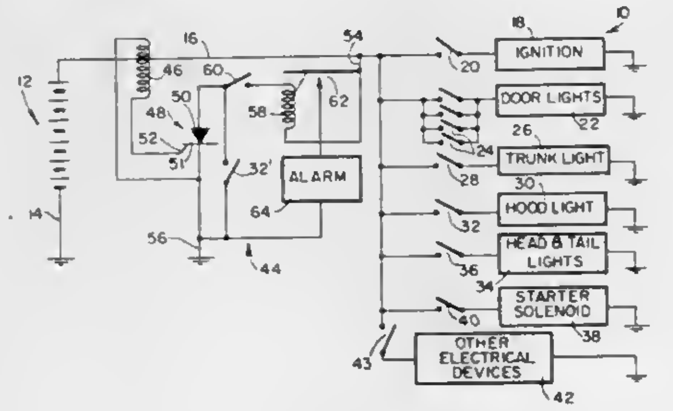
3,706,966
AUTOMOTIVE BURGLAR ALARM HAVING BATTERY CURRENT FLOW DETECTOR

Richard T. So, Chicago, and Reinbold Mueller, Arlington Heights, both of Ill., assignors to Solidyne Corp., Arlington Heights, Ill.

Continuation-in-part of Ser. No. 811,967, April 1, 1969, abandoned. This application Dec. 7, 1970, Ser. No. 95,829

Int. Cl. B60r *25/10*

U.S. Cl. 340—63 **16 Claims**



An alarm device is energized when any current is drawn from the battery employed in the electrical system of the automotive vehicle. The onset of battery current is utilized to produce a voltage pulse, which is employed to trigger a silicon controlled rectifier. The rectifier energizes a relay coil which operates relay contacts connected to the alarm device. The voltage pulse preferably is produced by a magnetic pickup coil mechanically coupled to the battery cable of the electrical system. In a second embodiment, the instantaneous battery voltage is compared with the stable voltage across a capacitor charged to the initial battery voltage. Any drop in the instantaneous voltage produces a voltage pulse which triggers the electronic switch. In a third embodiment, two of the leads to the silicon controlled rectifier are connected to the negative battery cable between the negative battery terminal and ground, between which an SCR triggering voltage drop develops when current is drawn from the battery. In each of the embodiments, if the SCR is bypassed initially, it is connected to be latched by avalance operation. The burglar alarm can be encapsulated as a module and can be coupled electrically into the vehicles' electrical system easily, without any splicing of existing wiring. The magnetic pickup coil of the primary embodiment is subject to sensitivity regulation by way of a clamp which mounts and orients the module with respect to the battery cable.

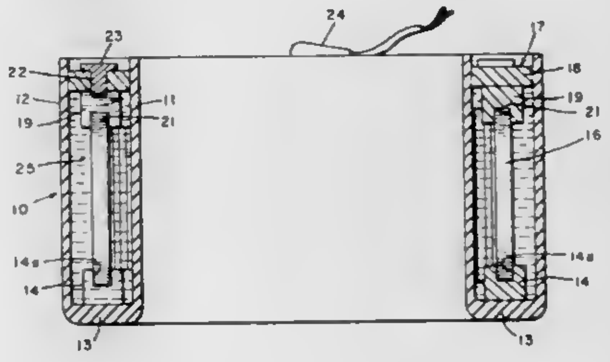
3,706,967
UNDERWATER ACOUSTIC PROJECTOR

Nicholas Renna, Jr., Thousand Oaks, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 21, 1971, Ser. No. 108,488

Int. Cl. H04b *13/02*

U.S. Cl. 340—10 **7 Claims**



A high efficiency, broadband acoustic projector for deep water applications in excess of twelve thousand feet. The projector comprises an active element consisting of a plurality of piezoelectric staves electrically connected in series. The staves are physically arranged in a cylindrical assembly prestressed in a fibrous glass wrapping, and installed in an annular, acoustically transparent, neoprene boot. Air-exhausted oil fills the boot to completely immerse the active element and thereby couple the radiated energy thereof to the surrounding water. The center cavity of the projector is open at both ends for free-flooding. Broadband response is achieved by close-coupling the active element's cavity and hoop resonances whereby they reinforce each other across a broad range of operating frequencies.

3,706,968
BEACON PROVIDING VISUAL DIRECTION INFORMATION

Charles J. Turner, Jr., Atlanta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

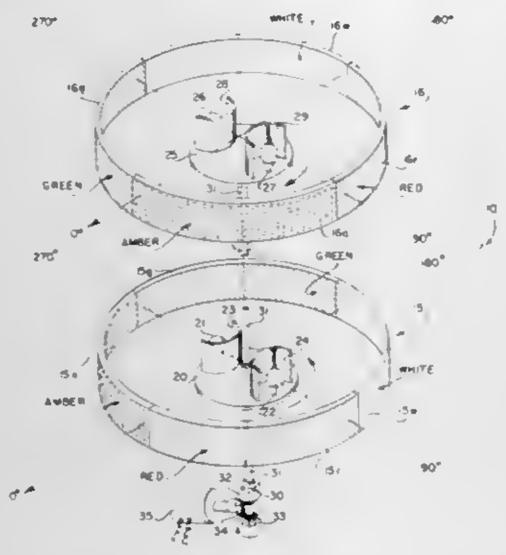
Filed Nov. 20, 1970, Ser. No. 91,260

Int. Cl. G08g *5/00*

U.S. Cl. 340—25 **14 Claims**

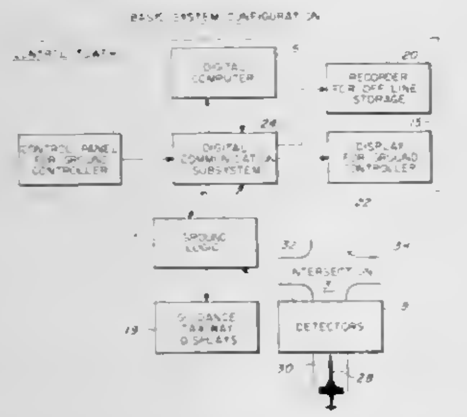
An anti-collision beacon for aircraft or other applications. A pair of coaxially displaced filters are sequentially illuminated to provide flashes of light which uniquely identify the quadrants of the filter relative to the position of an observer.

The time at which a particular color flash occurs, in relation to the preceding and succeeding contrasting color flashes, varies proportionately to the viewing angle within each quadrant. Another embodiment of this filter provides visual aircraft landing glide-slope information.



3,706,969
AIRPORT GROUND AIRCRAFT AUTOMATIC TAXI ROUTE SELECTING AND TRAFFIC CONTROL SYSTEM

Candelario Paredes, Dallas, Tex., assignor to Forney Engineering Company, Dallas, Tex.
Continuation of Ser. No. 827,292, May 23, 1969, abandoned. This application March 17, 1971, Ser. No. 125,372
Int. Cl. G08g *5/00*
U.S. Cl. 340—26 **4 Claims**

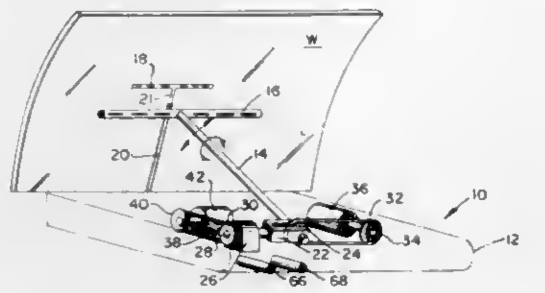

BASIC SYSTEM CONFIGURATION
DIGITAL COMPUTER
RECORDER FOR OFF LINE STORAGE
DIGITAL COMMUNICATIONS SUBSYSTEM
DETECTORS

As an identified object, such as an aircraft on the ground is scheduled to cross the surface traffic network of certain areas, such as an airport, its identification and point of destination on the ground are fed to an automatic digital computerized controller comprising integrated intersection traffic control and monitoring logic units, which automatically generates a selected route from the point of origin of the object to such destination point, and by appropriate guidance displays including such identification, directs the pilot or driver of the object at each traffic intersection when safely to enter and in which direction to proceed, until the object reaches the desired destination point.

3,706,970
HEAD-UP ATTITUDE DISPLAY

William J. O'Keefe, Dedham, Mass., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed May 12, 1970, Ser. No. 36,534
Int. Cl. G08g *5/00*
U.S. Cl. 340—27 AT **2 Claims**

An aircraft instrument providing a head-up attitude display. The instrument provides a pitch and roll attitude reference coincident with the true horizon in a pilot's actual field of view through a cockpit windscreen. The principal indicator is a movable, horizontal baton which is driven from a standard gyroscopic attitude reference. The baton has two degrees of freedom, one up and down in the vertical plane for pitch attitude changes and a tilting movement for roll attitude changes. With the two degrees of freedom and the baton positioned immediately adjacent the windscreen, an artificial horizon is provided in the direct field of view of the pilot with all the advantages of peripheral vision inherent in a head-up system. The batons are illuminated to accentuate the image of the batons in the peripheral vision of the pilot.



3,706,971
BRAKE CONTROL ARRANGEMENT

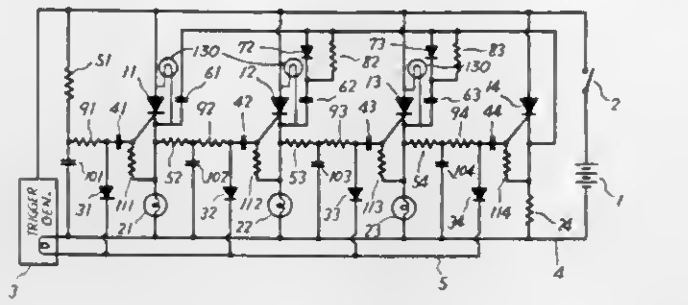
Tosiaki Okamoto, Kariya; Koziro Mori, Okazaki; Hayao Yamazaki, Osaka; Takao Abu, Osaka, and Takefumi Sato, Osaka, all of Japan, assignors to Aisin Seiki Company Limited, Kariya-shi and Sharp Corporation, Osaka, Japan
Filed April 2, 1970, Ser. No. 25,065
Claims priority, application Japan, April 5, 1969, 44/26297; April 18, 1969, 44/30643
Int. Cl. B60t *17/22*
U.S. Cl. 340—52 B **8 Claims**

An antiskid hydraulic brake pressure control system comprising a brake pressure reducing controller including a skid sensor; and a safety circuit said system being characterized by the provision of an pseudo-skid signal generator, said pseudo-signal being similar to a regular one generated in and delivered from said skid sensor, said skid pseudo-signal being fed to said sensor.

3,706,972
DIRECTION INDICATOR FOR AUTOMOBILE

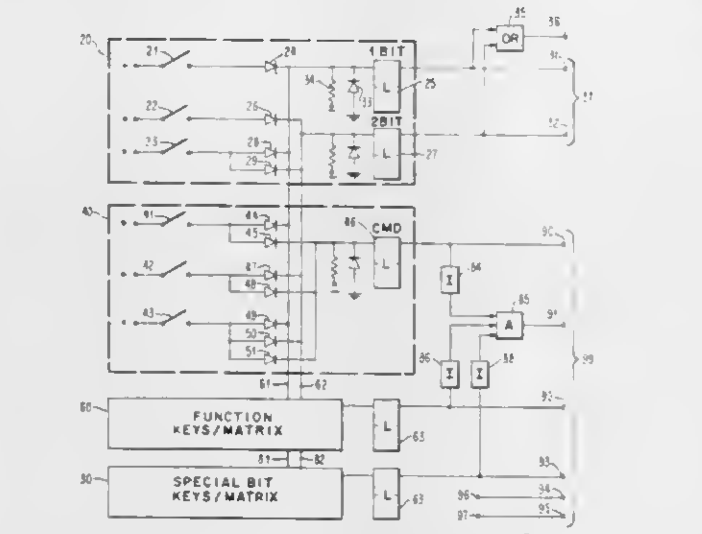
Seiichi Okuhara, 3-5-7, Yoyogi, Shibuya-ku, Tokyo, Japan
Filed April 23, 1971, Ser. No. 136,847
Claims priority, application Japan, April 30, 1970, 45/36322
Int. Cl. B60q *1/38*
U.S. Cl. 340—82 **4 Claims**

A direction indicator for automobiles having a negative grounded battery and utilizing semiconductor circuits for the control of two or more sets of lights individually with the lights of each set being operated in sequence or simultaneously to indicate a change in direction of the vehicle and relatively high resistance lights in series with the direction lights to indicate to the driver improper operation of the circuit.



3,706,973
DYNAMIC KEYBOARD DATA ENTRY SYSTEM

Edward W. Acquadro, and Donald F. Monahan, both of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 31, 1970, Ser. No. 103,241
Int. Cl. H04l *3/00;* **G06c** *21/00*
U.S. Cl. 340—172.5 **8 Claims**

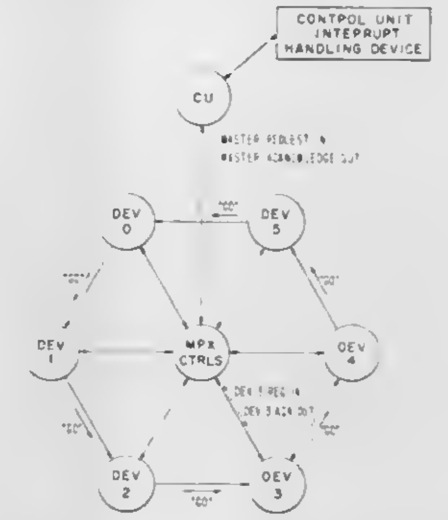


Actuation of a key on a keyboard generates double bytes of binary information, one byte identifying the keyboard area in which the key is located and the other byte representing a weighted key code. These two bytes are utilized by a data processor to reference storage addresses where bytes encoded in ultimate utilization format are stored. The utilization code and/or the storage addresses can be dynamically converted without altering the keyboard.

3,706,974
INTERFACE MULTIPLEXER

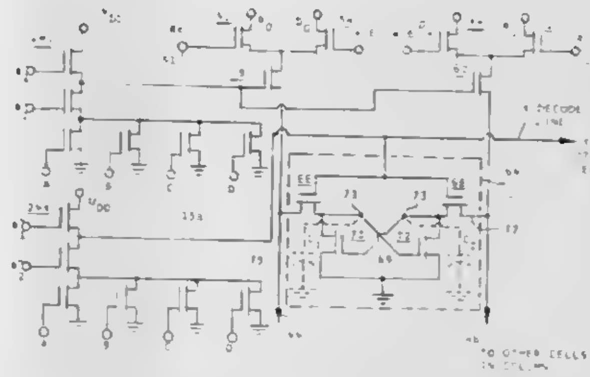
Robert L. Patrick, and Patrick L. Rickard, both of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 27, 1971, Ser. No. 194,078
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **6 Claims**

A plurality of devices any one of which can request service by a central controlling unit are interconnected in a loop arrangement by an enabling line. The controlling unit is effectively coupled in parallel to all the devices so that the presence of a service request by one of them will immediately initiate operations that will result in one of the devices being granted service. Each device includes logic circuitry to force it to actuate its leg of the enabling line loop if it was the device granted last service or if it does not have a service request present. The connection of the device to the controlling unit results only if it has a service request and receives an enabling line signal from the device preceding it on the loop. Means for bypassing device requests to read high priority requests can be included as can means to initiate data gating overlapping with the establishing of the servicing connection.



3,706,975
HIGH SPEED MOS RANDOM ACCESS MEMORY

Robert J. Paluck, Austin, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Oct. 9, 1970, Ser. No. 79,584
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 FF **15 Claims**

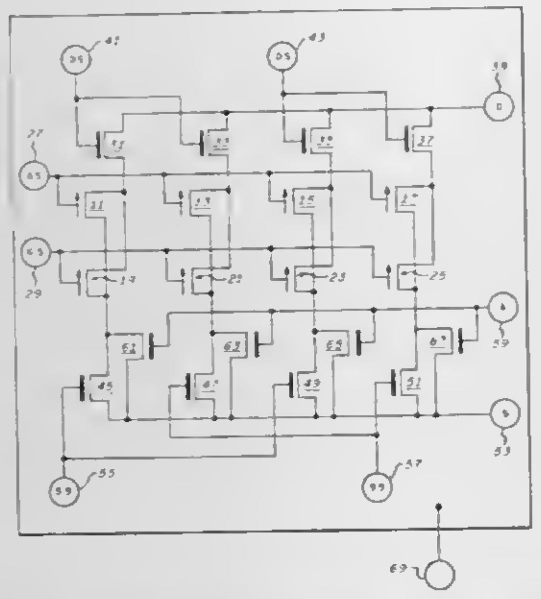


Disclosed is a high speed insulated gate field effect transistor random access memory circuit integrated on a monolithic chip. The memory circuit utilizes a low voltage decoding circuit that is compatible with transistor-transistor-logic circuit output levels, enabling a reduction in the number of discrete MOS devices required for each memory cell. Also disclosed is a novel method for decoding wherein all of the lines of the memory matrix are brought high at the start of each cycle, recharging the internal capacitance of all of the memory cells of the matrix. All of the undesired lines of the memory matrix are then discharged through an OR circuit arrangement connected in series with each line, thereby disconnecting all but a preselected cell of the memory matrix from the computer input/output sense lines.

3,706,976
THREE-DIMENSIONAL SELECTION TECHNIQUE FOR VARIABLE THRESHOLD INSULATED GATE FIELD EFFECT TRANSISTOR MEMORIES

Robert E. Oleksiak, Carlisle, Mass., assignor to Sperry Rand Corporation
Filed Nov. 5, 1970, Ser. No. 87,140
Int. Cl. G11c *11/40, 5/06*
U.S. Cl. 340—173 R **9 Claims**

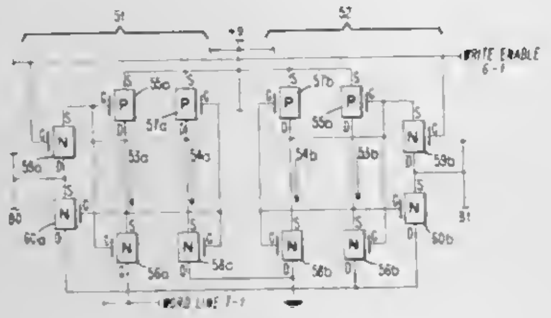
A memory array is made up of rows and columns of memory elements. Each memory element includes a known type of variable threshold insulated gate field effect transistor characterized by electrically controllable conduction thresholds established by potentials applied between the respective gate electrodes and the substrate on which the transistors are formed. A desired memory element is selected by first applying an enabling voltage to the drain electrodes of all transistors in a group of columns including the column containing the desired element. A second enabling voltage is then applied to the gate electrodes of all transistors in the row containing the desired memory element. A third voltage applied to the column containing the desired transistor and the corresponding columns in each group of columns selects the desired transistor.



3,706,977
FUNCTIONAL MEMORY STORAGE CELL

Jack R. Dailey, Apalachin, and Harry C. Kuntzleman, Newark Valley, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 11, 1971, Ser. No. 197,908
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R **16 Claims**



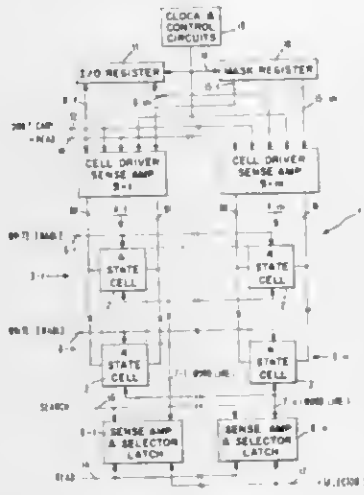
An improved four-state (0, 1, X, Y) functional memory cell is disclosed which requires only two data lines (B0, B1) for writing data into, searching, and reading data out of the cell. The cell comprises a pair of latches, each preferably fabricated in complementary insulated gate field effect transistors operated in the enhancement mode. During read, write and search operations, data is applied concurrently to both data lines. The cell requires only a two-terminal power supply, assures low power drain, occupies minimum silicon area and in one embodiment provides high cell isolation permitting large, high performance arrays.

The improved latch structure can also be used as a two-state associative memory storage cell.

3,706,978
FUNCTIONAL STORAGE ARRAY

Jack R. Dailey, Apalachin; Harry C. Kuntzleman, Newark Valley, and John G. Surgent, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 11, 1971, Ser. No. 197,909
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R **7 Claims**

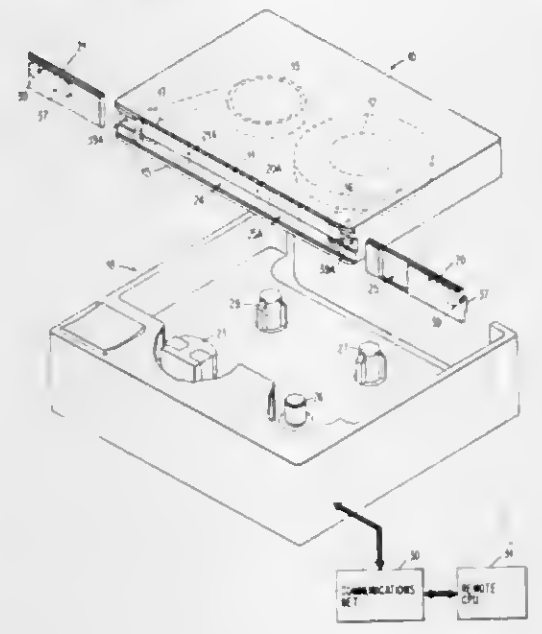


A functional (content addressable, four-state) storage unit including an improved four-state (0, 1, X, Y) cell and improved drive means provides low power drain, a minimum number of input-output connections and in one embodiment reliable high speed operation in a large array. The array is arranged in a plurality of multi-bit words. Only two data input lines are provided for corresponding bits of the words. Binary data is applied concurrently to both data lines during read, write and search/select cycles. Only two-terminal power supply is required, and the array is preferably comprised solely of complementary insulated-gate field effect transistors operated in the enhancement mode. The array is particularly well suited to monolithic fabrication.

3,706,979
CASSETTE DRIVEN BY EITHER VACUUM BINS OR PINCH ROLLERS

James M. Tagawa, and Hui-li Tiao, both of Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed April 23, 1971, Ser. No. 136,674
Int. Cl. B65h *17/0;* **G11b** *15/26*
U.S. Cl. 340—174.1 C **9 Claims**

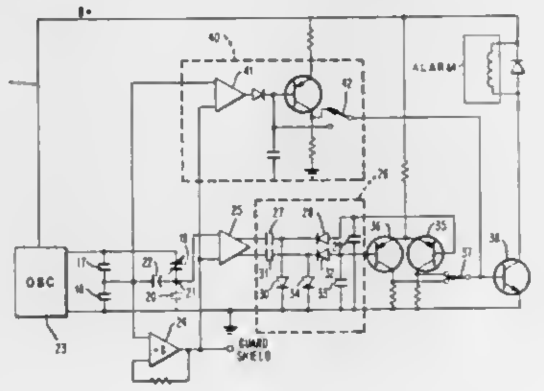


A data processing system uses a tape-containing cassette for interchange between low-speed recording systems and high-speed or high-performance recording systems. In a low-performance system, the tape is transported wholly within the cassette. The cassette may be removed from a low-performance player and placed in a high-performance player. Then, the tape is partially removed from the cassette for higher speed transport. Modifying the front end of the cassette enables it to be placed either in the low-performance or high-performance unit enabling upward and downward compatibility. Modifications of the front end may be either manual or aoutomatic.

3,706,980
RF SYSTEM FOR MEASURING THE LEVEL OF MATERIALS

Frederick L. Maltby, Montgomery County, Pa., assignor to Drexelbrook Controls, Inc.

Filed April 27, 1970, Ser. No. 32,002
Int. Cl. G01f *23/26;* **G08b** *21/00*
U.S. Cl. 340—244 C **9 Claims**



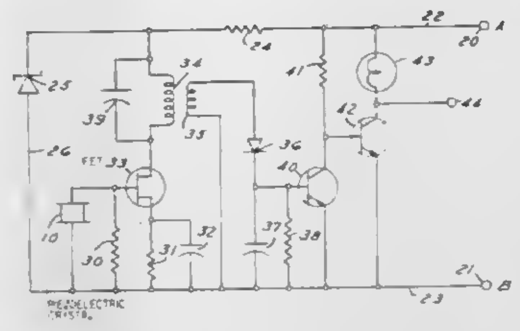
In an RF system which measures the level of materials, the probe includes a measuring electrode and a guard shield. The guard shield is interposed between the electrode and a conductive member, commonly the container for the material, throughout the body of the probe. The variable capacitance between the measuring electrode and the conductive member is a measurement of the level of the material. This variable capacitance is connected in a capacitance bridge. An operational amplifier has its input connected to the junction of two fixed adjacent arms of the bridge and has its output connected to the guard shield to maintain the guard shield at the same potential as the measuring electrode. This prevents deposits of foreign material on the probe from affecting the measurement. An output amplifier is connected between the output of the first amplifier and a junction of two opposite adjacent arms of the bridge. Connection of the output amplifier in this manner prevents changes in the input impedance of the output amplifier from changing the zero point of the bridge.

3,706,981
INDICATING SYSTEM FOR DETECTING GASEOUS AND NON-GASEOUS STATES

Atlee S. Hart, 27530 Abington Road, Southfield, Mich.

Filed Feb. 8, 1971, Ser. No. 113,202
Int. Cl. G08b *21/00*
U.S. Cl. 340—244 R **4 Claims**

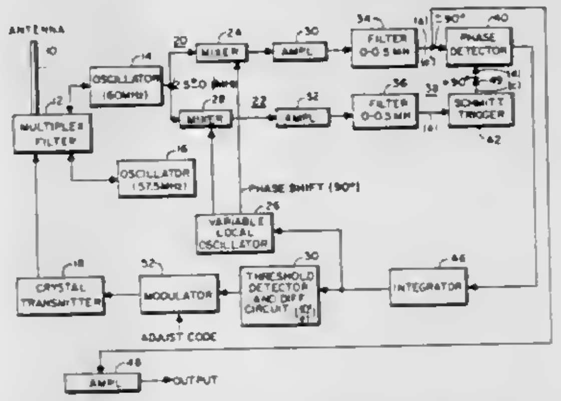
A detection system capable of distinguishing between a gaseous state and a non-gaseous state such as a liquid state and/or an ice state including a piezoelectric crystal, an exciter circuit connected to the crystal for producing an alternating current output at the mechanical frequency of the crystal, a measuring circuit connected to the output of the exciter circuit for determining increases and decreases in the amplitude of the output signal, and a signal device connected to the measuring circuit and responsive to increase and/or decrease in measurement of the signal output to produce a signal advisory of the change in the ambient physical conditions to which the crystal is subject in the selected location to advise the presence and/or absence of ice or liquid states relative to a gaseous state or to operate another system in response to the change.



3,706,982
INTRUSION DETECTION SYSTEM

John B. Gehman, San Diego County, Calif., assignor to General Dynamics Corporation

Filed July 1, 1968, Ser. No. 742,970
Int. Cl. G08b *13/26*
U.S. Cl. 340—258 C **11 Claims**



An electromagnetic intrusion system is disclosed wherein a sensor having single antenna radiates a sensing field when driven by two independent oscillators having frequencies offset from each other. The oscillators are closely coupled to the antenna and are effected by changes in antenna impedance as results when an object enters the sensing field so that their frequencies deviate. The response of the driving signals from each oscillator and the frequencies thereof are adjusted so that the frequency deviation or pulling of each of the oscillators is out of phase with respect to the other at the selected maximum range, whereas the frequency deviation and therefore sensitivity is dimished in the immediate vicinity of the antenna. The difference frequency is applied to a detection circuit which produces an output in the event of a shift in the differential frequency. The latter circuitry may include a local oscillator, the output of which is mixed with the frequency difference output in two channels. The output of the mixer in one channel is shifted in phase with respect to the output of the mixer in the other channel by 90° at the mixed frequency. A sampling phase detector compares the two channel frequencies and produces an error voltage which varies in polarity depending upon whether the differential frequency is lower or higher than the local oscillator frequency. This error voltage may be used to vary the local oscillator so that no error voltage is produced in the event that an object does not enter the sensing field. Upon entry of an object the error, voltage may be utilized to modulate a transmitter in accordance with a predetermined code representing the sensor. This transmitter may utilize the same antenna, as does the sensor, to transmit a coded signal to a receiving station at which it is demodulated to indicate the particular sensor, out of many, which has detected an object. Inasmuch as each sensor has a separate code, a single receiving channel at a station remote from the sensors may be used to monitor several sensors.

3,706,983

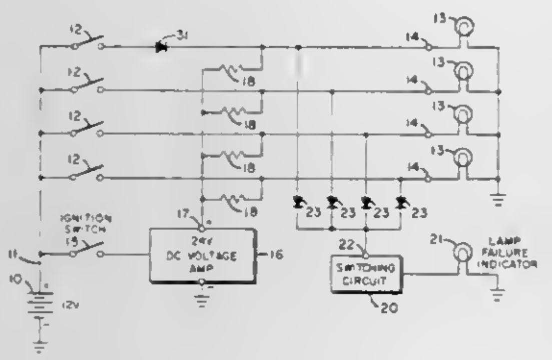
LAMP CIRCUIT

Roger A. Olson, and Norman M. Osero, both of Amery, Wis., assignors to Buckbee-Mears Company, St. Paul, Minn.

Filed Jan. 18, 1971, Ser. No. 107,266

Int. Cl. G08b *21/00*

U.S. Cl. 340—251 **13 Claims**



A lamp is connected to a first energy source which normally energizes the lamp and is connected to a second energy source through a relatively high impedance which does not energize the lamp. A solid state switching circuit is connected across the lamp. When the lamp is conductive its relatively low impedance prevents the second energy source from activating the switching circuit but when the lamp is open-circuited, the second energy source activates the switching circuit to give an indication of its inoperative condition.

3,706,984

CODE TRANSLATION DEVICE

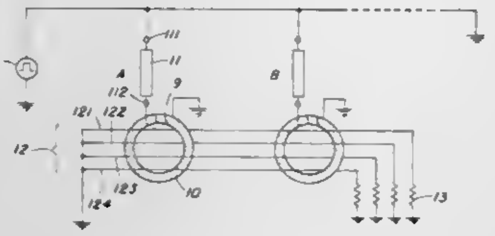
Masaaki Naganuma, and Kazuyoshi Saito, Minato-ku, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Sept. 16, 1970, Ser. No. 72,611

Claims priority, application Japan, Sept. 20, 1969, 44/74999

Int. Cl. G06f *3/02*

U.S. Cl. 340—347 DD **9 Claims**



A code translation device for translating an information character into a binary signal, comprising a drive circuit for supplying current to an exciting coil wound on a magnetic core, and variable impedance means varying the amount of drive current supplied to the exciting coil and including a control coil wound on a second magnetic core to constitute high impedance to limit the amount of drive current supplied to the exciting coil to a small amount to provide four parallel O output signals to indicate an idle state at one time and thereafter to constitute a low impedance to increase the amount of drive current supplied to the exciting current to provide four parallel 1 and 0 output signals to represent a preselected information character at another time.

3,706,985

BINARY TO ONE OUT OF N CONVERTER

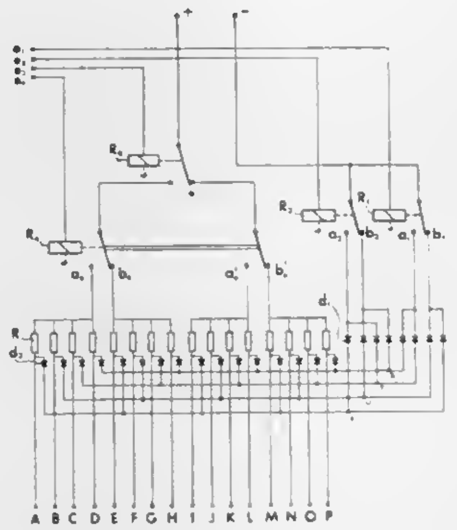
Jacques Darmon, 92-Sceaux, and Philippe Coffre, 92-Boulogne, both of France, assignors to Jeumont-Schneider, Paris, France

Filed May 27, 1971, Ser. No. 147,591

Claims priority, application France, May 28, 1970, 7019501

Int. Cl. H03k *13/252*

U.S. Cl. 340—347 DD **2 Claims**



A data transmission selector having *n* inputs and 2^n outputs, *n* being greater than or equal to 2. The data transmission selector comprises: a first selector having *p* inputs and 2^p outputs (*p* denoting an integer which is at least 1 and less than *n*), the selector comprising *p* two-way contacts each operated by a relay winding whose input is one of the selector inputs, each contact point of the moving element of such contacts being connected to the negative side of a d.c. supply while each of the other two contact points *a* or *b* is connected to the cathode of 2^{p-1} diodes, each anode of the diodes being so connected to one of the selector outputs that any of the contact points *a* or *b* of a two-way contact is connected via one of the diodes only once to one of the outputs and the contact points *a* and *b* of any single two-way contact are not connected to the same output; a second selector having *m* inputs and 2^m outputs comprising 2^m-1 two-way contacts operated by *m* relay windings (whose inputs are the inputs of the second selector) and arranged in a pyramid of *m* stages (*m* being equal to $n-p$), the pyramid apex being connected to the positive side of the d.c. supply, the pyramid base comprising 2^m outputs; and connecting circuits between the outputs of the first and second selectors.

3,706,986

SAMPLING METHODS AND DEVICES, MORE PARTICULARLY FOR ANALOG-DIGITAL CONVERSIONS

Gerard Petit, Balma Lasbordes, and Pierre Bricard, Saint Michel-sur-Orge, both of France, assignors to Centre National D'Etudes Spaliales, Paris, France

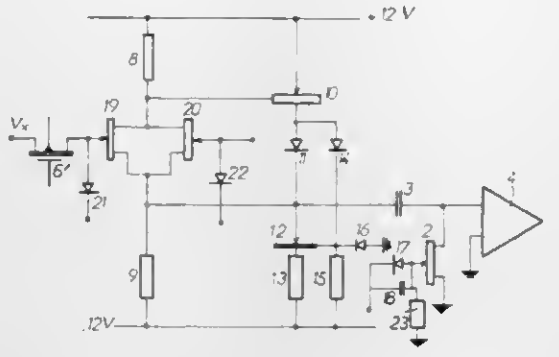
Filed Jan. 13, 1971, Ser. No. 106,204

Claims priority, application France, Jan. 14, 1970, 7001281

Int. Cl. H03r *13/20*

U.S. Cl. 340—347 AD **8 Claims**

A device for sampling an input analog voltage and comparing it to a reference voltage, wherein, in the course of a sampling period, an amplifier applies the input analog voltage to a memory wherein it is stored, and thereafter during a comparison period the reference voltage is applied alone to the same amplifier and the difference between it and the previously stored voltage is applied to a comparator.



3,706,987

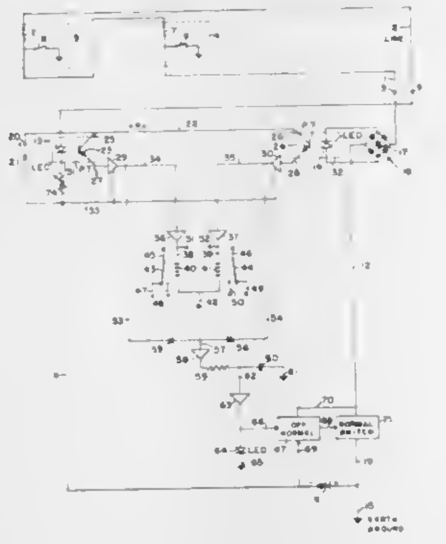
ALARM LOOP CIRCUIT SYSTEM WITH LIGHT-EMITTING CURRENT-DETECTION MEANS

Bruce A. Westphal, Piedmont, Calif., assignor to Bay Alarm Company, Oakland, Calif.

Filed Aug. 23, 1971, Ser. No. 173,791

Int. Cl. G08b *29/00*

U.S. Cl. 340—409 R **10 Claims**



An alarm system comprising a loop circuit having several remote, code-generating switches connected in series, and a receiving station connected to the loop ends which applies an electrical potential to the loop. Wherein the receiving station provides, in series with the loop ends, light-emitting diodes which emit light when current flows through the loop onto corresponding photo-sensitive circuit elements, such as photo transistors, which are connected, through amplifiers, to a controlled device, such as printing relays and/or further transmission means which indicate which diode emits more or less light than the other. Preferably, the amplifier outputs are connected through a time-delay circuit which produces an "off normal" signal if either of the diodes has a reduced light output for longer than a predetermined time, such as one to several seconds; this signal may energize another light-emitting diode or switch the power supply to apply a different voltage to a loop end.

3,706,988

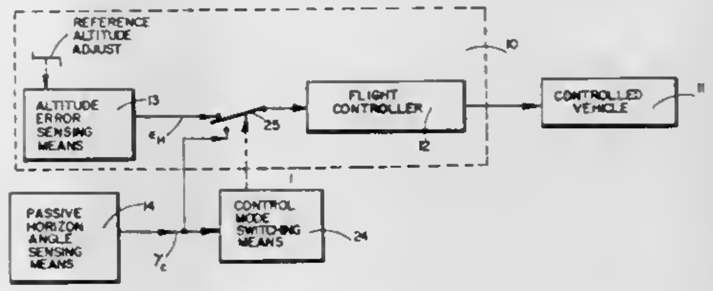
VEHICLE CONTROLLER EMPLOYING PASSIVE HORIZON SENSOR

Guy P. Bayle, Orange; Richard K. Smyth, Fullerton, both of Calif., and Robert D. Gustafson, West Lafayette, Ind., assignors to North American Aviation, Inc.

Filed Nov. 4, 1965, Ser. No. 506,295

Int. Cl. G01s *9/02*

U.S. Cl. 343—6 R **9 Claims**


REFERENCE ALTITUDE ADJUST
ALTITUDE ERROR SENSING MEANS
13
ϵ_H
25
FLIGHT CONTROLLER
12
10
CONTROLLED VEHICLE
11
PASSIVE HORIZON ANGLE SENSING MEANS
14
γ_c
CONTROL MODE SWITCHING MEANS
24

A terrain avoidance system for airborne use and employing a forward-looking, nodding, non-radiating sensor (or radiometer) for sensing the direction of the horizon, in cooperation with a downward-looking radar altimeter, whereby the probability of over-the-horizon detection of a utilizing aircraft is minimized.

3,706,989

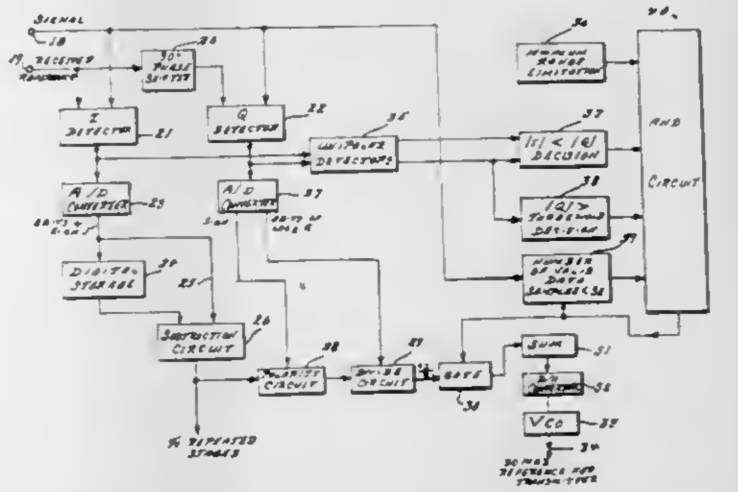
DIGITAL MOTION COMPENSATION SYSTEM FOR RADAR PLATFORMS

John W. Taylor, Jr., Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Oct. 28, 1970, Ser. No. 90,203

Int. Cl. G01s *9/42*

U.S. Cl. 343—7 A **3 Claims**



A digital motion compensation system for radar platforms wherein motion of the radar platform is detected by a digital process using data which has already been digitized and stored for MTI (moving target indication) purposes.

3,706,990

DEVICES FOR ELIMINATING FIXED-ECHOES

Roland Carre, Paris, France, assignor to Thomson-CSF, Paris, France

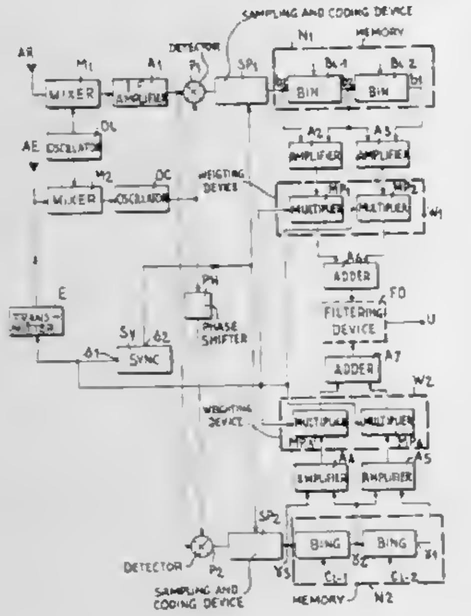
Filed June 10, 1970, Ser. No. 45,128

Claims priority, application France, June 19, 1969, 692058

Int. Cl. G01s *9/42*

U.S. Cl. 343—7.7 **6 Claims**

A wobbulated pulse repetition frequency M.T.I. radar system comprising means carrying out coherent detection of the echo signals, means supplying the differences between successive coherent echo signals of a target and means supplying a weighted sum of two successively supplied differences;

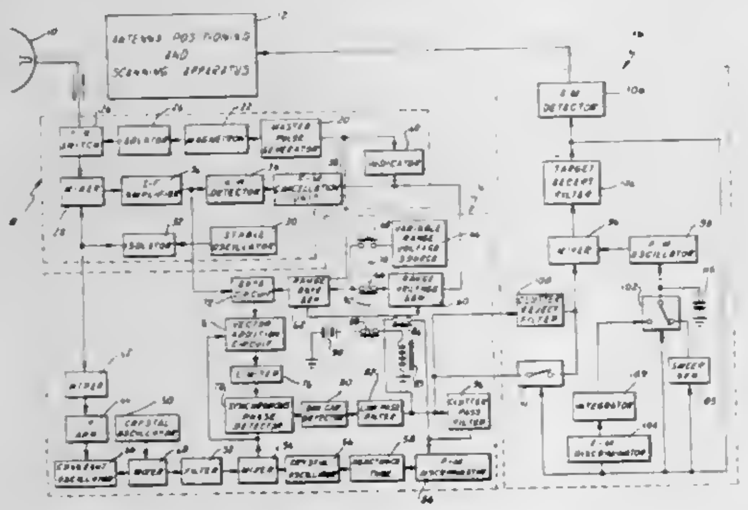


the weighting coefficients are so selected that in the resulting sum the spreading of the spectrum of the echoes of the stationary targets, due to the wobbulation, is compensated.

3,706,991
COHERENT-ANGLE TRACKING SYSTEM INCORPORATING TARGET-VELOCITY TRACKING APPARATUS

Arnold H. Gillmer, and Harold V. Hance, both of Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed April 5, 1956, Ser. No. 576,471
Int. Cl. G01s *9/42*
U.S. Cl. 343—7.7 **5 Claims**

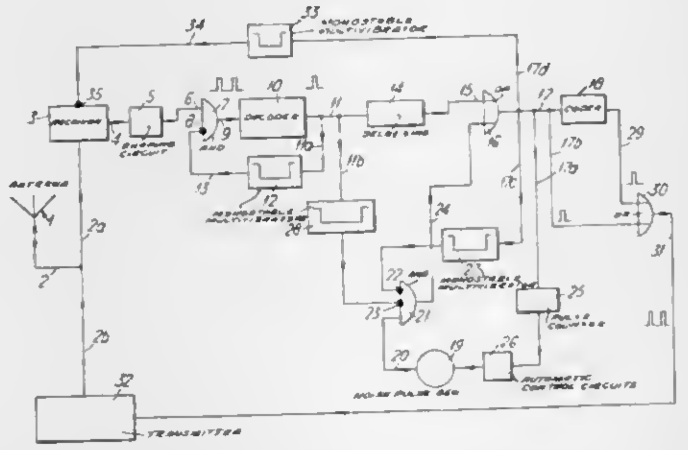


4. In a moving target indicating system wherein a composite signal containing both target echo and clutter return signals is received in response to exploratory pulses radiated at a predetermined pulse repetition frequency and in which signal components are formed with the spectral distribution of the clutter and target echo signals maintained in spectral half intervals of the pulse repetition frequency comprising: means for maintaining said clutter signals at desired frequency in said half intervals; a first filter having pass band for passing one spectral half interval of the pulse repetition frequency; a second filter coupled to the output of said first filter for rejecting said spectral distribution of frequency components of said clutter return signal; an oscillator; means to frequency modulate said oscillator through a range as wide as said spectral half interval passed through said first filter; a mixer coupled to the output of said second filter and said oscillator, to shift the frequency components of said target echo signal through a range of frequencies as wide as said spectral half interval passed through said first filter; a third filter coupled to the output of said mixer having a pass band located at a predetermined frequency in said range; a frequency discriminator coupled to the output of said third filter to produce a direct current null output signal at the pass band frequency of said third filter upon the appearance of a target echo signal at the output of said third filter; means for integrating the direct current null output signal out of said frequency discriminator to produce a control signal; switching means controlled by the target echo signal at the output of said third filter to pass said control signal to said oscillator, to control the frequency output of said mixer and maintain the frequency components of said target echo signal in said pass band; and by-pass means connected to respond to the target echo signal at the output of said third filter to by-pass said second filter.

3,706,992
CONSTANT-DUTY TRANSPONDER

Jacques Daniel Philippe Brisse, 92-Saint-Cloud, and Jean-Claude Joguet, 92-Boulogne-Billancourt, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed July 23, 1970, Ser. No. 57,668
Int. Cl. G01s *9/56*
U.S. Cl. 343—6.8 LC **8 Claims**



This invention relates to a high efficiency transponder of the type which receives and decodes interrogation pulse pairs and transmits reply pulse pairs. Filler pulses (squitter) are transmitted to achieve a constant duty operation. Squitter is initiated by a local noise pulse generator, not be receiver noise. Therefor, the countdown due to dead-time following decoding of the squitter is eliminated and recognition of genuine interrogations is not inhibited.

3,706,993
SEARCH SYSTEM

John H. Kuck, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed March 9, 1964, Ser. No. 350,951
Int. Cl. G01s *9/42*
U.S. Cl. 343—7.7 **5 Claims**

2. A search system for detecting moving targets, in chaff, and including a transmitter for reflecting bursts of randomly phase coded, electromagnetic energy from a target, and a receiver, said receiver comprising

a delay line having a plurality of output taps thereon,
means for applying said reflected bursts to said delay line,
a plurality of phase shifters which are preset in accordance with the phase coding of said transmitter,

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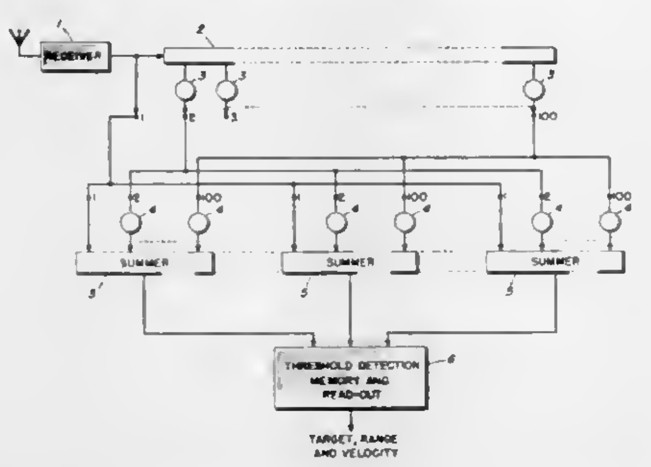
each phase shifting means being connected to a different output tap of said delay line, said plurality of phase shifters removing said phase coding from said bursts and providing a pure Doppler signal output, and

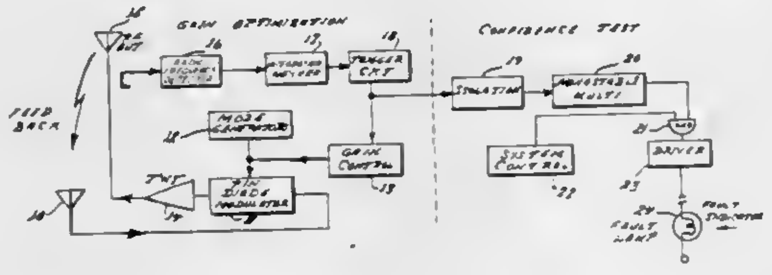

1
RECEIVER
2
3
100
4
SUMMER
5
6
THRESHOLD DETECTION MEMORY AND READ-OUT
TARGET, RANGE AND VELOCITY

display means operably connected to receive the output from each of said phase shifting means for indicating the Doppler shift introduced by the target to each pulse of said burst.

3,706,994
AUTOMATIC CONFIDENCE TEST FOR ECM REPEATER

Edward O. Uhrig, Ellicott City, Md., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Oct. 1, 1970, Ser. No. 77,161
Int. Cl. G01s *7/40*
U.S. Cl. 343—17.7 **3 Claims**



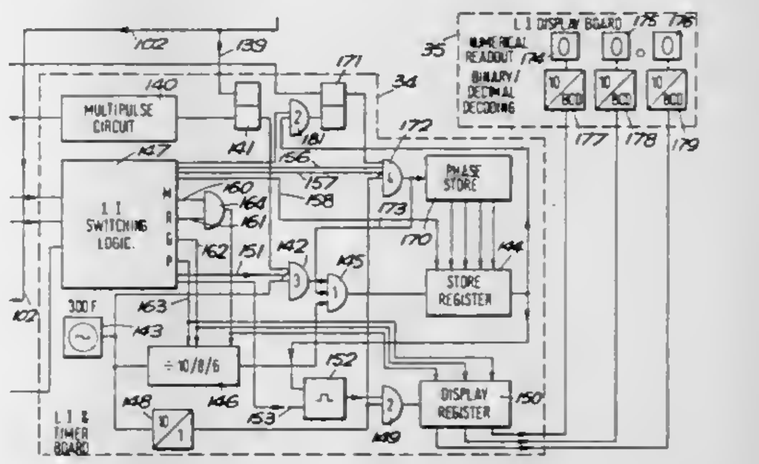
An apparatus for automatically testing a repeater type ECM system by inducing a condition whereby the system gain exceeds the antenna isolation to provide a gross level system confidence test simultaneous to normal operation due to the very low duty cycle of the test.

3,706,995
RECEIVERS FOR PHASE COMPARISON RADIO NAVIGATION SYSTEMS

David Geoffrey Hughes, London, England, assignor to Decca Limited, London, England

Filed Nov. 10, 1970, Ser. No. 88,398
Claims priority, application Great Britain, Nov. 10, 1969, 54,971/69
Int. Cl. G01s *1/30*
U.S. Cl. 343—105 R **9 Claims**

In a receiver for a phase comparison radio navigation system in which fixed stations normally radiate signals, one from each station on different harmonics of a common fundamental frequency and in which, for lane identification, each station periodically radiates simultaneously signals of a number of frequencies, known as a multipulse, from which a signal of the fundamental frequency may be derived at the receiver, the receiver has an oscillator locked in phase to signals of the one frequency normally radiated from the master station. The output of this oscillator is divided down to the fundamental frequency but the divider is not notched. Instead the phase relationship between the fundamental frequency signal from the master multipulse transmissions and the divider output signal are compared digitally in phase and the phase difference is stored as a digital number and applied

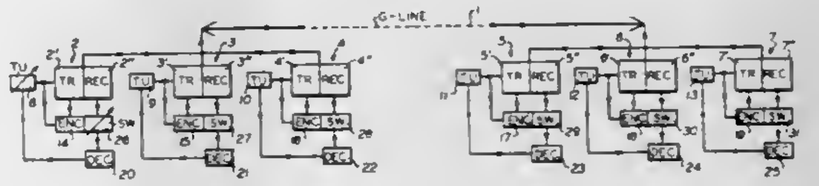


as a correction to all the phase determinations between the divider output and the fundamental frequency signals derived from the slave stations. This corrects not only for the absence of notching in the divider but also for certain other minor phase errors in the system.

3,706,996
FREQUENCY ADJUSTMENT FOR TWO-WAY VIDEO TRANSMISSION

Theodore Hafner, 1501 Broadway, New York, N.Y.

Filed April 14, 1970, Ser. No. 28,302
Int. Cl. H04b *1/50*
U.S. Cl. 343—176 **21 Claims**



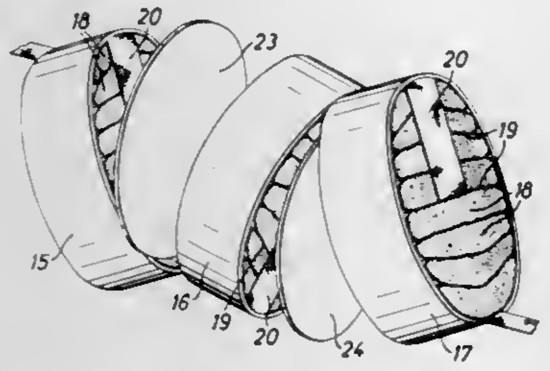
The invention relates to the simultaneous transmission of of number of carrier modulated video channels wherein each of a number of stations has assigned to it transmitter and receiver channels,, different carrier frequencies, at least each of said transmitter carriers being adjustable to the carrier frequency of at least some of the other transmitters; means for adjusting the assigned carrier frequency of one of said transmitters to a carrier frequency assigned to another transmitter, and means under control of said adjustment substantially simultaneously to adjust the carrier frequency assigned to said other transmitter to the carrier frequency assigned to the first transmitter so as to permit the two stations, the receiver carrier frequencies of which remain unchanged, upon being called upon by one of said stations to exchange video information substantially simultaneously.

3,706,997
DISPENSING APPARATUS

Robert Whatmore, London, England, assignor to F. Bender Limited, London, England

Filed March 4, 1970, Ser. No. 16,454
Claims priority, application Germany, March 7, 1969, 12193/69
Int. Cl. H01q *17/00*
U.S. Cl. 343—18 B **11 Claims**

Dispensing apparatus comprising several cardboard tubes packed with needles to be dispensed, and a fabric tape threaded axially through all the tubes and wrapped around bunches of the needles in each tube. The dispensing apparatus is housed within a load carrying compartment of a projectile from which the needles are to be dispensed and the ends of the fabric tape are secured to a forward and aft part of the projectile. The forward and aft parts are separable during flight of the projectile so that the cardboard tubes are exposed to atmosphere and the fabric tape is straightened out. The straightening out action of the fabric tape ejects the needles from the cardboard tubes and dispenses them from the projectile into the atmosphere within which they scatter.



3,706,998

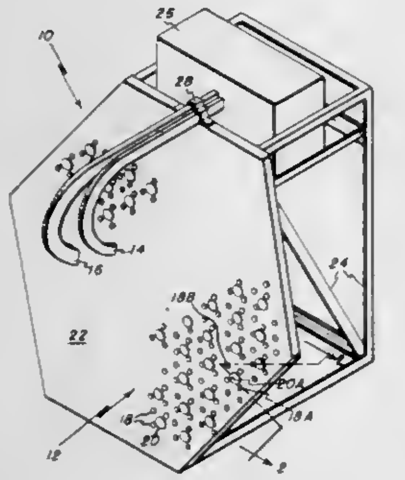
MULTIPLE INTERLEAVED PHASED ANTENNA ARRAY PROVIDING SIMULTANEOUS OPERATION AT TWO FREQUENCIES AND TWO POLARIZATIONS

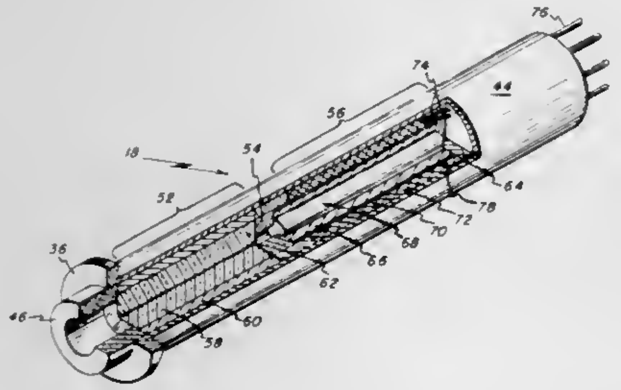
Burrell R. Hatcher, Bedford; Aldo R. Miccioli, Acton; Max C. Mohr, Chelmsford, and Edward J. Sheldon, Lexington, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 779,767, Nov. 29, 1968, abandoned. This application Feb. 3, 1971, Ser. No. 112,395

Int. Cl. H01q *19/08*

U.S. Cl. 343—754 **19 Claims**





A phased array antenna including within its single electromagnetic radiating aperture two or more groups of radiating elements, each group of radiating elements being distinguished by the polarization and frequency spectrum of its radiation. The radiating elements of each group are of sufficiently small physical size compared to their free space wavelength to permit their being interleaved among the radiating elements of the other groups in a configuration whereby each group of radiating elements has approximately the same control of the beamwidth and the steering of its beam of radiation as would be the case if only one of these groups were present.

3,706,999

CASSEGRANINIAN ANTENNA HAVING LIMITED SPILLOVER ENERGY

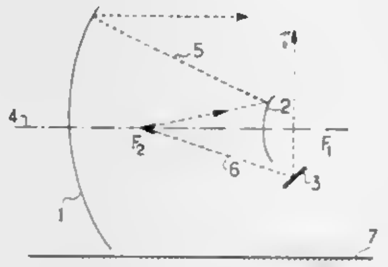
Yves Tocquec, Marcoussis, and Andre Rabadeux, Palaiseau, both of France, assignors to Campagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

Filed Aug. 25, 1971, Ser. No. 174,600

Claims priority, application France, Aug. 28, 1970, 7031536

Int. Cl. H01q *19/14*

U.S. Cl. 343—782 **4 Claims**



A deflector is fixed relative to coaxial main and secondary antenna reflectors, after said secondary reflector and between the ground and the axis of the antenna to intercept parasitic radiation spillover.

3,707,000

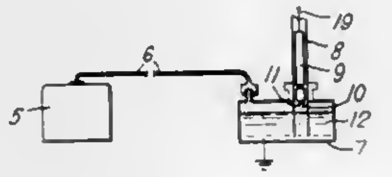
HYDROLOGICAL RECORDER

James Mitchell Anderson, Salisbury, Rhodesia, assignor to Philip Van Heerden, in his capacity of Minister of Water Development for the Government of Rhodesia, 'Peridot', Rusake, Rhodesia

Filed June 5, 1970, Ser. No. 43,714

Int. Cl. G01l *19/08*

U.S. Cl. 346—33 TP **1 Claim**



Data processing and recording apparatus for use in receiving and recording hydrological information. There is provided a sensor means and a punching system to perforate paper tape at predeterminable time intervals in accordance with stimuli received from the sensor means. The sensor means has a pressure sensitive device located where hydrological information is sought. A detector translates pressure changes in the pressure sensitive device into electrical impulses to operate the punching system. The pressure sensitive device has an open ended tube through which a gas is forced from a supply vessel. The gas pressure is increased until gas bubbles pass from the open end of the tube at a predeterminable rate and a well-type mercury manometer is connected to the pressure sensitive device in an air-tight manner.

3,707,001

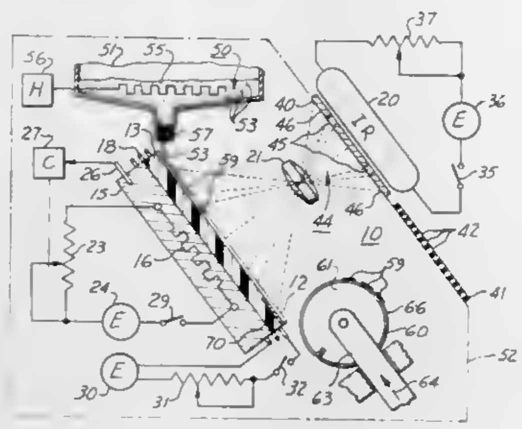
MAGNETIC IMAGING METHODS AND APPARATUS

Norman Notley, Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Nov. 12, 1970, Ser. No. 88,782

Int. Cl. G11b *11/04, 11/10, 11/14*

U.S. Cl. 346—74 MT **9 Claims**



A method of producing a magnetic image of an information pattern provides a magnetizable medium having a transition between a first state of magnetization and a second state of magnetization at a first temperature and a transition between the second state of magnetization and the first state of magnetization at a second temperature. This method also includes the steps of imparting to the magnetizable medium a third temperature between the first and second temperatures so as to provide one of the two states of magnetization, and imparting with the aid of a thermal image of the information pattern to portions of the medium which are representative of the information pattern the third temperature so as to provide at these portions the other of the two states of magnetization. Apparatus for carrying out this imaging method and producing records of an information pattern are also disclosed.

3,707,002

PLOTTING APPARATUS FOR USE IN CONJUNCTION WITH SURVEYING INSTRUMENTS

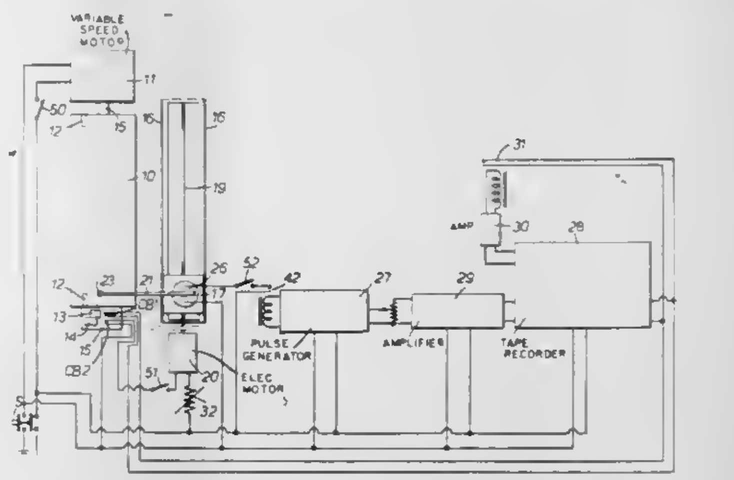
Mark I. Howell, Bristol, England, assignor to Electrolocation Limited, Bristol, England

Filed July 28, 1970, Ser. No. 58,791

Claims priority, application Great Britain, Aug. 4, 1969, 38,867/69

Int. Cl. G01d *9/38*

U.S. Cl. 346—33 M **4 Claims**



Plotting apparatus for producing a plot or chart of the signals recorded by a surveying instrument which is traversed over the ground and produces electrical signals which vary in accordance with the electromagnetic reflection coefficient of the ground, comprising means for playing back a recording of the signal, a solenoid-operated pen arranged to mark dots on a sheet secured on a carrier with a frequency dependent on the magnitude of the signal, and means for moving the pen and the sheet carrier relative to one another correspondingly to the traversing movement of the instrument over the ground. The pen may be mounted on a carriage which is shifted laterally in steps while the sheet carrier may be a drum which is rotated slowly so long as the recording is being played back.

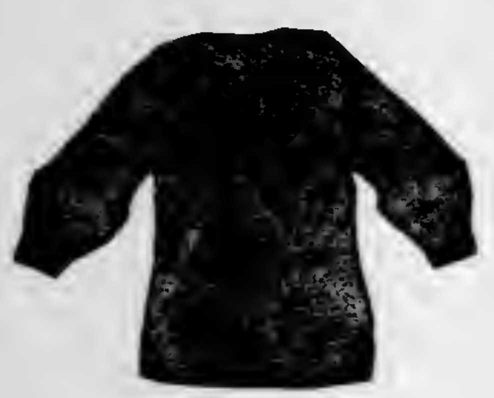
3,707,003

Patent Not Issued For This Number

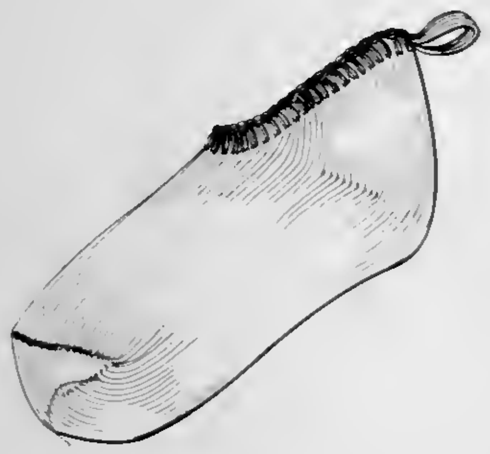
DESIGNS

DECEMBER 19, 1972

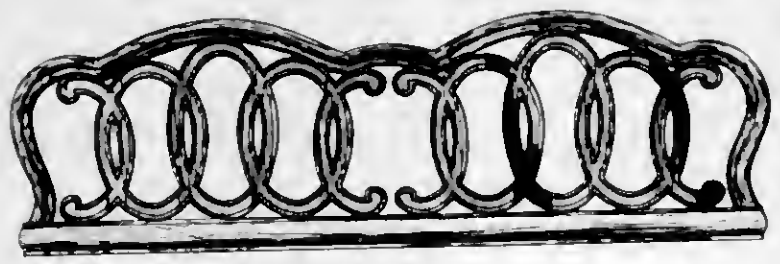
225,489
KNIT DRESS OR THE LIKE
Margaret A. Graham, Rte. 2, P.O. Box 111,
Cary, N.C. 27511
Filed Apr. 27, 1970, Ser. No. 22,660
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—43



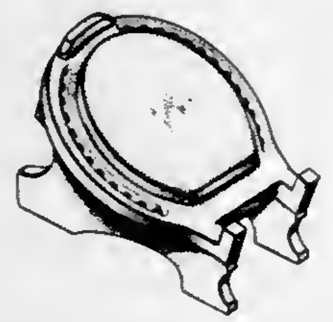
225,490
CUFFLESS SOCK
Raymond R. Sindelar and Robert E. Chesebro, Sheboygan, Wis., assignors to Wigwam Mills, Inc., Sheboygan, Wis.
Filed Sept. 29, 1969, Ser. No. 19,326
Term of patent 14 years
Int. Cl. D2—*05*
U.S. Cl. D2—320



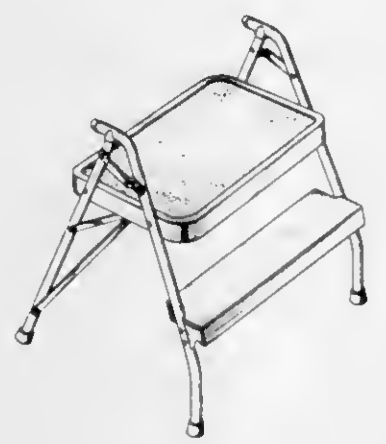
225,491
HEADBOARD FOR A BEDSTEAD OR SIMILAR ARTICLE
Huey T. Keller, 1710 Bristol Place,
High Point, N.C. 27262
Filed Aug. 10, 1970, Ser. No. 24,383
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D5—4



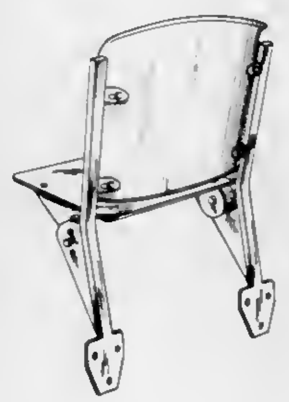
225,492
FOOTSTOOL
Percy A. Swank, 5708 Lewisburg-Ozias Road,
Lewisburg, Ohio 45338
Filed Mar. 8, 1971, Ser. No. 122,261
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—32



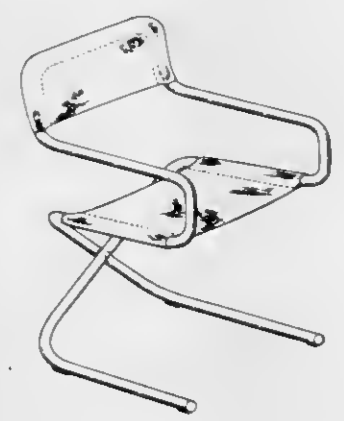
225,493
FOLDING STEP LADDER
Joseph V. Rossi, Chicago, Ill., assignor to Comfort Lines, Inc., Chicago, Ill.
Filed May 6, 1971, Ser. No. 141,092
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—35



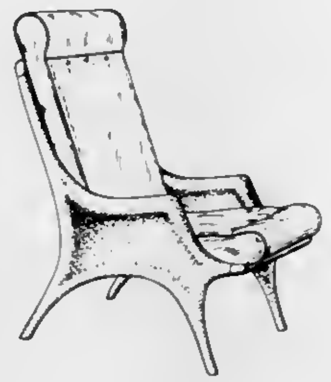
225,494
FOLDABLE STADIUM SEAT
Claude W. Ahrens, W. Highway 6,
Grinnell, Iowa 50112
Filed Apr. 16, 1971, Ser. No. 134,914
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—41



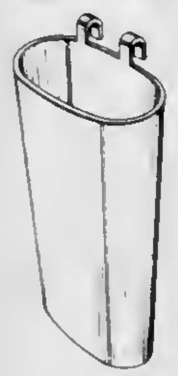
225,495
CHAIR
Thomas Lamb, 349 Wellseley St. E.,
Toronto 5, Ontario, Canada
Filed Apr. 8, 1971, Ser. No. 132,625
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—67



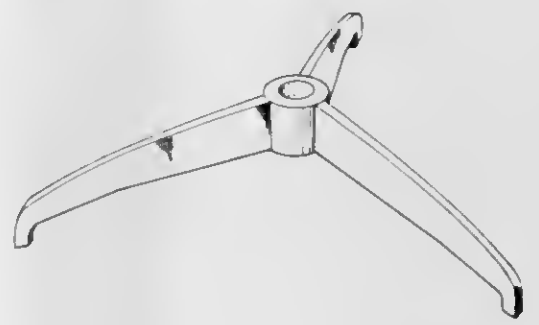
225,496
CHAIR
John D. Rice, 3226 Lawndale Drive,
Greensboro, N.C. 27408
Filed Apr. 7, 1971, Ser. No. 132,259
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—71



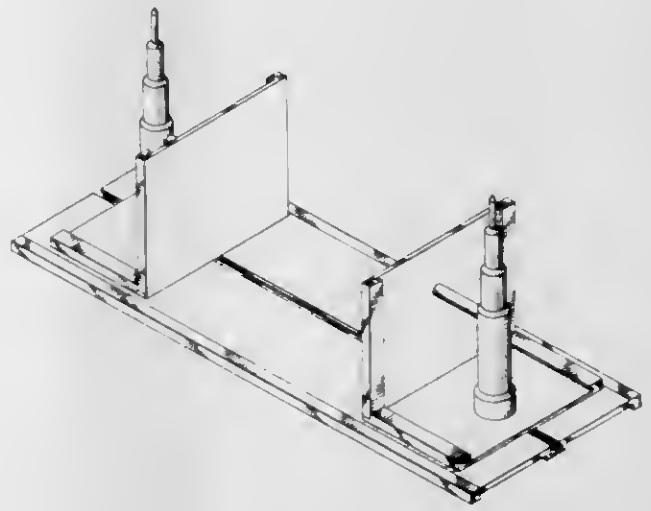
225,497
TOOTHPASTE HOLDER
Rachelle R. Smith, R.D. 2,
Mars, Pa. 16046
Filed Apr. 9, 1971, Ser. No. 132,937
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—95



225,498
TREE STANDS
Ian F. Norton, Toronto, Ontario, Canada, assignor to Noma Lites Canada Limited, Scarborough, Ontario, Canada
Filed Feb. 24, 1971, Ser. No. 118,591
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—105

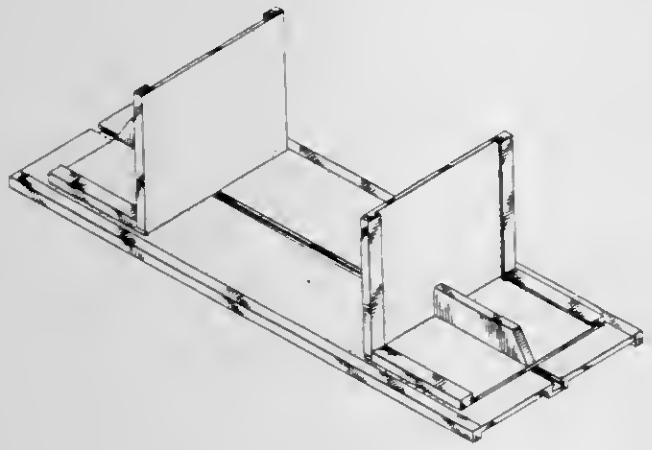


225,499
BOOKHOLDER OR SIMILAR ARTICLE
Gerald F. Lewis, 1850 Columbia,
Berkley, Mich. 48072
Filed Mar. 4, 1971, Ser. No. 121,233
Term of patent 3½ years
Int. Cl. D6—*99*
U.S. Cl. D6—106



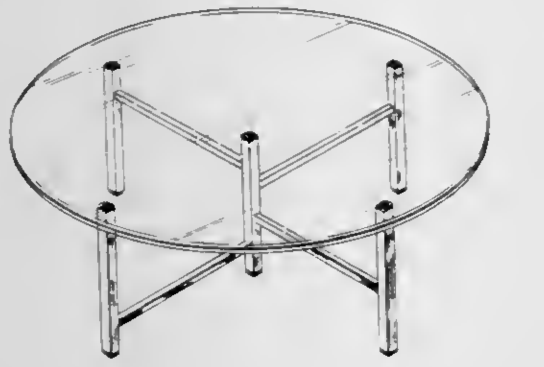
225,500
BOOKHOLDER OR SIMILAR ARTICLE

Gerald F. Lewis, 1850 Columbia,
Berkley, Mich. 48072
Filed Mar. 4, 1971, Ser. No. 121,235
Term of patent 3½ years
Int. Cl. D6—*99*
U.S. Cl. D6—106



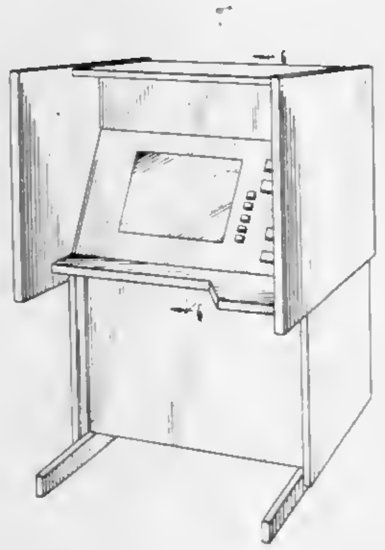
225,501
TABLE

Charles N. Apple, Jr., Greensboro, N.C., assignor to
Metafab Industries, Incorporated, Greensboro, N.C.
Filed Mar. 4, 1971, Ser. No. 120,910
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—146



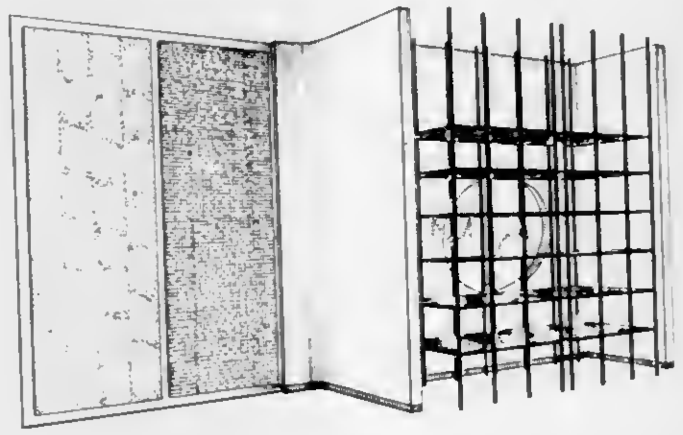
225,502
INTERROGATION APPARATUS CARREL

Walter M. Miller, Arlington Heights, Ill., assignor to
Medequip Corporation
Filed Nov. 18, 1970, Ser. No. 26,060
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—181



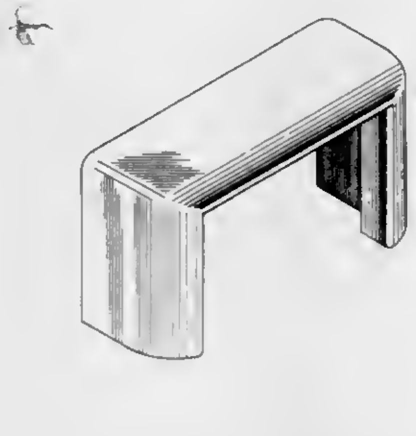
225,503
MERCHANDISE DISPLAY AND STORAGE UNIT

Vincent J. Simarano, 186 Reservoir St.,
Marlboro, Mass. 01752
Filed Mar. 18, 1971, Ser. No. 125,926
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—190



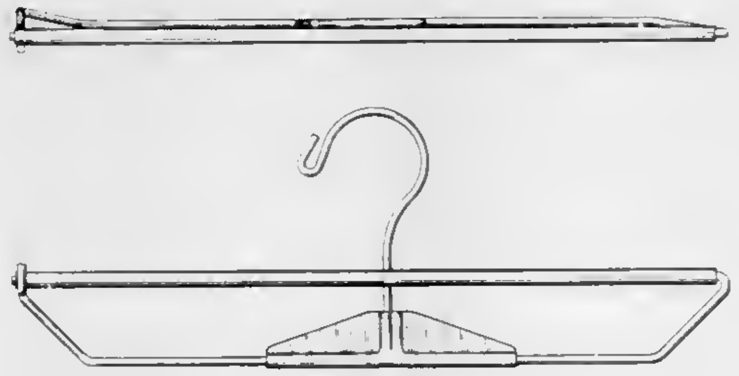
225,504
DECORATIVE CAP FOR USE ON A CHAIR BACK SUPPORT UPRIGHT OR THE LIKE

Wayne W. Good, Sturgis, Mich., assignor to
Harter Corporation, Sturgis, Mich.
Filed Aug. 26, 1970, Ser. No. 24,701
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—192



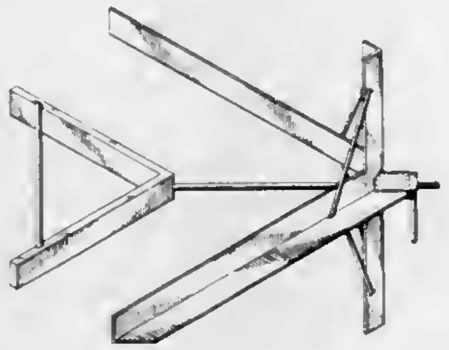
225,505
TROUSER HANGER

John J. Sullivan, 3920 Granby St.,
Norfolk, Va. 23504
Filed Nov. 9, 1971, Ser. No. 197,197
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—252



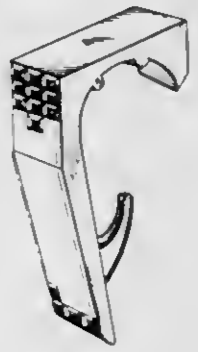
225,506
CLAMP FOR CORNER CONCRETE FORMS

Daniel Priore, 2265 SW. 15th St.,
Miami, Fla. 33145
Filed May 7, 1971, Ser. No. 141,462
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—72



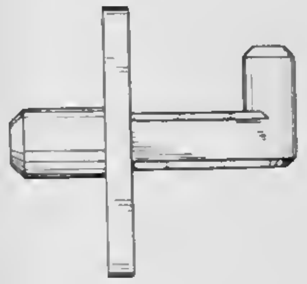
225,507
SUSPENSION HOOK FOR A CURTAIN, OR THE LIKE

Paul Hirschl, 177 Madison Ave.,
New York, N.Y. 10016
Filed Jan. 10, 1972, Ser. No. 216,904
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—248



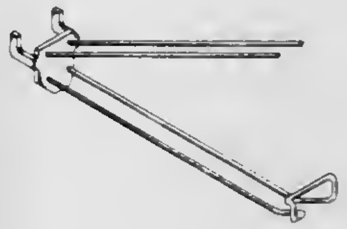
225,508
CABINET SHELF BRACKET

Dixon L. Freeman, 6806 Opal Lane SW.,
Tacoma, Wash. 98498
Filed July 28, 1971, Ser. No. 167,068
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—255



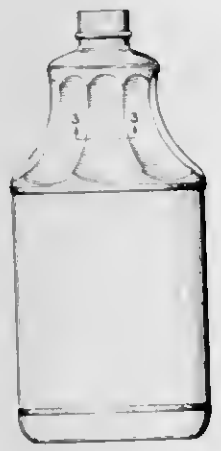
225,509
NUT AND BOLT HOLDER OR SIMILAR ARTICLE

George G. Charlton, Rte. 3, Box 67,
Ellensburg, Wash. 98926
Filed Aug. 16, 1971, Ser. No. 172,361
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—255



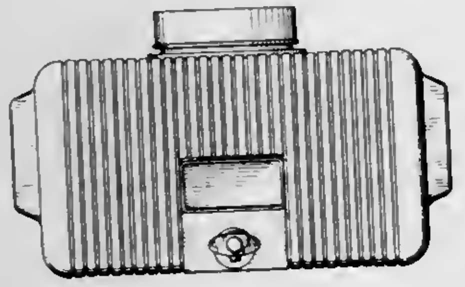
225,510
BOTTLE

Gordon A. Strand, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Oct. 1, 1971, Ser. No. 185,927
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—92



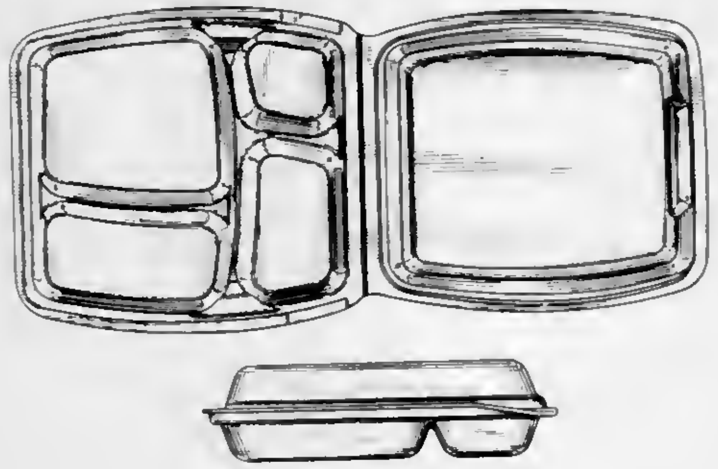
225,511
CONTAINER FOR LIQUIDS

Joseph D. Brown, Stamford, Conn., assignor to Poloron Products, Inc., New Rochelle, N.Y.
Filed Sept. 9, 1971, Ser. No. 179,260
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—175



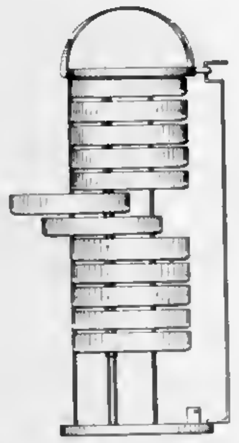
225,512
COVERED HOT FOOD TRAY

Steven J. Cyr and Mark W. Whelan, Chippewa Falls, Wis., and John A. Krause, Tucker, Ga., assignors to Standard Oil Company, Chicago, Ill.
Filed Dec. 16, 1970, Ser. No. 26,537
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—185



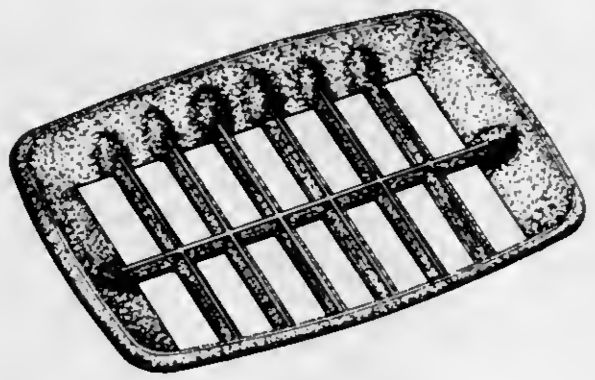
225,513
REVOLVING TRAY STORAGE UNIT

Bruce Waag, 4 Poplar Place, Bayshore, N.Y. 11706
Filed Jan. 14, 1971, Ser. No. 106,627
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—232



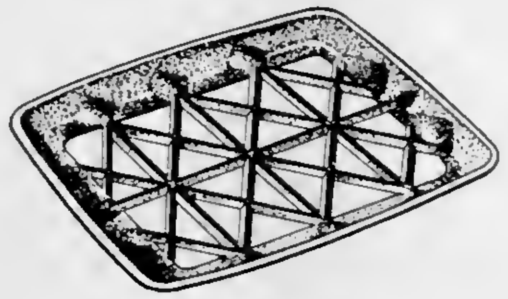
225,514
MOLDED PACKAGING TRAY FOR MEAT OR THE LIKE

Richard F. Reifers, New Canaan, Conn., and Kenneth D. Bixler, Huntington, N.Y., assignors to Diamond International Corporation, New York, N.Y.
Filed Jan. 27, 1971, Ser. No. 110,369
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—219



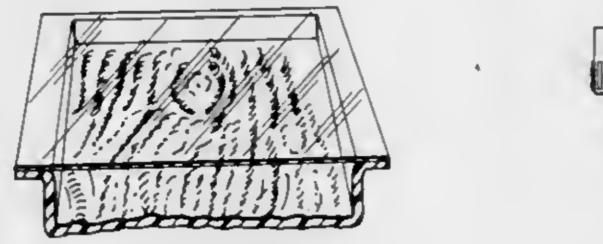
225,515
MOLDED PACKAGING TRAY FOR MEAT OR THE LIKE

Richard F. Reifers, New Canaan, Conn., and Kenneth D. Bixler, Huntington, N.Y., assignors to Diamond International Corporation, New York, N.Y.
Filed Jan. 27, 1971, Ser. No. 110,370
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—219



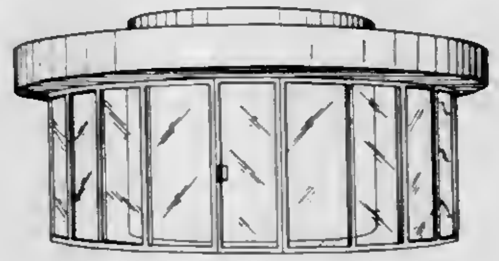
225,516
COMBINED MOLD AND PACKING TRAY FOR A CONFECTION

Robert W. Schumann, Brookfield, Wis., assignor to W. R. Grace & Co., New York, N.Y.
Continuation-in-part of design application Ser. No. 20,534, Dec. 17, 1969. This application Feb. 25, 1971, Ser. No. 119,080
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—240



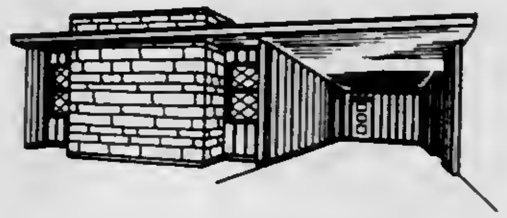
225,517
PETROLEUM PRODUCTS SERVICE STATION

Robert Coplon, Verona, N.J., assignor to Supermarkets General Corporation, Woodbridge, N.J.
Filed July 7, 1970, Ser. No. 23,850
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1



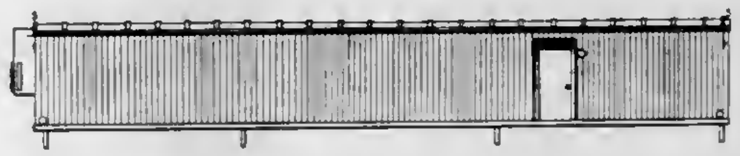
225,518
RESIDENTIAL BUILDING

William J. McNell, 504 11th Ave., Rock Island, Ill. 61201
Filed Mar. 23, 1971, Ser. No. 127,425
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1



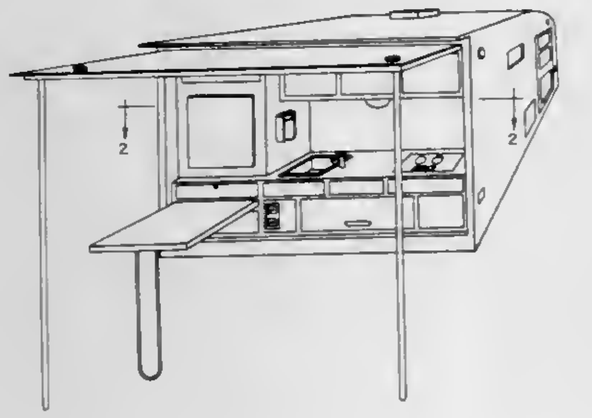
225,519
PROGRAMMED PSYCHOMOTOR LEARNING LABORATORY

James T. Glisson, Evinston, Fla., assignor to Motivation Systems, Inc., Gainesville, Fla.
Filed Aug. 18, 1970, Ser. No. 24,563
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1



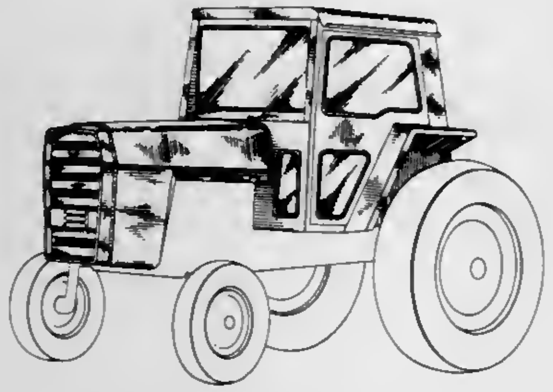
225,520
COMBINED TRAILER AND KITCHEN UNIT
Wayne F. Kathmann, R.F.D. 1,
Templeton, Iowa 51463
Filed Mar. 25, 1971, Ser. No. 128,227
Term of patent 14 years
Int. Cl. D12—*10*

U.S. Cl. D14—3



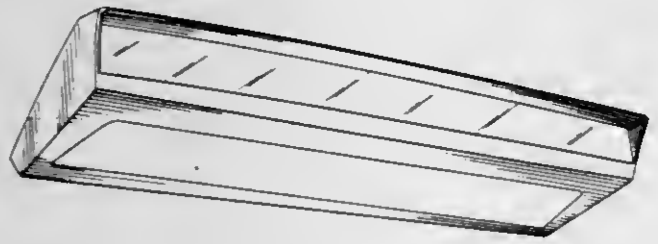
225,521
TRACTOR
Leo J. Lorenz, Farmington, and Wilford E. Bean, Southfield, Mich., assignors to Massey-Ferguson Inc., Detroit, Mich.
Filed May 6, 1971, Ser. No. 141,086
Term of patent 14 years
Int. Cl. D12—*09*

U.S. Cl. D14—3



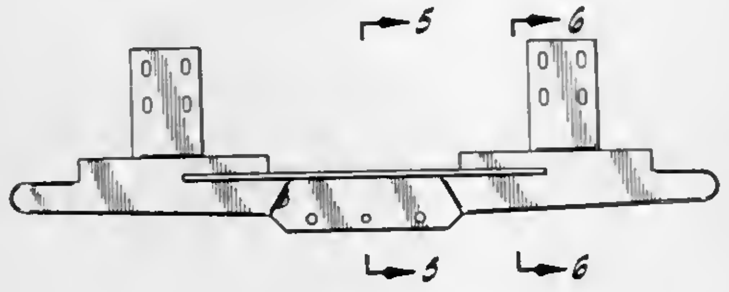
225,522
PERISCOPE-TYPE REAR VIEW MIRROR
Lynn Harold Hodge, 841 McNichols W.,
Highland Park, Mich. 48203
Filed Apr. 6, 1970, Ser. No. 22,268
Term of patent 3½ years
Int. Cl. D12—*14*

U.S. Cl. D14—6



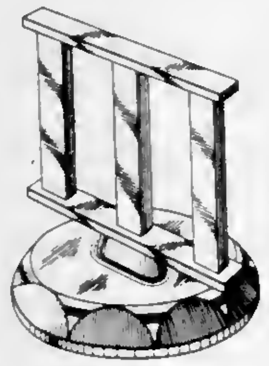
225,523
BUMPER
Paul B. Nuno, P.O. Box 19043,
Oklahoma City, Okla. 73119
Filed June 26, 1970, Ser. No. 23,693
Term of patent 14 years
Int. Cl. D12—*16*

U.S. Cl. D14—6



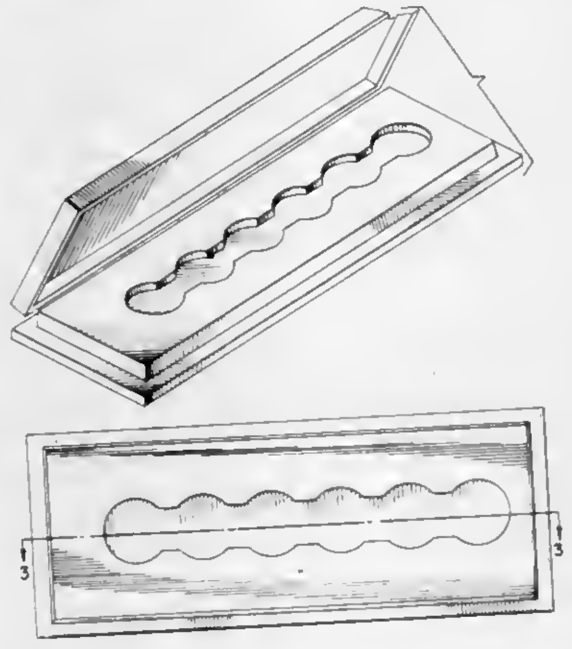
225,524
HOOD ORNAMENT FOR AUTOMOBILE
Roger J. Harris, 6116 Lemmon Ave.,
Dallas, Tex. 75209
Filed Jan. 27, 1971, Ser. No. 110,380
Term of patent 14 years
Int. Cl. D12—*16*

U.S. Cl. D14—18



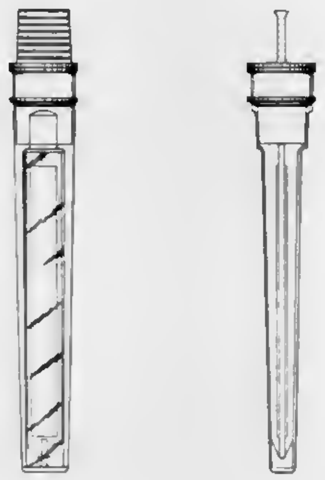
225,525
BIOLOGICAL TESTING DEVICE
Stanley R. Johnson, Fountain Valley, and Arthur P. Stewart, Irvine, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Dec. 21, 1970, Ser. No. 26,609
Term of patent 14 years
Int. Cl. D24—*02*

U.S. Cl. D16—1



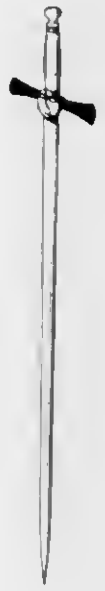
225,526
CULTURE DEVICE
Ronald Baum, Merion Station, and Anthony J. Calabrese, Malvern, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.
Filed July 8, 1971, Ser. No. 160,994
Term of patent 14 years
Int. Cl. D24—*02*

U.S. Cl. D16—1



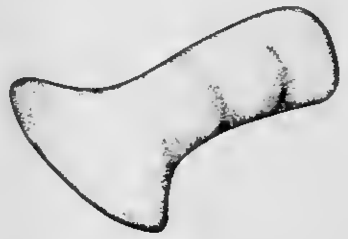
225,527
SWORD
Eric L. Cole, London, England, assignor to Wilkinson Sword Limited, London, England
Filed May 5, 1971, Ser. No. 140,634
Claims priority, application Great Britain Dec. 4, 1970
Term of patent 14 years
Int. Cl. D22—*02*

U.S. Cl. D22—1



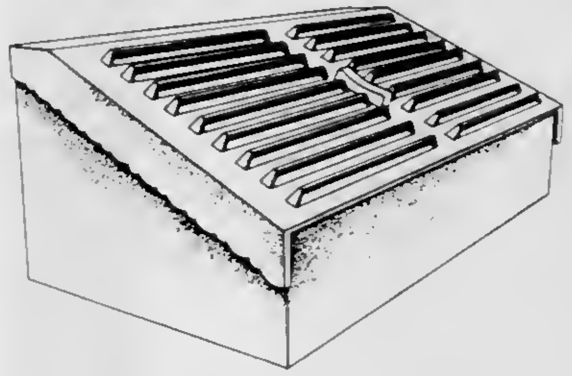
225,528
PISTOL GRIP FOR FISHING ROD
John R. Tate, 5351 Santa Monica Cove, and Jimmy C. Pigg, 1312 Marlin Road, both of Memphis, Tenn. 38116
Filed May 3, 1971, Ser. No. 139,993
Term of patent 14 years
Int. Cl. D22—*05*

U.S. Cl. D22—23



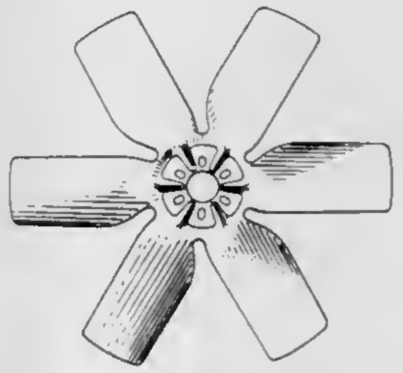
225,529
HOUSING FOR HUMIDIFIER OR DEFLECTOR OR THE LIKE
Salvatore R. De Marco, Cherry Hill Township, Camden, County, N.J., assignor to Moisture Vent, Inc., Woodbury, N.J.
Continuation-in-part of design application Ser. No. 24,873, Sept. 8, 1970. This application Feb. 22, 1971, Ser. No. 117,857
Term of patent 14 years
Int. Cl. D23—*04*

U.S. Cl. D23—146



225,530
COOLING FAN
Robert C. Pommert, Pacific, Wash., assignor to Flexalite Corporation, Tacoma, Wash.
Filed May 6, 1971, Ser. No. 141,090
Term of patent 14 years
Int. Cl. D23—*04*

U.S. Cl. D23—165

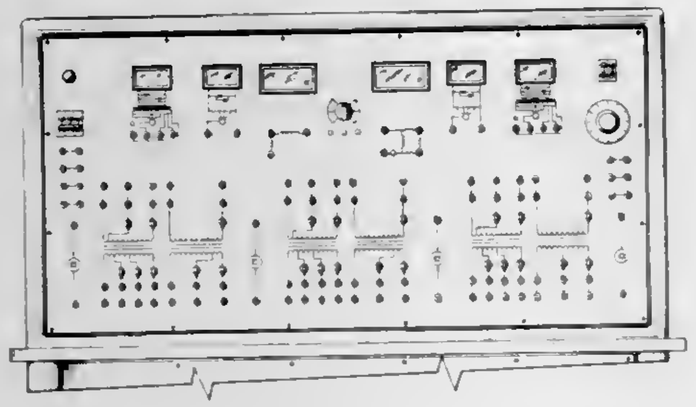


225,531

TRANSFORMER LEARNING CENTER

Daniel M. Flynn, Hampden, Stanley J. Bandoski, Jr., Springfield, and William R. Clow, Agawam, Mass., assignors to Hampden Engineering Company, East Longmeadow, Mass.
Filed July 28, 1970, Ser. No. 24,177
Term of patent 14 years
Int. Cl. D19—*07*

U.S. Cl. D25—1

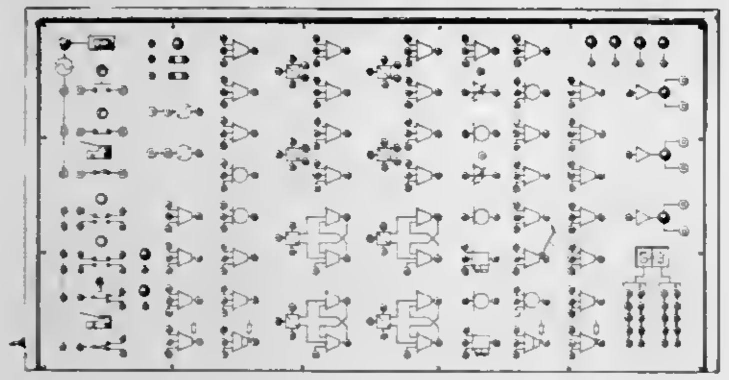


225,532

SOLID STATE LOGIC LEARNING CENTER

Daniel M. Flynn, Hampden, Stanley J. Bandoski, Jr., Springfield, and William R. Clow, Agawam, Mass., assignors to Hampden Engineering Company, East Longmeadow, Mass.
Filed July 28, 1970, Ser. No. 24,179
Term of patent 14 years
Int. Cl. D19—*07*

U.S. Cl. D25—1

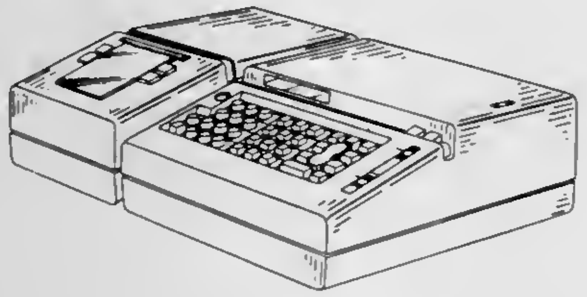


225,533

ELECTRONIC PRINTING CALCULATOR

Mario Bellini, Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Torino, Italy
Filed Oct. 13, 1970, Ser. No. 25,476
Claims priority, application Italy Apr. 27, 1970
Term of patent 14 years
Int. Cl. D14—*02*

U.S. Cl. D26—5

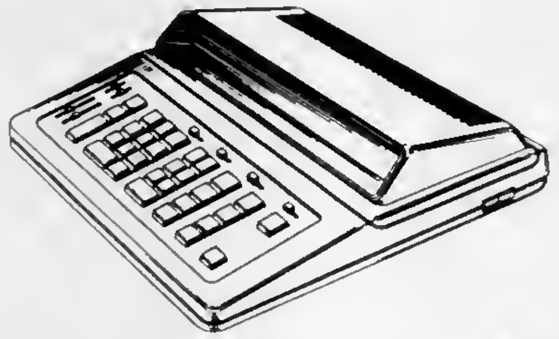


225,534

ELECTRONIC CALCULATING MACHINE

Katumi Jimbo, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan
Filed Nov. 11, 1971, Ser. No. 198,074
Claims priority, application Japan May 14, 1971
Term of patent 14 years
Int. Cl. D14—*02*

U.S. Cl. D26—5

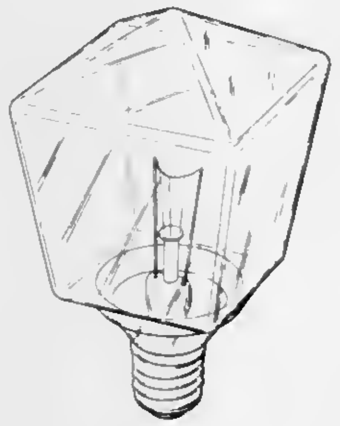


225,535

LIGHT BULB OR THE LIKE

Yasuhiko Watanabe, 2779 Takado-cho, Kohoku-ku, Yokohama, Japan
Filed Apr. 5, 1971, Ser. No. 131,589
Term of patent 14 years
Int. Cl. D26—*04*

U.S. Cl. D26—8

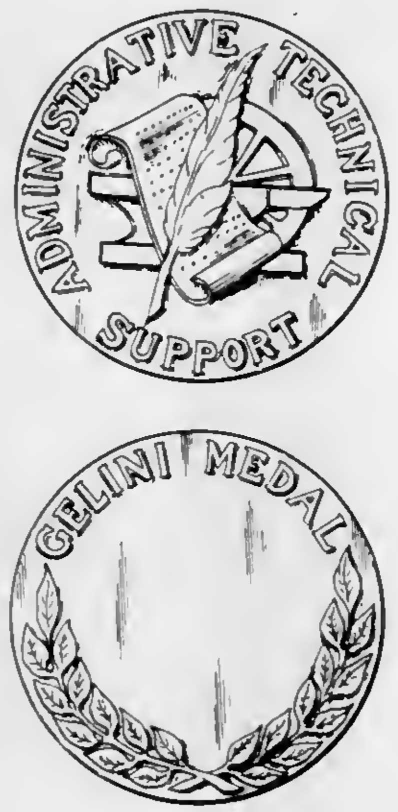


225,536

MEDAL OR SIMILAR ARTICLE

Adolph H. Humphreys, Fairfax, Va., assignor to the United States of America as represented by the Secretary of the Army
Filed Mar. 26, 1971, Ser. No. 128,656
Term of patent 14 years
Int. Cl. D11—*03*

U.S. Cl. D29—19

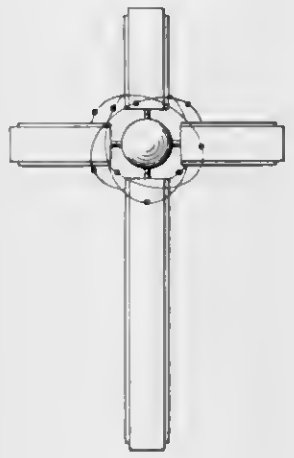


225,537

ALTAR CROSS OR THE LIKE

Arthur C. Bowers, 2919 Coconut Ave., Miami, Fla. 33133
Filed Apr. 20, 1971, Ser. No. 135,818
Term of patent 3½ years
Int. Cl. D11—*02*

U.S. Cl. D29—23

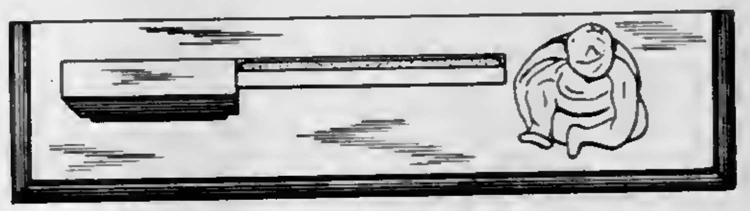


225,538

PHOTO TROPHY

Tommie J. Culley, 11127 Ebert Drive, St. Louis, Mo. 63136
Filed June 29, 1971, Ser. No. 158,143
Term of patent 14 years
Int. Cl. D11—*02*

U.S. Cl. D29—28

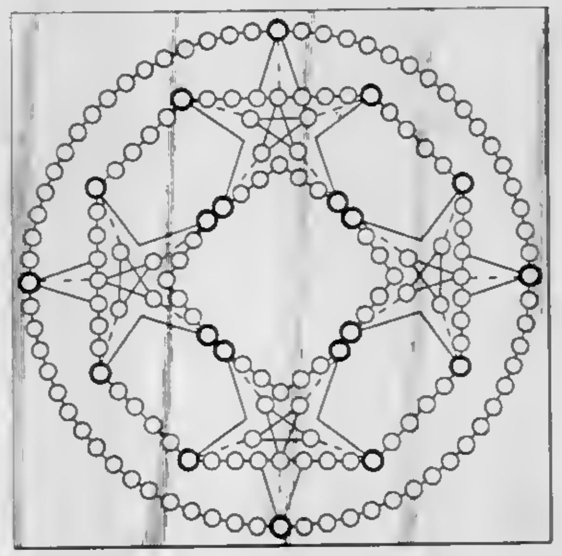


225,539

GAME BOARD

James Hubert Guthrie, 35 Willis Lane, St. Albans, W. Va. 25177
Filed Apr. 3, 1970, Ser. No. 22,237
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—5

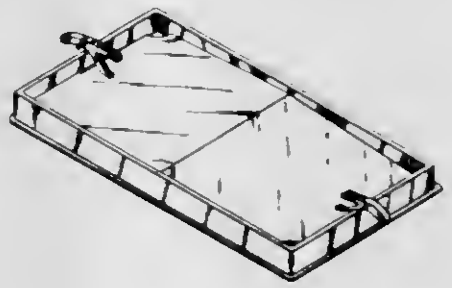


225,540

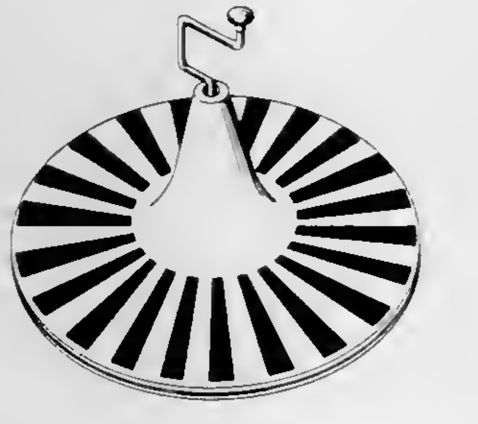
GAME BOARD

Yasuta Satoh, 758 5-chome, Matsugaoka, Chiba, Japan
Filed Feb. 12, 1971, Ser. No. 115,159
Claims priority, application Japan Aug. 27, 1970
Term of patent 14 years
Int. Cl. D21—*01*

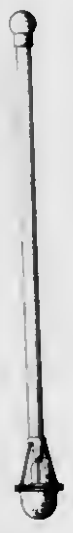
U.S. Cl. D34—5



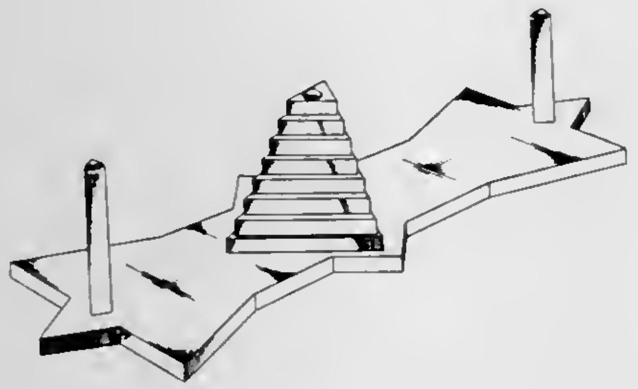
225,541
TOY ROUNDABOUT
Terry J. Simpkins, Dublin, Ohio, assignor to Richardson/Smith, Incorporated, Worthington, Ohio
Filed Mar. 26, 1971, Ser. No. 128,633
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



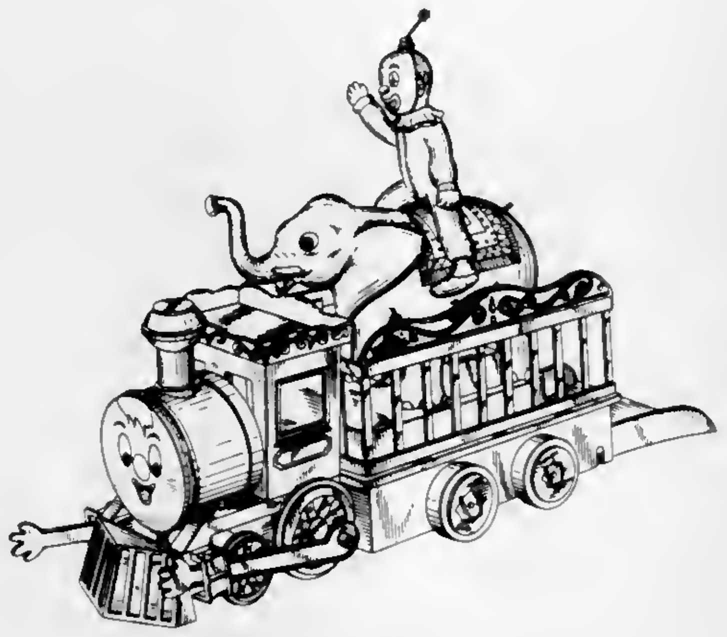
225,542
TOY FILM BURSTING CANE
Lawrence H. Strayer, Kent, Ohio, and Kenneth W. Pratt, Beltsville, Md., assignors to Funtime Products, Inc., Arlington, Va.
Filed Apr. 20, 1971, Ser. No. 135,830
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—15



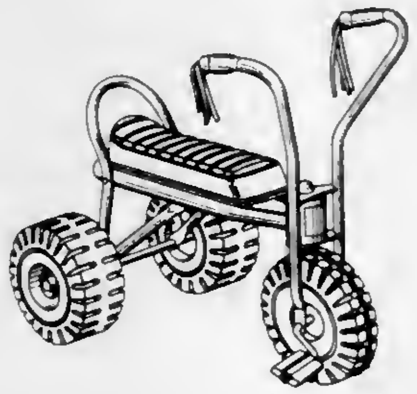
225,543
TRANSFER GAME PUZZLE
Patrick T. Hardesty, 1224 N. Shaver, Springfield, Oreg. 97266
Filed Apr. 23, 1971, Ser. No. 137,116
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—15



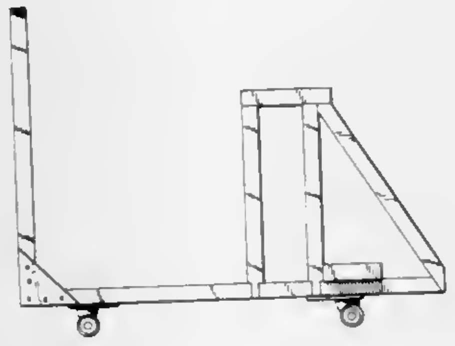
225,544
VEHICULAR TOY
Norman Spiegel, 145 E. 15th St., New York, N.Y. 10003
Filed Apr. 27, 1971, Ser. No. 138,013
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



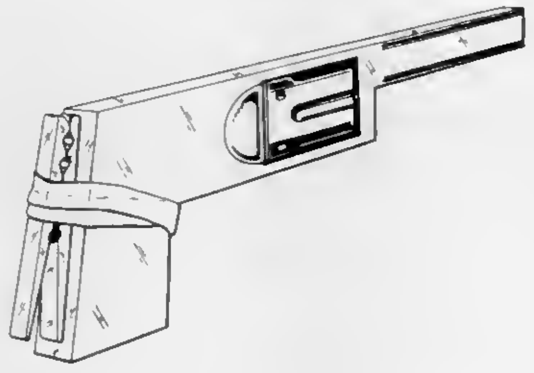
225,545
TRICYCLE
Stanley M. Novak, Jr., Olney, Ill., assignor to AMF Incorporated, White Plains, N.Y.
Filed May 5, 1971, Ser. No. 140,642
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D34—15



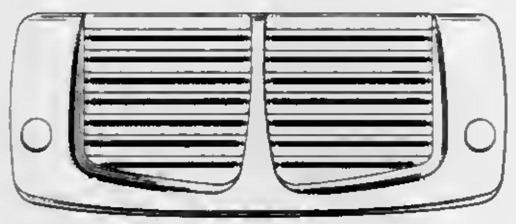
255,546
SIDEWALK SCOOTER
Johnnie D. Taylor, 3040 Park Ave. S., Minneapolis, Minn. 55407
Filed June 3, 1971, Ser. No. 149,878
Term of patent 14 years
Int. Cl. D12—99
U.S. Cl. D34—15



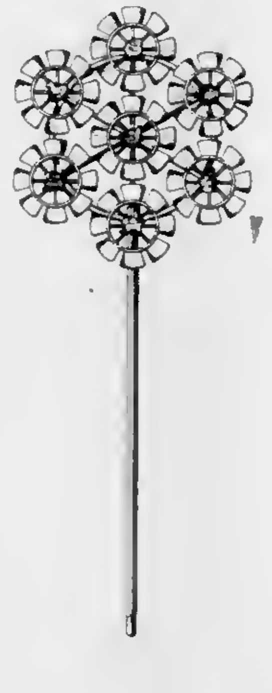
225,547
CHILD'S TOY GUN
Roy D. Griffin, also known as Roy Dee Griffin, Sr., 4025 Terrace St. S., Amarillo, Tex. 79109
Filed June 23, 1971, Ser. No. 156,162
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



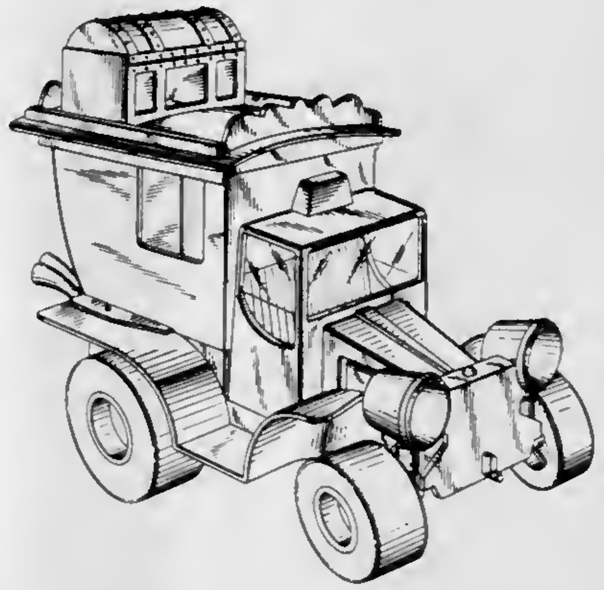
225,548
TRICYCLE REAR STEP DECK
Frederick E. Purdy, Olney, Ill., assignor to AMF Incorporated
Filed June 25, 1971, Ser. No. 157,081
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D34—15



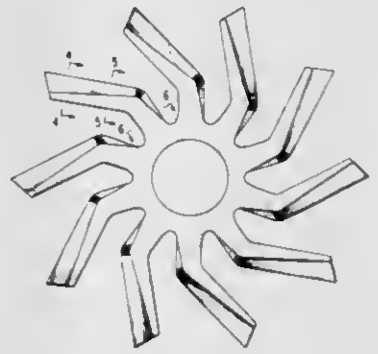
225,549
PIN WHEEL TOY OR SIMILAR ARTICLE
Arthur Halpern, 40 E. 9th St., New York, N.Y. 10003
Filed Aug. 5, 1971, Ser. No. 169,593
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



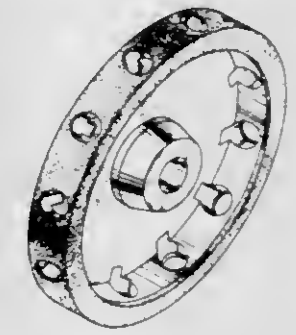
225,550
TOY VEHICLE
Sal Leone, Brentwood, N.Y., assignor to Louis Marx & Co., Inc., New York, N.Y.
Filed Aug. 18, 1971, Ser. No. 172,615
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



225,551
ROTARY HOE
William G. Moore, Albany, Ga., assignor to Lilliston Corporation, Albany, Ga.
Continuation-in-part of design applications Ser. No. 24,251 and Ser. No. 24,252, July 31, 1970. This application Apr. 22, 1971, Ser. No. 136,641
Term of patent 14 years
Int. Cl. D15—*03, 99*
U.S. Cl. D39



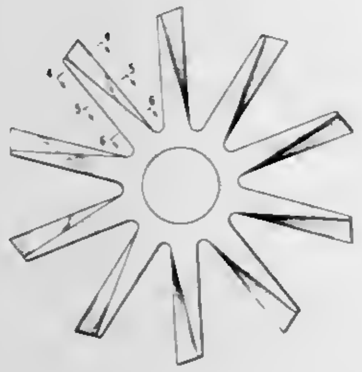
225,552
AIR COOLED TIRE RASPING WHEEL
Alton E. Tobey, 2203 Mission St., Santa Cruz, Calif. 95060
Filed Jan. 4, 1971, Ser. No. 103,946
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D37—1



225,553
ROTARY HOE

William G. Moore, Albany, Ga., assignor to Lilliston Corporation, Albany, Ga.
Continuation-in-part of design applications Ser. No. 24,253 and Ser. No. 24,254, July 31, 1970. This application Apr. 22, 1971, Ser. No. 136,663
Term of patent 14 years
Int. Cl. D15—*03, 99*

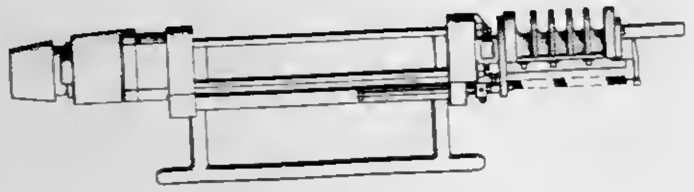
U.S. Cl. D39—1



225,554
HYDRAULIC JACK FOR PRESTRESSING CONCRETE

James W. Howlett, Oakland, Calif., assignor to Howlett Machine Works
Filed July 6, 1971, Ser. No. 160,255
Term of patent 14 years
Int. Cl. D15—*04*

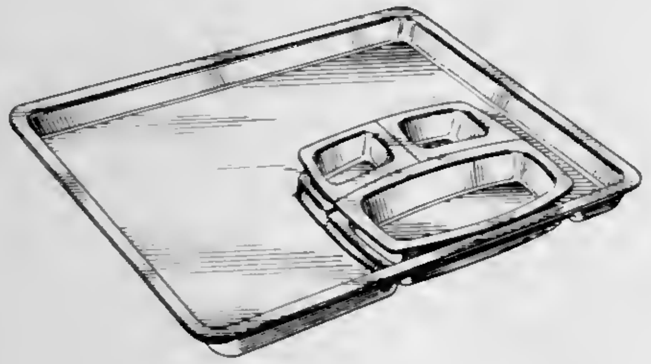
U.S. Cl. D41—3



225,555
COMBINED MULTI-UNIT DISH SET AND TRAY HOLDER THEREFOR

Steven J. Cyr and Mark W. Whelan, Chippewa Falls, Wis., assignors to Standard Oil Company, Chicago, Ill.
Filed Dec. 16, 1970, Ser. No. 26,522
Term of patent 14 years
Int. Cl. D7—*01*

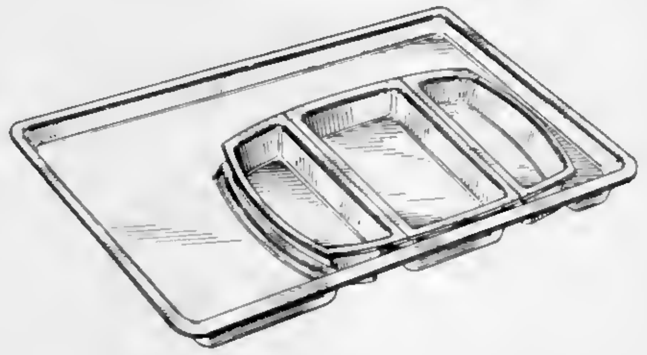
U.S. Cl. D44—10



225,556
COMBINED MULTI-UNIT DISH SET AND TRAY HOLDER THEREFOR

Steven J. Cyr and Mark W. Whelan, Chippewa Falls, Wis., assignors to Standard Oil Company, Chicago, Ill.
Filed Dec. 16, 1970, Ser. No. 26,523
Term of patent 14 years
Int. Cl. D7—*01*

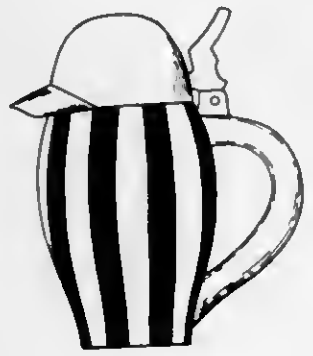
U.S. Cl. D44—10



225,557
COVERED PITCHER

Jack E. Brown, 47 Larkspur Road, North Stamford, Conn.
Filed Mar. 31, 1971, Ser. No. 130,056
Term of patent 3½ years
Int. Cl. D7—*01*

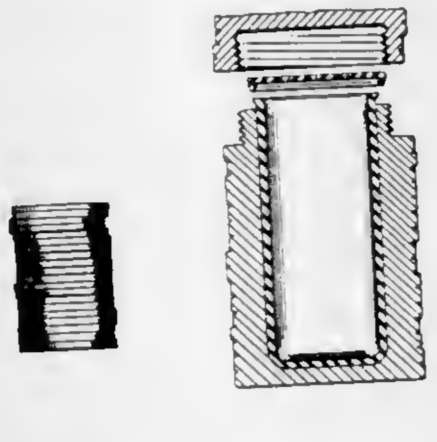
U.S. Cl. D44—21



225,558
CONDIMENT DISPENSER

Robert L. Soper, P.O. Box 2004, Stockton, Calif. 95210, and Ruth Abel, 14516 12th NE., Seattle, Wash. 98115
Filed June 3, 1970, Ser. No. 23,263
Term of patent 14 years
Int. Cl. D7—*06*

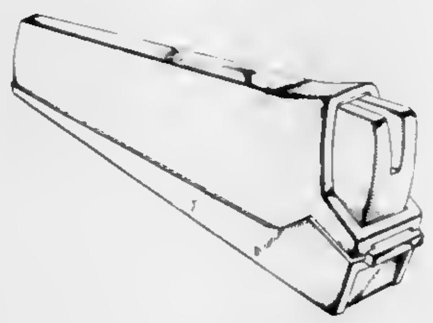
U.S. Cl. D44—22



225,559
SCABBARD FOR A KNIFE

Peter K. Bayly, Melbourne, Victoria, Australia, assignor to Wiltshire Cutlery Company Proprietary Limited, Tottenham, Victoria, Australia
Filed June 22, 1971, Ser. No. 155,687
Claims priority, application Australia Dec. 24, 1970
Term of patent 14 years
Int. Cl. D7—*02*

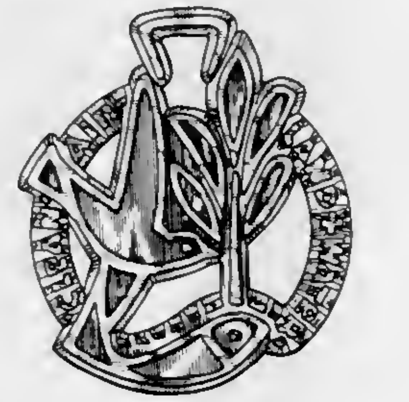
U.S. Cl. D44—29



225,560
PENDANT

Ade Bethune, Newport, R.I., assignor to Terra-Sancta Creations, Inc., Philadelphia, Pa.
Filed Nov. 18, 1970, Ser. No. 26,064
Term of patent 14 years
Int. Cl. D11—*01*

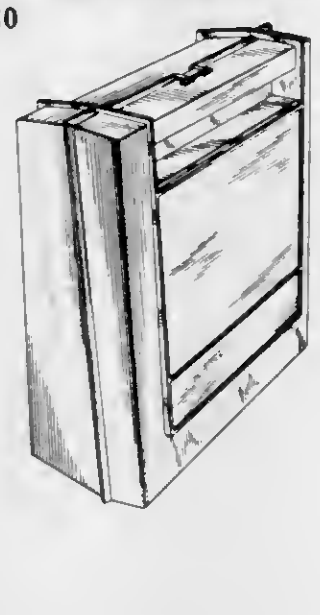
U.S. Cl. D45—16



225,561
CABINET FOR A SUN LAMP

Thomas Mills, Lombard, Ill., assignor to Canrad Precision Industries, Inc., Pelham, N.Y.
Filed Apr. 30, 1971, Ser. No. 139,030
Term of patent 14 years
Int. Cl. D26—*99*

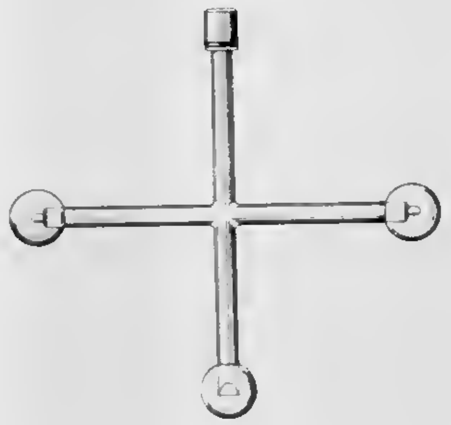
U.S. Cl. D48—20



225,562
COMBINED TIRE TOOL AND DOUBLE WARNING LAMP

Willis E. Green, 7201 Main Ave., Orangevale, Calif. 95662
Filed Nov. 3, 1971, Ser. No. 195,531
Term of patent 14 years
Int. Cl. D8—*05;* D26—*99*

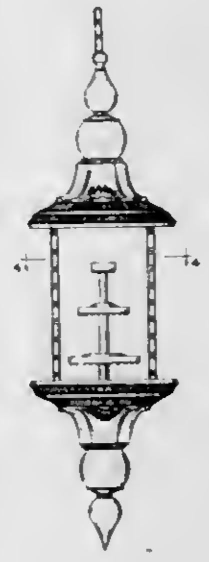
U.S. Cl. D48—20



225,563
HANGING FOUNTAIN LAMP

Marvin A. Mackey, 10818 NE. 117th Ave., Vancouver, Wash. 98662
Filed Jan. 28, 1971, Ser. No. 110,790
Term of patent 14 years
Int. Cl. D26—*05*

U.S. Cl. D48—23



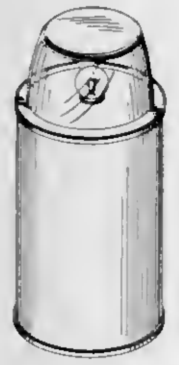
225,564

SURVIVAL LAMP OR SIMILAR ARTICLE

David T. McArthur, Santa Ana, Calif., assignor to Survival Oriented Systems Company, Corona Del Mar, Calif.

Filed June 8, 1971, Ser. No. 151,167
Term of patent 14 years
Int. Cl. D26—*02*

U.S. Cl. D48—24



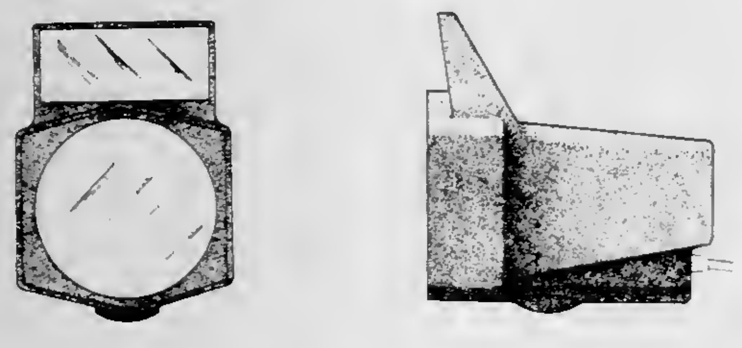
225,565

PORTABLE LIGHT

Emery G. Audesse, Salem, John J. Vetere, Beverly, and Arnold E. Westlund, Jr., Manchester, Mass., assignors to GTE Sylvania Incorporated

Filed Aug. 23, 1971, Ser. No. 174,292
Term of patent 14 years
Int. Cl. D26—*02*

U.S. Cl. D48—24



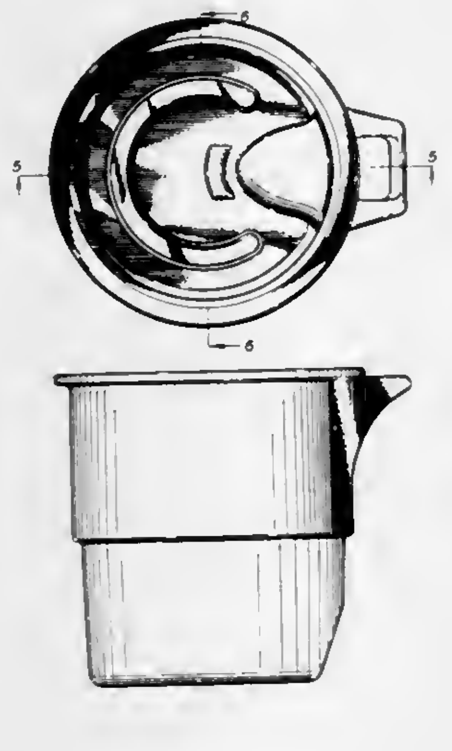
225,566

REFUSE CONTAINER

Anthony J. Brescia, Winchester, Va., assignor to Rubbermaid Commercial Products Inc., Winchester, Va.

Filed Aug. 17, 1971, Ser. No. 172,612
Term of patent 14 years
Int. Cl. D7—*06*

U.S. Cl. D49—30



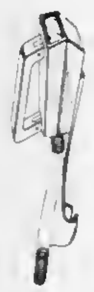
225,567

METER READOUT UNIT

Billy J. Harris, Paul L. Vergamini, and Edwin T. Yagelowich, Greensboro, N.C., assignors to Gilbert & Barker Manufacturing Company, New York, N.Y.

Filed July 9, 1970, Ser. No. 23,888
Term of patent 14 years
Int. Cl. D10—*04*

U.S. Cl. D52—6



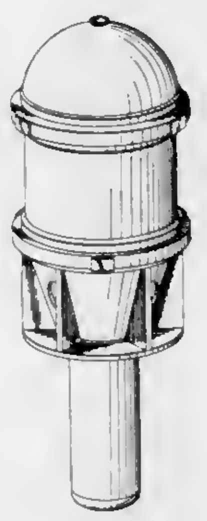
225,568

TIRE MOLD-PRESS OR THE LIKE

Robert D. McVay, Columbus, Ohio, assignor to United McGill Corporation, Columbus, Ohio

Filed May 14, 1971, Ser. No. 143,731
Term of patent 14 years
Int. Cl. D15—*99*

U.S. Cl. D54—13



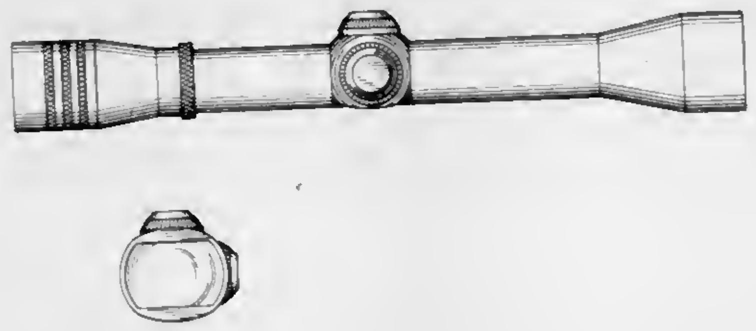
225,569

RIFLESCOPE

Donald J. Burris, Aurora, Colo., and John L. Maulbetsch, Northampton, Mass., assignors to Outdoor Sports Industries, Inc., Denver, Colo.

Filed Feb. 26, 1970, Ser. No. 21,649
Term of patent 14 years
Int. Cl. D16—*06*

U.S. Cl. D57—1



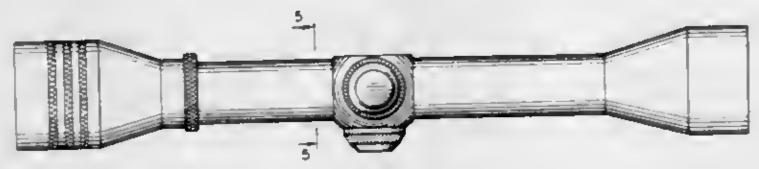
225,570

RIFLESCOPE

Donald J. Burris, Aurora, Colo., and John L. Maulbetsch, Northampton, Mass., assignors to Outdoor Sports Industries, Inc., Denver, Colo.

Filed Mar. 6, 1970, Ser. No. 21,761
Term of patent 14 years
Int. Cl. D16—*06*

U.S. Cl. D57—1



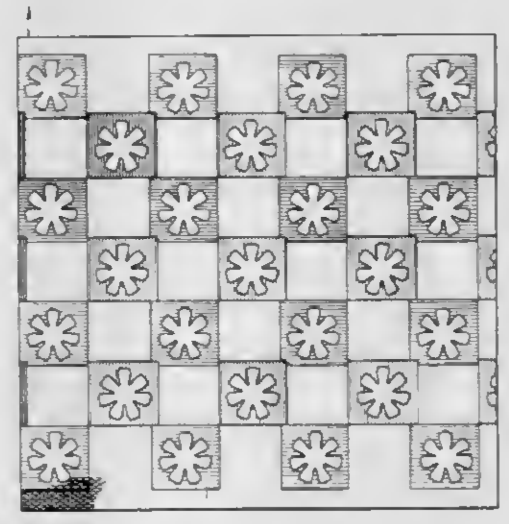
225,571

PAPER TOWELING

Marilyn J. Cross, Bay, Wis., assignor to Fort Howard Paper Company, Green Bay, Wis.

Filed Mar. 18, 1971, Ser. No. 125,910
Term of patent 14 years
Int. Cl. D5—*03*

U.S. Cl. D59—2



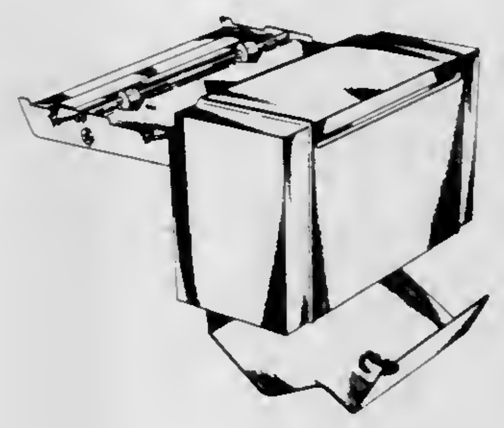
225,572

BOOK STACKING UNIT FOR XEROGRAPHIC REPRODUCTION MACHINE

Ruediger W. Knodt, Rochester, and Homer Korn, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

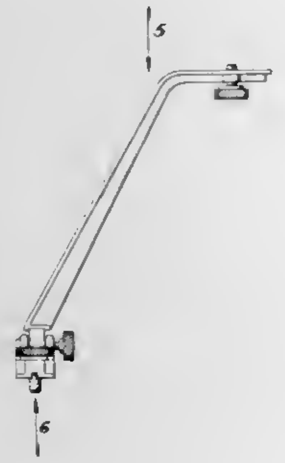
Filed Sept. 21, 1970, Ser. No. 25,071
Term of patent 14 years
Int. Cl. D16—*03*

U.S. Cl. D61—1



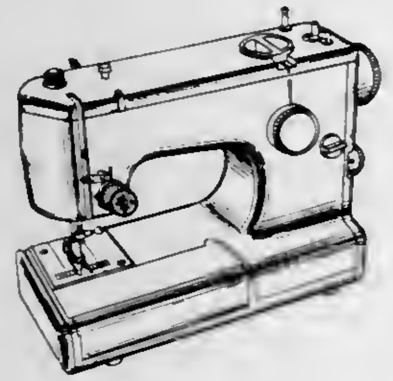
225,573
CAMERA SUPPORT BRACKET FOR A TRIPOD
Richard B. Jones, 930 W. Edgehill Road,
San Bernardino, Calif.
Filed June 18, 1971, Ser. No. 154,705
Term of patent 14 years
Int. Cl. D16—*05*

U.S. Cl. D61—1



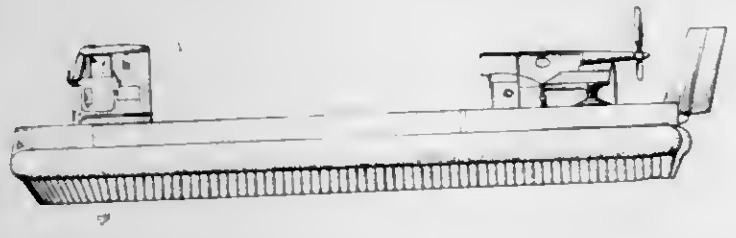
225,574
SEWING MACHINE
Kenneth Grange, London, England, Teiichi Nishigami, Moriguchi, Japan, and Charles A. Harrison, Chicago, Ill., assignors to Sears, Roebuck and Co., Chicago, Ill.
Filed Jan. 22, 1971, Ser. No. 109,088
Term of patent 14 years
Int. Cl. D15—*06*

U.S. Cl. D70—1



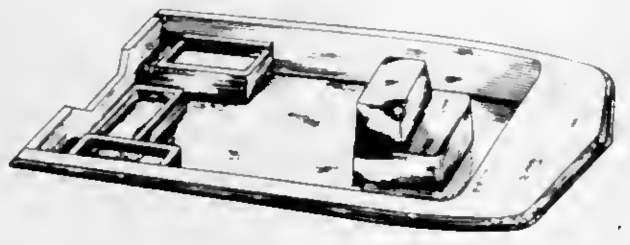
225,575
AIR CUSHIONED VEHICLE
Albert W. Courtial, Williamsville, N.Y., assignor to Textron Inc., Providence, R.I.
Filed Feb. 16, 1971, Ser. No. 115,933
Term of patent 14 years
Int. Cl. D12—*14*

U.S. Cl. D71—1



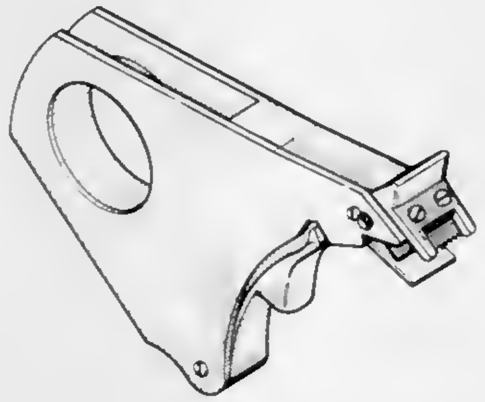
225,576
BOAT DECK
Jay A. Potsdam, Stuart, Fla., assignor to Gemini Marine, Inc., Stuart, Fla.
Filed Aug. 13, 1970, Ser. No. 24,465
Term of patent 14 years
Int. Cl. D12—*16*

U.S. Cl. D71—1



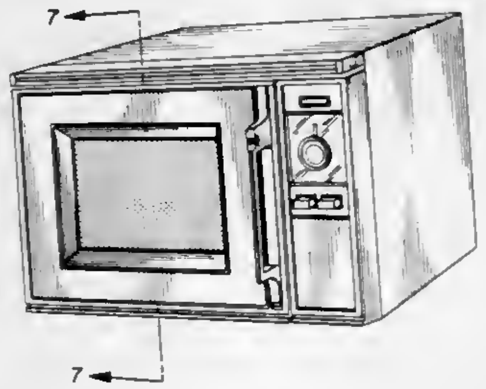
225,577
TAPE APPLICATOR
Elvin L. Boyce, Salt Lake City, Utah, assignor to Tape-Licator, Inc., Salt Lake City, Utah
Filed June 17, 1971, Ser. No. 154,252
Term of patent 14 years
Int. Cl. D19—*02*

U.S. Cl. D74—1



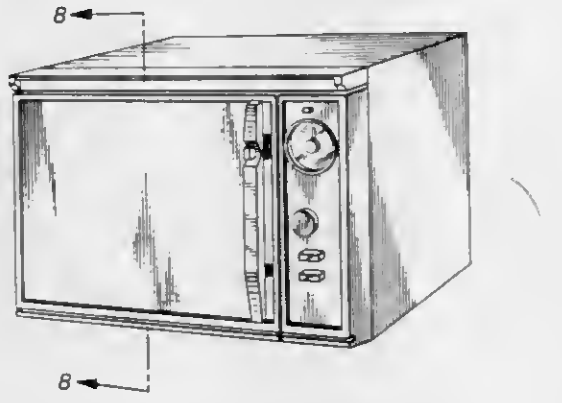
225,578
ELECTRONIC COOKING RANGE
Takao Miyake, Osaka, Japan, assignor to Sharp Kabushiki Kaisha (Sharp Corporation), Osaka, Japan
Filed Dec. 30, 1970, Ser. No. 26,699
Claims priority, application Japan July 10, 1970
Term of patent 14 years
Int. Cl. D7—*02*

U.S. Cl. D81—4



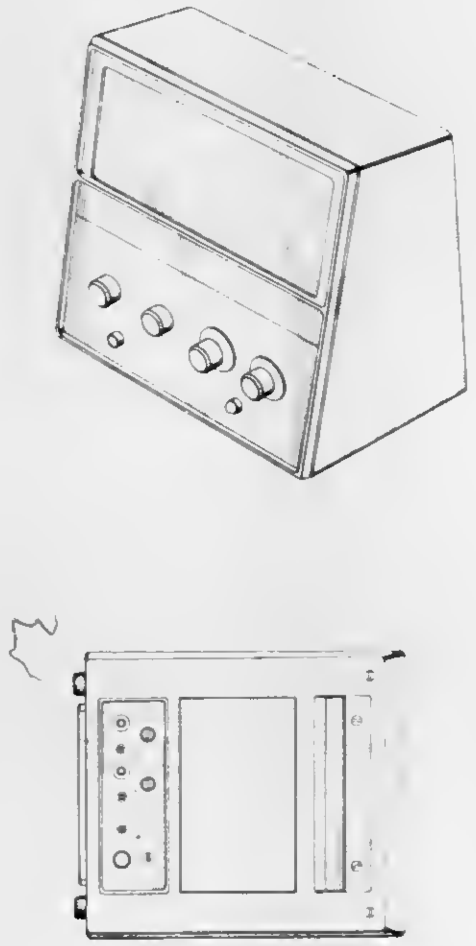
225,579
ELECTRONIC COOKING RANGE
Yoshio Suganoya and Takao Miyake, Osaka, Japan, assignors to Sharp Kabushiki Kaisha (Sharp Corporation), Osaka, Japan
Filed Dec. 31, 1970, Ser. No. 26,718
Claims priority, application Japan Oct. 1, 1970
Term of patent 14 years
Int. Cl. D7—*02*

U.S. Cl. D81—4



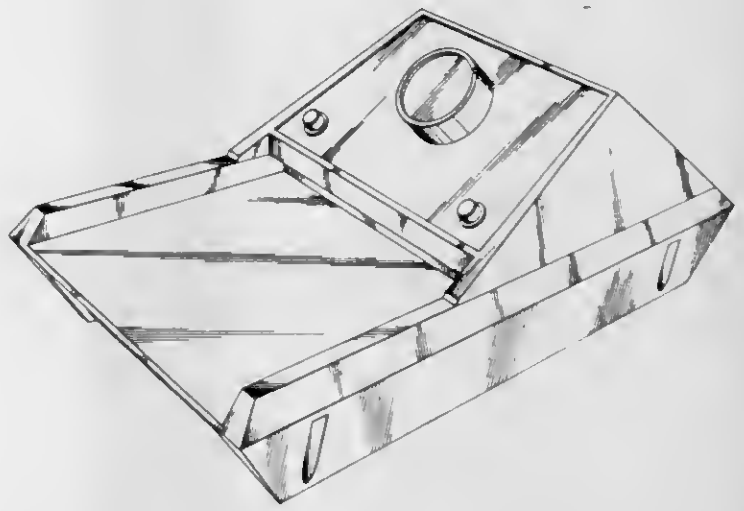
225,580
MEDICAL ANALYTIC HOUSING
Jean O. Reinecke, Pasadena, Calif., assignor to International Biophysics Corporation, Irvine, Calif.
Filed Mar. 5, 1971, Ser. No. 121,626
Term of patent 14 years
Int. Cl. D24—*01, 02*

U.S. Cl. D83—1



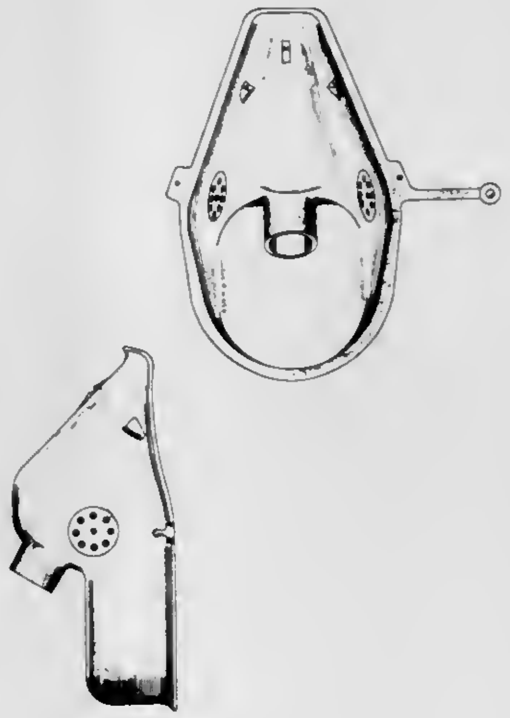
225,581
POWER SUPPLY
Bernard R. Danti, Lexington, and Paul E. Brefka, Southboro, Mass., assignors to Millipore Corporation, Bedford, Mass.
Filed Apr. 1, 1971, Ser. No. 130,548
Term of patent 14 years
Int. Cl. D24—*01*

U.S. Cl. D83—1

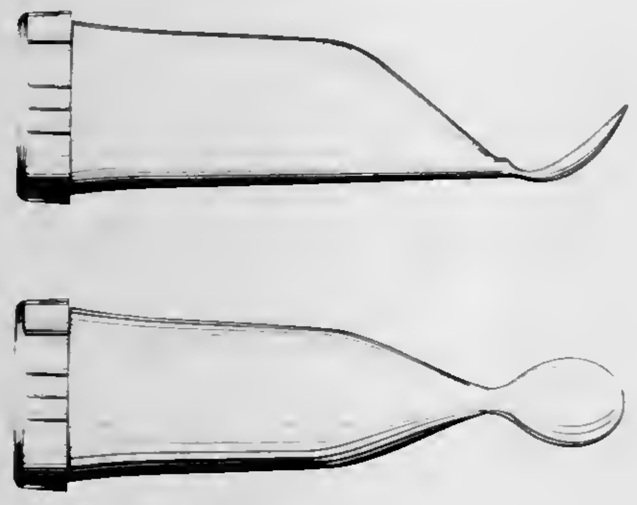


225,582
FULL FACE MASK
William R. King, Denver, Colo., assignor to Sandoz-Wander, Inc., Hanover, N.J.
Filed June 2, 1971, Ser. No. 149,409
Term of patent 14 years
Int. Cl. D24—*02*

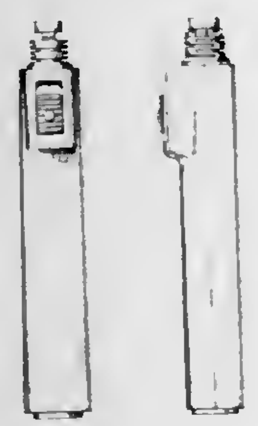
U.S. Cl. D83—1



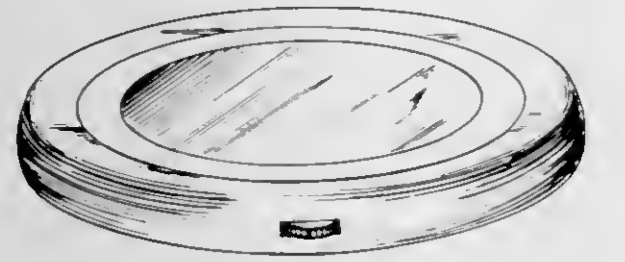
225,583
INFANT NURSING BOTTLE
Julio M. Lara, 8834 SW. 129th St.,
Miami, Fla. 33156
Filed July 30, 1971, Ser. No. 167,882
Term of patent 14 years
Int. Cl. D9—*01*; D24—*04*
U.S. Cl. D83—8



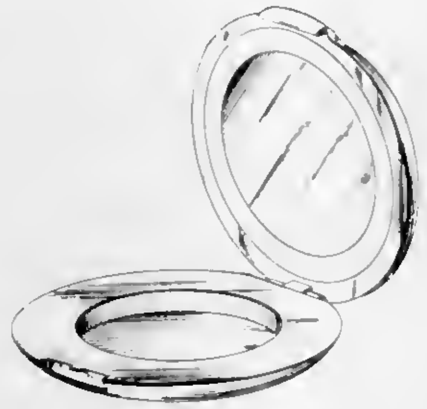
225,584
HANDLE FOR MEDICAL DIAGNOSTIC INSTRUMENTS
William S. Pilgrim, Port Byron, N.Y., assignor to Welch Allyn, Inc., Skaneateles Falls, N.Y.
Filed July 1, 1971, Ser. No. 159,085
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12



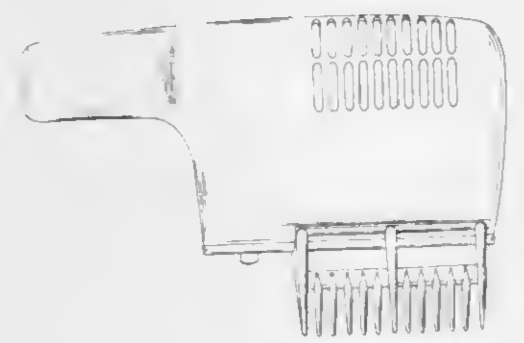
225,585
ILLUMINABLE MIRROR
Donald P. Stahl, North Bellmore, N.Y., assignor to Telecommunications Industries, Incorporated, Farmingdale, N.Y.
Filed May 18, 1970, Ser. No. 23,041
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D86—10



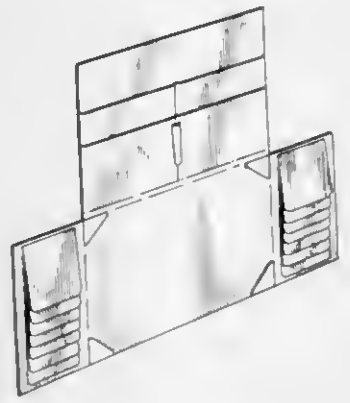
225,586
ILLUMINABLE COSMETIC CASE
Donald P. Stahl, North Bellmore, N.Y., assignor to Telecommunications Industries, Incorporated, Farmingdale, N.Y.
Filed May 18, 1970, Ser. No. 23,042
Term of patent 14 years
Int. Cl. D28—*02*
U.S. Cl. D86—10



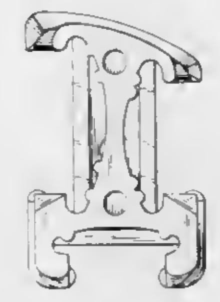
225,587
HAIR DRYER
James E. Tucker and Jay Doblin, Chicago, Ill., assignors to The Gillette Company, Boston, Mass.
Filed Apr. 15, 1971, Ser. No. 134,540
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10



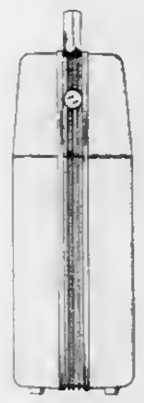
225,588
COMBINED BLOTTER PAD AND PORTFOLIO
Rex Clifford Testro, 56 Campbell St., East Kew, Victoria, Australia, and Keith Royal Testro, 22 Kellett Grove, Kew, Victoria, Australia
Filed Dec. 21, 1970, Ser. No. 26,598
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—3



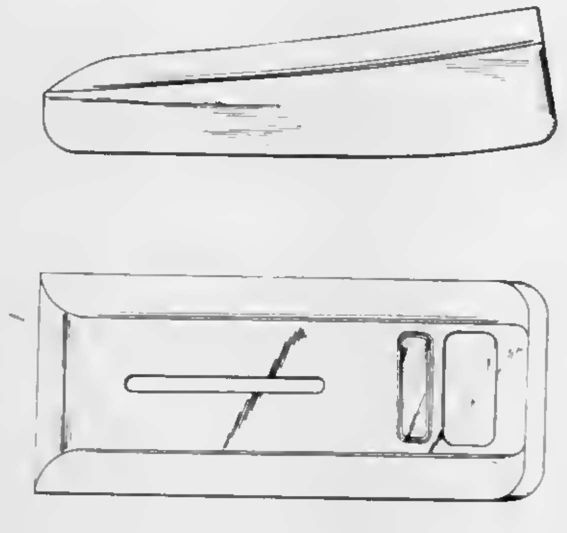
225,589
COIN HOLDER
Mogens Engel, 180 E. Prospect Ave.,
Mamaroneck, N.Y.
Filed Oct. 22, 1971, Ser. No. 191,967
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—3



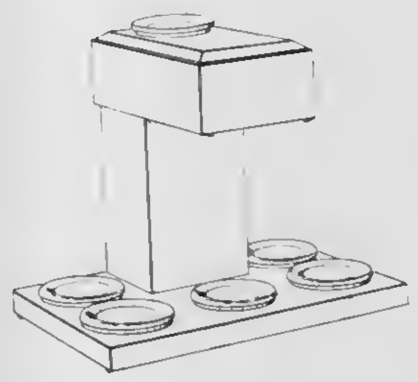
225,590
SUITCASE
Dino Valaguzza, Via Palestro 22,
Milan, Italy
Filed Aug. 14, 1970, Ser. No. 24,492
Claims priority, application Italy Apr. 9, 1970
Term of patent 7 years
Int. Cl. D3—*01*
U.S. Cl. D87—5



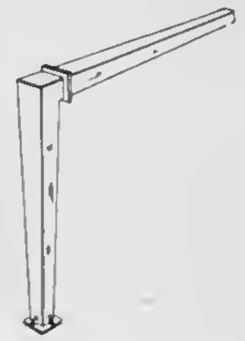
225,591
SPEED SHIFT HOUSING FOR A BICYCLE HAVING DUAL CROSS BARS
Hans-Jurgen Laonoch, Hochstetten, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany
Filed Feb. 19, 1971, Ser. No. 117,220
Claims priority, application Germany Sept. 16, 1970
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D90—1



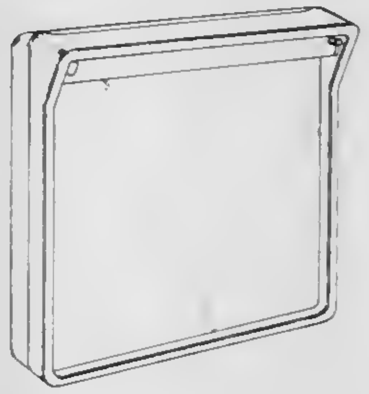
225,592
COMBINED COFFEE MAKER AND WARMER
William M. Bardeau, 44 Princess Margaret Blvd.,
Islington, Ontario, Canada
Filed Sept. 14, 1970, Ser. No. 24,981
Claims priority, application Canada Aug. 11, 1970
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D94—3



225,593
OVERHEAD SIGN SUPPORT
Clifton E. Jones, Flint, Mich., assignor to Anderson Safeway Guard Rail Corporation, Flint, Mich.
Filed June 7, 1971, Ser. No. 150,881
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D96—12



225,594
MATRIX SWITCH PANEL
Philip L. Brooks, Menlo Park, Robert S. Reynolds, Cupertino, Kent A. Penwarden, Los Altos, and Suresh H. Gajwani, Sunnyvale, Calif., assignors to GTE Sylvania Incorporated
Filed Aug. 3, 1971, Ser. No. 168,790
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D96—12



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF DECEMBER, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A B Billingsfors-Langed: *See—*
  - Persson, Leif Ramon, 3,706,618.
- Aasen, T. F.; Hartman, Thomas E.; and Schaffel, Martin, to Copystatics Manufacturing Corporation. Exact length adjustment mechanism for copying machine. 3,706,490, Cl. 355-13.000.
- Abbe, Robert C., to ADE Corporation. Capacitive guage. 3,706,919, Cl. 317-246.000.
- Abbott, Augustus E., to United States of America, Atomic Energy Commission. Laminated plastic propeller. 3,706,511, Cl. 416-229.000.
- Abbott Laboratories: *See—*
  - Plotnikoff, Nicholas Peter; Dren, Anthony Thomas; and Jochimsen, William George, 3,706,831.
- Abu, Takao: *See—*
  - Okamoto, Tosiaki; Mori, Koziro; Yamazaki, Hayao; Abu, Takao; and Sato, Takefumi, 3,706,971.
- Accashian, John, to United Aircraft Corporation. Redundant stabilizer support. 3,706,432, Cl. 244-83.00r.
- ACF Industries, Incorporated: *See—*
  - Kalst, Manmohan S., 3,706,320.
  - Vicari, Felix J., 3,706,321.
- Acquadro, Edward W.; and Monahan, Donald F., to International Business Machines Corporation. Dynamic keyboard data entry system. 3,706,973, Cl. 340-172.500.
- Action Film, Inc.: *See—*
  - Skinner, James R.; Uitz, Mark O.; and Hait, Paul W., 3,706,439.
- Addressograph-Multigraph Corporation: *See—*
  - Shimola, Howard G., 3,706,588.
- ADE Corporation: *See—*
  - Abbe, Robert C., 3,706,919.
- Adler, Jason A., to Royal Industries, Inc. Power supply for a stepping motor. 3,706,924, Cl. 318-685.000.
- Aerojet-General Corporation: *See—*
  - Grakauskas, Vytautas, 3,706,788.
- Agence Nationale de Valorisation de la Recherch (ANVAR): *See—*
  - Roblin, Gerard; and Nomarski, Georges, 3,706,492.
- Agfa Gevaert A.G.: *See—*
  - Theer, Anton, 3,706,427.
- Agfa-Gevaert Aktiengesellschaft: *See—*
  - Engelsmann, Dieter; Hackenberg, Hubert; and Deeg, Karl, 3,706,268.
- Aguirre, Enrique Renteria: *See—*
  - Solomka, Monroe M.; and Aguirre, Enrique Renteria, 3,706,829.
- Air Products and Chemicals, Inc.: *See—*
  - Kadi, Frank J.; Longsworth, Ralph C.; and Meier, Richard N., 3,706,208.
  - Moyer, Ronald C.; and Uffner, Melville W., 3,706,590.
- Airco, Inc.: *See—*
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- Aisin Seiki Company Limited: *See—*
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- Aisin Seiki Kabushiki Kaisha: *See—*
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- Akira, Sato: *See—*
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- Akutagawa, Susumu: *See—*
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- Akzona Incorporated: *See—*
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- Alaimo, Robert J.; and Pelosi, Stanford S., Jr., to Morton-Norwich Products, Inc. Anthelmintic thiocyanatobenzothiazoles. 3,706,759, Cl. 260-305.000.
- Albon, Colin: *See—*
  - Vessey, Clifford A.; Albon, Colin; and Holker, Kenneth, 3,706,603.
- Albrecht, Harry Allen; ahd Plati, John Thomas, to Hoffmann-La Roche Inc. 5-Amino-4-methoxyisoxazoles and 3-amino-4-methoxyisoxazoles. 3,706,761, Cl. 260-307.00h.
- Albright & Wilson Limited: *See—*
  - Vessey, Clifford A.; Albon, Colin; and Holker, Kenneth, 3,706,603.
- Albright, Jay Donald; and Goldman, Leon, to American Cyanamid Company. 4-Cyano-3β-ethoxy-3-secoyohimbano [17,18-c]isoxazole. 3,706,760, Cl. 260-307.00d.
- Alexander, Jack F., to Computer Terminal Corporation. Deflection compensation system. 3,706,905, Cl. 315-21.0ch.
- Allen & Hanburys Limited: *See—*
  - Bays, David Edmund, 3,706,768.
- Alley, Robert P., to General Electric Company. Automatically resettable thermal switch. 3,706,952, Cl. 337-348.000.
- Alley, Starling K., Jr., to Union Oil Company of California. Chelated metal-polyphosphoric acid catalysts, method of preparation and isomerization process utilizing the same. 3,706,815, Cl. 260-638.650.
- Allied Chemical Corporation: *See—*
  - Anello, Louis Gene; Sweeney, Richard F.; and Litt, Morton Herbert, 3,706,773.
  - Chandrasekaran, Swayambu; and Mueller, Max B., 3,706,723.
  - Kremers, Frank J.; and Rhodes, Michael S., 3,706,771.
  - Lichstein, Bernard M.; and Wolf, Cyril, 3,706,795.
- Allmanna Svenska Elektriska Aktiebolaget: *See—*
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- Allvin, Bertil Hilmer, to Vallak, Enn. Hot tops and mixture of materials therefor. 3,706,682, Cl. 260-17.200.
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- Ambrose, Charles J.: *See—*
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- American Cyanamid Company: *See—*
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  - Brabander, Herbert Joseph; and Wright, William Blythe, Jr., 3,706,810.
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  - Suffern, Donald Bruce Borders; Osterberg, Arnold Curtis; and Wallo, Kenneth George, 3,706,835.
- Ammerman; Gale R., to Mississippi State University Development Foundation, Inc. Fish skinning process. 3,706,333, Cl. 146-228.000.
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  - Hoffman, Joseph Willard; and Demler, Henry William, Sr., 3,706,219.
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- Anderson, C. H.; and Griffiths, Colin, to Pullman Incorporated. Vacuum degassing unit. 3,706,449, Cl. 266-34.00v.
- Anderson, James J.; Byrd, Wendell M., Jr.; and Camacho, Vasco G., to Mobil Oil Corporation. Novel phosphorus and halogen-containing compounds. 3,706,821, Cl. 260-951.000.
- Anderson, James Mitchell, to VanHeerden, Philip; in his Capacity of minister of Water Development for the Government of Rhodesia. Hydrological recorder. 3,707,000, Cl. 346-33.000.
- Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., to Sandoz-Wander, Inc. Hydrazone derivatives of 3-substituted amino-6-hydrazino pyridazines. 3,706,744, Cl. 260-250.00a.
- Anderson, Ralph F. Method and apparatus for closing containers. 3,706,175, Cl. 53-39.000.
- Anello, Louis Gene; Sweeney, Richard F.; and Litt, Morton Herbert, to Allied Chemical Corporation. Fluorocarbon compounds. 3,706,773, Cl. 260-408.000.
- Angus, Alexander C., to McGraw-Edison Company. Quiet turn-on circuit for carbon microphones. 3,706,852, Cl. 179-1.00a.
- Aptek Industries, Inc.: *See—*
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- Argraves, Neil E.; and Mann, David A., said Neil & Argraves assor. to Saleeba, Wallace. Prefabricated plastic stairway and method of manufacture. 3,706,170, Cl. 52-189.000.
- Arne, Christian, to Chicago Bridge & Iron Company. Stress oriented corrugations. 3,706,627, Cl. 161-131.000.
- Arond, Lester H., to Polaroid Corporation. Color diffusion transfer film unit containing a temporary barrier for developer restrainers. 3,706,557, Cl. 96-29.00d.

Arrigo, Joseph T., to Universal Oil Products Company. N-(2,2-di-substituted-vinyl)-arylimines. 3,706,802, Cl. 260-566.00f.
Arsem, Alvan D.; Schwartz, Harold O.; and Ippolito, Anthony C., to Wurlitzer Company, The. Automatic rhythmic chording unit. 3,706,837, Cl. 84-1.030.
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Bachura, Richard A., to Dow Corning Corporation. Process for stabilizing a mechanically frothed urethane foam by using a silicon surfactant composition. 3,706,681, Cl. 260-2.5ah.
Backderf, Richard H., to Goodyear B. F., Company, The. Emulsion polymerization of acryloxyalkylsilanes with alkylacrylic esters and other vinyl monomers. 3,706,697, Cl. 260-29.20m.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
  Graf, Fritz; and Koenig, Horst, 3,706,770.
Baeza, Armando M., to Mattel, Inc. Jointer figure toy having cooperating bearing surfaces of duplicate size and contours. 3,706,155, Cl. 46-151.000.
Bafford, Richard Anthony, to Pennwalt Corporation. Auto-oxidation of aldehydes in the presence of chloroformates. 3,706,783, Cl. 260-463.000.
Baker, David R., to Fibreboard Corporation. Air permeable container. 3,706,410, Cl. 229-16.00r.
Balmer, John D.; and Kendall, Jerry A., to Berg Electronics, Inc. Insulation stripper for ribbon cable. 3,706,241, Cl. 81-9.510.
Bandy, Leon D. Foot propelled unicycle. 3,706,157, Cl. 46-220.000.
Baniadam, Mahmood; and Morando, Jorge A., to Fairchild Industries, Inc. Fluid coupling. 3,706,318, Cl. 137-614.030.
Baral, William J.: *See—*
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  Kirsch, Francis William; Barmby, David S.; and Potts, John D., 3,706,814.
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  Schelle, Asel; and Baronnet, Pierre, 3,706,386.
Barrager, Stephen M.; Bate, Geoffrey; and Smith, Sidney H., to International Business Machines Corporation. Method and apparatus for testing batch fabricated magnetic heads during manufacture utilizing magnetic fields generated by other magnetic heads. 3,76,926, Cl. 324-34.00r.
Barrow, Robert B.; and Terkelsen, Bruce E., to United Aircraft Corporation. Radiation shield for investment molds. 3,706,338, Cl. 164-357.000.
Barth, Hans; Knausenberger, Martin; Lange, Henner; Menz, Hans-Udo; and Griess, Wilhelm; deceased (by Griess-Tomtschuk, Irene; and by Gordt-Griess, Hanna; legal representatives), to Lever Brothers Company. Detergent composition with thermo-controlled foamin capacity. 3,706,675, Cl. 252-539.000.
Bartles, Edward C.; and Fraim, Raymond A., to Eastman Kodak Company. Control system. 3,706,339, Cl. 161-12.000.
Basa, Napoleon A. Manually operated fluid pressure driven rotary drive. 3,706,202, Cl. 60-54.50r.
BASF Wyandotte Corporation: *See—*
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Bass, Jon D.: *See—*
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Bassnett, Arthur J.: *See—*
  Beck, Emanuel A.; and Bassnett, Arthur J., 3,706,928.
Batcho, Andrew David; Berger, Julius; Furlenmeier, Andre; Keller, Oscar; Pecherer, Benjamin; Schocher, Arno Johannes; Spiegelberg, Hans; and Vaterlaus, Bruno Peter. Antibiotics and processes for their preparation. 3,706,729, Cl. 260-210.00r.
Bate, Geoffrey: *See—*
  Barrager, Stephen M.; Bate, Geoffrey; and Smith, Sidney H., 3,706,926.
Batista, Roy I.: *See—*
  Hagan, Melvin A.; and Batista, Roy I., 3,706,539.
Baumann, Hans-Peter; and Keller, Robert Christian, to Sandoz Ltd. Process for the dyeing of textile material with dye carrier of predominantly higher boiling alkyl benzenes. 3,706,530, Cl. 8-174.000.
Bay Alarm Cormpany: *See—*
  Westphal, Bruce A., 3,706,987.
Bayer Aktiengesellschaft: *See—*
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  Hagemann, Hermann, 3,706,778.
  Hoffmann, Hellmut; and Hammann, Ingeborg, 3,706,820.
Bayle, Guy P.; Smyth, Richard K.; and Gustafson, Robert D., to North American Aviation, Inc. Vehicle controller employing passive horizon sensor. 3,706,988, Cl. 343-6.00r.
Bays, David Edmund, to Allen & Hanburys Limited. Xanthone derivatives. 3,706,768, Cl. 260-335.000.
BDH Pharmaceuticals Limited: *See—*
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Be Vard, Ralph E.: *See—*
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Becher, Jan; and Ullman, Edwin F., to Synvar Associates. Free radical pH indicators. 3,706,537, Cl. 23-230.00r.
Beck, Emanuel A.; and Bassnett, Arthur J., to United States of America, Navy. Coherent frequency multiplier and encoder. 3,706,928, Cl. 325-33.000.
Beckman Instruments, Inc.: *See—*
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Becton, Dickinson and Company: *See—*
  Rapoza, Edward J.; Siegel, Maxwell E.; Estelle, Weems E.; Petrucci, Pasquale M.; Linarducci, Joseph S.; Hamma, John; and Montgomery, John, 3,706,499.
Bell & Howell Company: *See—*
  Neff, Joseph J., 3,706,423.
  Notley, Norman T., 3,707,001.
  Yamada, Yoshikazu; Sund, Joseph Tat-Hin; and Logue, Daniel R., 3,706,276.
Bell, Cyril Ove Robert; and Jones, Neville Murray, to Monsanto Chemicals Limited. Preparation of magnesium-containing lubrication oil detergents. 3,706,665, Cl. 252-32.7hc.
Bell Telephone Laboratories, Incorporated: *See—*
  Emshwiller, MacLellan, 3,706,881.
  Fisher, George Myles Cordell; Froehlich, Fritz Edgar; Levin, William; McDowell, Blake, III; and O'Boyle, Leonard Edward, 3,706,850.
  Subramanian, Mahadevan, 3,706,931.
  Tewsbury, Stuart Keene, 3,706,944.
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Bence, Patrick J. All-rapeseed oil shortenings. 3,706,578, Cl. 99-118.00r.
Bender, F., Limited: *See—*
  Whatmore, Robert, 3,706,997.
Benton, Richard H.: *See—*
  Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,706,457.
Bentz, Raymond L.: *See—*
  Taylor, Lawrence B.; Bentz, Raymond L.; and Porter, Robert B., 3,706,535.
Beran, Wilhelmine, to Laevosan-Gesellschaft Chem. Pharm. Industrie, Franck & Dr. Freudl. Steroid compounds effective against, cardiac conditions and method of their preparation. 3,706,727, Cl. 260-210.500.
Berg Electronics, Inc.: *See—*
  Balmer, John D.; and Kendall, Jerry A., 3,706,241.
Berger, Harold J.; and Goldsmith, Jerry G. Combination blood sampling vacuum syringe centrifuge container and specimen cup. 3,706,305, Cl. 128-2.00f.
Berger, Harold J.; and Goldsmith, Jerry G. Combination blood sampling vacuum syringe centrifuge container and specimen cup. 3,706,306, Cl. 128-2.00f.
Berger, Herbert; Gall, Rudi; Merdes, Hartmut; Stach, Kurt; Sauer, Winfriede; and Vomel, Wolfgang, to Boehringer Mannheim GmbH. Certain nitrofuryl(hydrazino)pyrimidines. 3,706,745, Cl. 260-256.40n.
Berger, Julius: *See—*
  Batcho, Andrew David; Berger, Julius; Furlenmeier, Andre; Keller, Oscar; Pecherer, Benjamin; Schocher, Arno Johannes; Spiegelberg, Hans; and Vaterlaus, Bruno Peter, 3,706,729.
Bergstrom, Sune; and Sjovall, Jan. $PGF_{2\alpha}$. 3,706,789, Cl. 260-468.00d.
Bergum, Bernard C.; and Youngquist, John A., to ESB Incorporated. Duplex electrode construction using continuous metal carrier strip having at least one nonreactive metal side. 3,706,616, Cl. 136-175.000.
Berman, Herbert J.: *See—*
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Bernett, Frank E.; and Kleinhans, Robert J., to Tile Council of America, Inc. Grouting composition. 3,706,696, Cl. 260-29.70e.
Bertin & Cie: *See—*
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Besier, Emil E.; and Knauer, Warren L., Jr., to Motorola, Inc. Film format and stop circuit for an electronic video recording player. 3,706,844, Cl. 178-7.200.
Bevier, Charles W., to Weben Industries, Inc. Vehicle washing device. 3,706,109, Cl. 15-21.00e.
Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf; deceased (by Stachel, Inge; and by Stachel, Sophie; heirs). 3-(o-Substituted amono-β_{m}-alkoxybenzoxy-propyl) 6,7-or-6,7,8-alkoxy-1,2,3-benzotriazine-4(3H)-ones. 3,706,739, Cl. 260-247.200.
Bharali, Utpalananda: *See—*
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Bianchi, John: *See—*
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Bickford, Jerome R.; and Nicholson, James O., to International Business Machines Corporation. Optical card reader. 3,706,887, Cl. 250-219.0dc.
Bickford, William J.; and Cease, Richard G., to Raytheon Company. Deviation modifier. 3,706,946, Cl. 332-23.000.
Bidell, Frederick W.; Herold, Carl D., Jr.; and Lindholm, James H., to Sylvania Electric Products, Inc. Synchronizing systems in the presence of noise. 3,706,933, Cl. 325-479.000.
Biland, Hans Rudolf: *See—*
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Bishop Freeman Company: *See—*
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Black and Decker Manufacturing Company, The: *See—*
  William, Alan George, 3,706,332.
Black, H. R., Company: *See—*
  Markwick, John P., 3,706,378.
Blackwell, John; Gumprecht, William Henry; and Stam, Roy Emerson, Jr., to Du Pont de Nemours, E. I., and Company. Water swollen cellulose dyeing with high molecular weight disperse dye in a glycol ether solution. 3,706,525, Cl. 8-21.00c.
Blake, Edward S., to Monsanto Company. Substituted amides. 3,706,796, Cl. 260-558.00d.
Blanchard, Robert R.; Kennedy, James S.; and Roberts, Reginald F., to Dow Chemical Company, The. Process for the dehydrochlorination of chlorinated polyolefins. 3,706,724, Cl. 260-94.9gd.
Blanchenot, John P., to International Telephone and Telegraph Corporation. Coaxial cable connector. 3,706,958, Cl. 339-177.00e.
Blanich, Steve R. Pump operated removal device for cleaning apparatus. 3,706,377, Cl. 209-446.000.
Blatter, Herbert Morton: *See—*
  Rosen, Melvin Harris; and Blatter, Herbert Morton, 3,706,769.
Bleile, Robert F. Staple for sod and erosion control mattings. 3,706,115, Cl. 24-87.00c.
Block, Seymour S.: *See—*
  Takeda, Hiroshi; Schuller, Walter H.; Lawrence, Ray V.; and Block, Seymour S., 3,706,762.
Blum, Josef, to Sewall, Ivan, Inc. Automatic filling apparatus for cell washing centrifuge. 3,706,413, Cl. 233-26.000.
Blumberg, Shmaryahu: *See—*
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Bobinski, Jack; and Picard, Jean P., to United States of America, Army. Novel combustible cartridge case and process therefor. 3,706,280, Cl. 102-43.000.
Boehringer Mannheim GmbH: *See—*
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Bohm, Heinz-Dieter; Muller, Unna Wolfgang; and Hobert, Herbert, to Maschinenfabrik Stromag G.m.b.H. Clutch operator with hydrostatic bearings. 3,706,365, Cl. 192-85.0ca.
Boise Cascade Corporation: *See—*
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  Myers, Albert F., 3,706,239.
Boje, Kurt: *See—*
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Bokovoy, Ronald D., to Boise Cascade Corporation. Fully automatic locking interaxle differential for tandem vehicles. 3,706,350, Cl. 180-24.090.
Bolton, William Robert Fossey: *See—*
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Bonafino, Edward J.; Doolittle, Frederick W.; Hayes, Charles U.; and Yarrington, James C., to International Business Machines Corporation. Conveyor system. 3,706,370, Cl. 198-76.000.
Boor, John, Jr.: *See—*
  Hull, Colin G.; and Boor, John, Jr., 3,706,713.
Booth, Llewellyn Delphin, to Dow Chemical Company, The. Foamed polyurethanes prepared from diphenols and polyisocyanates. 3,706,680, Cl. 260-2.5am.
Borden Company, The: *See—*
  Whitworth, Anthony James; Lees, William Arthur; Tung, Stephen Yi-Sun; and Hajto, Ernest Anthony, 3,706,581.
Borel, Robert J.; Corey, Leonard S.; Rucharski, Thaddeus W.; Stocking, John L.; and Thomas, Frederick H., to Eastman Kodak Company. Web transport apparatus. 3,706,406, Cl. 226-95.000.
Borg-Warner Corporation: *See—*
  Zimmer, George A., 3,706,199.
Borneman, Karl J.; Byler, Eichard E.; Roberts, Paul G.; and Smalinskas, Stepas, to Ford Motor Company. Four-speed ratio automatic power transmission mechanism. 3,706,240, Cl. 74-869.000.
Bosshardt, Rolf; Fechtig, Bruno; Mueller, Johannes; Peter, Heinrich; and Bickel, Hans, to Ciba-Geigy Corporation. O-desacetyl derivatives of 7-N-acylamino-cephalosphoranic acids. 3,706,746, Cl. 260-243.00c.
Bossler, Alfred T.: *See—*
  Brightmire, Glenn K.; Bossler, Alfred T.; Burnell, Arthur E.; and Helms, August R., 3,706,330.
Bottai, Gabriele: *See—*
  Cozza, Giorgio; Bottai, Gabriele; and Barilli, Filippo, 3,706,531.
Bouisse, Jean Marie Germain; Martel, Charles Etienne Georges; and Villey-Desmeserets, Franck Pierre Antoine, to Etat Francais. Tracer device for a rocket. 3,706,283, Cl. 102-87.000.
Bouligny, R. H., Inc.: *See—*
  King, Charles S. W.; and Pierce, John H., 3,706,407.
Boult, David Luard, to British Insulated Callender's Cables Limited. Telecommunication cables. 3,706,838, Cl. 174-25.00r.
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  Drelich, Arthur H.; and Bowman, Bobby R., 3,706,595.
Boxley, Denis V.: *See—*
  Folson, Henry J.; Boxley, Denis V.; Kingsbury, James; Kraitzer, Shlomo; Soulakis, George; and Whittington, Jimmie L., 3,706,153.
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  Greenwood, Arthur R.; Heinze, Walter W.; Schnitta, Edward; and Boyd, David M., 3,706,536.
Boyer, Fred S. Locking devices. 3,706,390, Cl. 220-25.000.
Brabander, Herbert Joseph; and Wright, William Blythe, Jr., to American Cyanamid Company. N-morpholinoalkyl-thieno[3,2-b] pyrrole-5-carboxamides. 3,706,810, Cl. 260-247.100.
Brack, Karl, to Hercules Incorporated. Cross-linkable polymer compositions comprising ethylenically unsaturated polymers. 3,706,685, Cl. 260-22.00r.
Brack, Karl, to Hercules Incorporated. Cross-linkable polymer compositions comprising ethylenically unsaturated polymer. 3,706,715, Cl. 260-77.5ac.
Brannan, James R., to Du Pont de Nemours, E. I., and Company. Chromium plating from an organic/aqueous medium. 3,706,640, Cl. 204-51.000.
Brannan, James R., to Du Pont de Nemours, E. I., and Company. Preparation of chromium plating bath. 3,706,642, Cl. 204-51.000.
Bremner, James Duncan; and McLellan, Ian Alexander, to Imperial Chemical Industries Limited. Melt spinning process. 3,706,826, Cl. 264-176.00f.
Bretti, Franco, to Olivetti, Ing., C., & C., S.p.A. High speed serial printing device for typewriters, teleprinters, calculating machines, accounting machines and the like. 3,706,367, Cl. 197-55.000.
Brewer, Gerald L., to Universal Oil Products Company. Thermal incineration unit. 3,706,533, Cl. 23-277.00c.
Brewer, John C., to Garbalizer Corporation of America. Vehicle body-shell processing plant. 3,706,289, Cl. 110-18.00r.
Bricard, Pierre: *See—*
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Bride, John Edwin: *See—*
  Huba, Francis; and Bride, John Edwin, 3,706,641.
Bride, John Edwin, to Du Pont de Nemours, E. I., and Company. Preparing plating bath containing chromic compound. 3,706,636, Cl. 204-51.000.
Bride, John Edwin, to Du Pont de Nemours, E. I., and Company. Chromium plating bath containing chromic compound. 3,706,637, Cl. 204-51.000.
Bride, John Edwin, to Du Pont de Nemours, E. I., and Company. Chromium plating bath for rotary receptacle plating. 3,706,638, Cl. 204-51.000.
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Briggs, Eugene C., to Koehring Company. Portable heater. 3,706,446, Cl. 263-19.00a.
Brightmire, Glenn K.; Bossler, Alfred T.; Burnell, Arthur E.; and Helms, August R., to Rosen, Jacob J. Method and means for providing substantially continuous resilient article with bendable skelton and resultant article. 3,706,330, Cl. 140-1.000.
Brillaud, Andre R.; and Gallin, Lawrence F., to Systematic Research & Development Corporation. Multi-use dispensing device. 3,706,140, Cl. 34-60.000.
Bringolf, Richard G. Flexible conduit. 3,706,326, Cl. 138-129.000.

- Brisse, Jacques Daniel Philippe; and Joguet, Jean-Claude, to International Standard Electric Corporation. Constant-duty transponder. 3,706,992, Cl. 343-6.8lc.
- Bristol-Myers Company: *See—*
  - Johansen, Bent Georg, 3,706,315.
- British Insulated Callender's Cables Limited: *See—*
  - Boult, David Luard, 3,706,838.
- British Iron and Steel Research Association, The: *See—*
  - Salter, Frank Michael; and Dibley, John Edwin, 3,706,448.
- British Steel Corporation: *See—*
  - Pennington, John Stanley, 3,706,331.
- Britt, Jack, to Rolls-Royce Limited. Rotary bladed structure for a fluid flow machine. 3,706,509, Cl. 415-131.000.
- Britton, Leon R.; and Semerjian, Joseph K., to Seeburg Corporation of Delaware, The. Multiple switch assembly for vending machine selecting apparatus with improved master switch control. 3,706,863, Cl. 200-5.00r.
- Broadhead, Sharon Ann, nee Rulon, to Stauffer Chemical Company. Lactalbumin phosphate as a replacement for egg white. 3,706,575, Cl. 99-114.000.
- Broering, Leo H.; and Birchall, William R., to National Distillers and Chemical Corporation. Continuous process for the production of alfin polymers. 3,706,720, Cl. 260-82.100.
- Brother Kogyo Kabushiki Kaisha: *See—*
  - Hishida, Yukio; Nakai, Toshio; and Kuzuya, Susumu, 3,706,366.
- Brotzmann, Karl: *See—*
  - Knuppel, Helmut; Brotzmann, Karl; Fassbinder, Hans-Georg; Savard, Guy; and Lee, Robert, 3,706,549.
- Brown, Cicero C. Pipe handling system for use in well drilling. 3,706,347, Cl. 175-85.000.
- Bruckner, Samuel R., to Xetca, Inc. Programmed control system for punching machine. 3,706,249, Cl. 83-69.000.
- Bruckner-Apparatebau Michelstadt GmbH: *See—*
  - Schuierer, Manfred, 3,706,138.
- Brumlik, George C. Construction elements for the assembly of molecular models, toys and the like. 3,706,139, Cl. 35-18.00a.
- Brunner, Guido, to Shell Oil Company. Submarine dredging apparatus. 3,706,142, Cl. 37-56.000.
- Bryson, Millard C.; McKinney, Joel D.; and Murphy, James R., to Gulf Research & Development Company. Fluid catalytic cracking processes and means. 3,706,654, Cl. 208-74.000.
- Buckbee-Mears Company: *See—*
  - Olson, Roger A.; and Osero, Norman M., 3,706,983.
- Bucksch, Herbert; and Koch, Helmut, to Rheiner Maschinenfabrik Windhoff Akt.-Ges. Machine for the ballasting of railroad tracks. 3,706,145, Cl. 37-105.000.
- Budzyna, Joseph M., to North American Rockwell Corporation. Shuttle binder. 3,706,327, Cl. 139-187.000.
- Buehler, Arthur; and Steinlin, Felix, to Ciba-Geigy A.G. Process for the dyeing of synthetic polyamides in bulk. 3,706,698. Cl. 260-37.0np.
- Bulgrin, Walter William. Method and apparatus for producing vehicle rims. 3,706,120, Cl. 29-159.100.
- Bunnell, Edward Dennman, to AMP Incorporated. Electrical cable having integral terminals. 3,706,955, Cl. 339-28.000.
- Bunte, William S.; and De Gasperis, Lino E., to Egan Machinery Company. Extrusion die deckle means. 3,706,518, Cl. 425-381.000.
- Burbank, John Emerson, III, to Wiltek, Inc. Magnetic card data recorder/reproducer. 3,706,860, Cl. 179-100.2ca.
- Burch, Randolph. Feeding and conveying device for automatic nailing machines. 3,706,408, Cl. 227-45.000.
- Burg, Raymond H.: *See—*
  - Lohmann, Arthur M.; Spurbeck, King; and Burg, Raymond H., 3,706,282.
- Burkhardt, Jurgen: *See—*
  - Nitzsche, Siegfried; Burkhardt, Jurgen; and Wegehaupt, Karl-Heinrich, 3,706,591.
- Burnell, Arthur E.: *See—*
  - Brightmire, Glenn K.; Bossler, Alfred T.; Burnell, Arthur E.; and Helms, August R., 3,706,330.
- Burness, Donald M.: *See—*
  - Herz, Arthur H.; Burness, Donald M.; and Seus, Edward J., 3,706,562.
- Burrows, Clifford G.; Magnuson, John E.; and Giese, Ludi, to Canadian Kenworth Ltd. Power system for loading an empty trailer onto a tractor or for loading pre-loaded trailers onto a fifth wheel of the tractor. 3,706,464, Cl. 280-401.000.
- Burtin, James D. Fill cap assembly for sandblasting machines or the like. 3,706,166, Cl. 51-12.000.
- Bush, Clarence C., to United States of America, Army. Temperature and velocity apparatus for moving fluids. 3,706,228, Cl. 73-343.00r.
- Butler, Lee D.: *See—*
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- Butler Manufacturing Company: *See—*
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  - Rush, Donald J., 3,706,622.
- Byler, Eichard E.: *See—*
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- Byrd, Wendell M., Jr.: *See—*
  - Anderson, James J.; Byrd, Wendell M., Jr.; and Camacho, Vasco G., 3,706,821.
- Cairns, John Francis, to Imperial Chemical Industries Limited. Manufacture of bipyridylium salts by oxidation of the corresponding dihydrobipyridyl. 3,706,752, Cl. 260-296.00d.
- Caldwell, James E.; and Sorrell, Ronald R. Method of refining esters of organophosphorus acids. 3,706,822, Cl. 260-990.000.
- Caldwell, Larry V.; and Miller, Brian S., to United States of America, Army. Tunnel electron emitter cathode. 3,706,920, Cl. 317-234.00r.
- Camacho, Vasco G.: *See—*
  - Anderson, James J.; Byrd, Wendell M., Jr.; and Camacho, Vasco G., 3,706,821.
- Camilleri, Louis T.; and Forgione, Anthony F., to Hooker Chemical Corporation. Process for preparing discoloration-resistant curable polyurethane coatings. 3,706,710, Cl. 260-75.0ne.
- Campbell, Alastair; and Carruthers, Rosemary Angela, to Imperial Chemical Industries Limited. Manufacture of 1,1,1-trichloroethane. 3,706,816, Cl. 260-658.00r.
- Canadian Fina Oil Limited: *See—*
  - Redford, David Arthur, 3,706,341.
- Canadian Industries Limited: *See—*
  - Jones, Elwyn David; and Rowley, Edward Kenneth, 3,706,625.
- Canadian Kenworth Ltd.: *See—*
  - Burrows, Clifford G.; Magnuson, John E.; and Giese, Ludi, 3,706,464.
- Canon Kabushiki Kaisha: *See—*
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- Caputo, William R., to Westinghouse Electric Corporation. Motor control system. 3,706,358, Cl. 187-29.
- Carlier, Claude. Dispatch and reception station for pneumatic transmissions. 3,706,428, Cl. 243-19.000.
- Carling Electric, Inc.: *See—*
  - Sorenson, Richard W., 3,706,869.
- Carlson, Carl M. Valve. 3,706,322, Cl. 137-625.660.
- Carre, Roland, to Thomson-CSF. Devices for eliminating fixed-echoes. 3,706,990, Cl. 343-7.700.
- Carrell, Peter K., to CPC International Inc. Solid, glass-like starch hydrolysates having high densities. 3,706,598, Cl. 127-29.000.
- Carruthers, Rosemary Angela: *See—*
  - Campbell, Alastair; and Carruthers, Rosemary Angela, 3,706,816.
- Caterpillar Tractor Company: *See—*
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- Caverly, Brian Leonard; and Rossell, John Barry, to Lever Brothers Company. Process for preparing edible fat compositions containing triglycerides derived from C_{16}, C_{18}, C_{20}, and C_{22} fatty acids. 3,706,576, Cl. 99-118.00r.
- Cease, Richard G.: *See—*
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- Celanese Corporation: *See—*
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  - Larkin, Donald R., 3,706,785.
  - Martin, Preston Kuhn; and Kelly, Richard Howard, 3,706,672.
  - Prinz, Roy H., 3,706,793.
  - Trapasso, Louis E., 3,706,707.
- Centre National d'Etudes Spaliales: *See—*
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- Cescato, Richard W., to CPC International Inc. Compositions useful in the production of paper products and based upun novel starch derivatives. 3,706,584, Cl. 106-214.000.
- Chamberlin, Coleman R. File folder paper fastener. 3,706,501, Cl. 402-15.000.
- Chambers, Charles W., Jr., to Lorain Products Corporation. Amplifier circuit for transmission lines. 3,706,862, Cl. 179-170.00t.
- Chandrasekaran, Swayambu; and Mueller, Max B., to Allied Chemical Corporation. 3,3,3-Trifluoro-2-trifluoromethyl propene and vinylidene fluoride. 3,706,723, Cl. 260-87.700.
- Chanod, Edward E.: *See—*
  - Hagan, James J.; Chanod, Edward E.; Feldman, Robert S.; and Cords, Helmuth, 3,706,660.
- Chaplin, Merle P. Apparatus for removing marine growths and roots. 3,706,185, Cl. 56-9.000.
- Chappelow, Ronald E.; Elijah, Leo E.; Elliott, Virgil L.; Grochowski, Edward G.; Harrison, Harry D.; Tice, Homer A.; and York, Ralph S., to International Business Machines Corporation. Computer control for real time determination of resistivity of epitaxialy growing crystals. 3,707,003, Cl. 444-1.000.
- Chemagro Corporation: *See—*
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- Chew, Frank D. Smoke abatement apparatux. 3,706,538, Cl. 23-284.000.
- Chicago Bridge & Iron Company: *See—*
  - Arne, Christian, 3,706,627.
- Chikanon, Mitsuo: *See—*
  - Matsuura, Takashi; and Chikanon, Mitsuo, 3,706,688.
- Choi, Charles; and McGhay, Maynard H., to Motorola, Inc. Comb-line filter structure having reduced length and width. 3,706,948, Cl. 333-73.00c.
- Chrisp, Joseph D., to Du Pont de Nemours, E. I., and Company. Chemical foaming of water-bearing explosives. 3,706,607, Cl. 149-2.000.
- Christmas, Mr., Incorporated: *See—*
  - Tedeschi, Armand E., Jr., 3,706,435.
- Chrysler France: *See—*
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  - Dobinson, Bryan; and Winterbottom, Kenneth, 3,706,527.
  - Dobinson, Bryan; Hope, Paul; and Winterbottom, Kenneth, 3,706,528.

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  - Kirchmayr, Audolph; Peterli, Hans Jakob; and Heller, Hansjarg, 3,706,700.
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  - Petersen, John Valdemar Brammer; and Clauson-Kaas, Niels, 3,706,754.
  - Rodriguez, Herman Robert; and deStevens, George, 3,706,830.
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  - Sallmann, Alfred; and Pfister, Rudolf, 3,706,735.
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  - Schmidt, Paul; Eichenberger, Kurt; and Schweizer, Ernst, 3,706,738.
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  - Meldrum, David R.; and Eckert, Frank J., 3,706,586.
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- Clark, Frank Emmons, to Babcock & Wilcox Company, The. Insert dispenser. 3,706,247, Cl. 83-24.000.
- Clark, Frank S. Polyphenyl ether lubricating compositions. 3,706,668, Cl. 252-49.900.
- Clark, James F. Lightweight readily portable underwater habitation and method of assembly and emplacement. 3,706,206, Cl. 61-69.00r.
- Clark, Sidney G.; and Feterstein, Harold E. Enzyme products. 3,706,674, Cl. 252-527.000.
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- Clements, John Anthony; Goss, Alan Patrick; and Shepherd, Brian, to Smiths Industries Limited. Staircase counter. 3,706,890, Cl. 307-225.000.
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- Clifford, George F., Jr.; and Woodward, Robert C., to Clifford Instruments, Inc. Densitometer having an analog computer for calculating a fraction of the total area under a curve. 3,706,877, Cl. 235-151.350.
- Clifford Instruments, Inc.: *See—*
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- Coal Industry (Patents) Limited: *See—*
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- Coffre, Philippe: *See—*
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- Cohen, Jerry J.; and Lewis, Arthur E., to United States of America, Atomic Energy Commission. Nuclear chimney radioactive waste disposal. 3,706,630, Cl. 176-87.000.
- Cohn, Charlex E., to United States of America, Atomic Energy Commission. Random number generator. 3,706,941, Cl. 331-78.000.
- Colgate-Palmolive Company: *See—*
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- Collet, Etienne. Calendering roll. 3,706,119, Cl. 29-113.00r.
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- Collman, Joel, to Thiokol Chemical Corporation. Apparatus for packing a nonfluent composition. 3,706,257, Cl. 86-20.00r.
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- Conco Inc.: *See—*
  - Siegal, Burton L., 3,706,110.
- Condon, James A.; and Rothhaar, Charles W., to Maxon Pre-Mix Burner Corporation. Valve operating mechanism. 3,706,438, Cl. 251-251.000.
- Conix, Andre Jan; and Jeurissen, Lambert Gaston, to Gevaert-Agfa N.V. Manufacture of moulding material starting from polyethylene terephthalate. 3,706,699, Cl. 260-40.00r.
- Conix, Andre Jan; and Jeurissen, Lambert Gaston, to Gevaert-Agfa N.V. Process for the manufacture of highly polymeric polyesters utilizing samarium compound catalysts. 3,706,711, Cl. 260-75.00c.
- Conrad Precision Industries, Inc.: *See—*
  - Thuler, Oscar, 3,706,543.
- Conserva, Mario: *See—*
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- Copystatics Manufacturing Corporation: *See—*
  - Aasen, T. F.; Hartman, Thomas E.; and Schaffel, Martin, 3,706,490.
- Coran, Aubert Y.; and Vineyard, Billy D., to Monsanto Company. Monosubstituted ureas in lubricating compositions. 3,706,667, Cl. 252-51.50a.
- Cords, Helmuth: *See—*
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- Corey, Leonard S.: *See—*
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- Cornelius, Werner; and Kaminski, Friedrich, to Cornelius, Werner, KG. Apparatus for burying a plastic drainage pipe line in the ground. 3,706,207, Cl. 61-72.600.
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- Cosgrove, Richard E.; Krull, Irwin H.; and Mask, Charles A., to Beckman Instruments, Inc. Electrochemical electrode. 3,706,649, Cl. 204-195.00m.
- Cotton Incorporated: *See—*
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- Couret, Robert F.: *See—*
  - Lapeyre, James M.; and Couret, Robert F., 3,706,113.
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- Coville, William W., to Pitney-Bowes, Inc. Oscillatable ink pod and point member. 3,706,274, Cl. 101-333.000.
- Cozza, Giorgio; Bottai, Gabriele; and Barilli, Filippo, to Societa Italiana Resine S.p.A. Process for the manufacture of sodium sulphate. 3,706,531, Cl. 23-121.000.
- CPC International Inc.: *See—*
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  - Cescato, Richard W., 3,706,584.
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- Crawford, Alexander, to Massey-Ferguson Services, N.V. Feed mechanism for hay balers. 3,706,273, Cl. 100-189.000.
- Creusot-Loire: *See—*
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- Crockett, Richard H., to Toscotech Corporation. Pressure seal assembly. 3,706,482, Cl. 308-1.000.
- Cross, Ralph Herbert, III, to Hoult, David Parks, Gross, Ralph H., III and Milgram, Jerome H. Oil removal device. 3,706,382, Cl. 210-242.000.
- Cullen, James A. Book jacketing device. 3,706,107, Cl. 11-1.000.
- Curtin, Dennis Edward; and Hansen, John Edward, to Du Pont de Nemours, E. I., and Company. Brush bristles. 3,706,111, Cl. 15-159.00a.
- Curtis, George L.; Riesenberg, James H.; and Kelly, Ralph E., to Pelorix Corporation. Plastic container and method of making the same. 3,706,393, Cl. 220-67.000.
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- Cuscurida, Michael: *See—*
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- Cushman, Robert Holbrook, to Western Electric Company. Fusion bonding. 3,706,126, Cl. 29-498.000.
- Cutler-Hammer, Inc.: *See—*
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Dailey, Jack R.; and Kuntzleman, Harry C., to International Business Machines Corporation. Functional memory storage cell. 3,706,977, Cl. 340-173.00r.
Dailey, Jack R.; Kuntzleman, Harry C.; and Surgent John G., to International Business Machines Corporation. Functional storage array. 3,706,978, Cl. 340-173.00r.
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Dashley, Eugene; Tassie, Douglas P.; and Seemann, James M., to General Electric Company. Multibarrel automatic weapon. 3,706,259, Cl. 89-12.000.
Davis, Anthony Charles; and Amos, Brian Franklyn, to Imperial Chemical Industries Limited. Synthetic yarns. 3,706,195, Cl. 57-140.0by.
Davis, G. W., Corporation: *See*—
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Davis, Gerald W.; and Stackman, Robert W., to Celanese Corporation and Fiber Industries, Inc. Aromatic sulfonate modified polyesters. 3,706,712, Cl. 260-75.00s.
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Davis, John A., Jr., to Marathon Oil Company. Brine salt concentration regulation using micellar dispersions. 3,706,659, Cl. 210-21.000.
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Day, Frederic F.; Emery, George E.; and Dadura, James G., to Texaco Inc. Manufacture of lube oil containing overbased sulfurized calcium alkyphenolate. 3,706,632, Cl. 252-42.700.
De Angelis, Gerald George; and Hess, Hans-Jurgen Ernst, to Pfizer Inc. Benzothieno [3,2-d]- and benzofuro [3,2-d] pyrimidines. 3,706,747, Cl. 260-256.50r.
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de Montebello, Roger L. Reinforced lenticular sheet with plural apertured sheets. 3,706,486, Cl. 350-167.000.
De Neve, Gerard Marie Jules, to U.S. Philips Corporation. Discharge lamp provided with a substantially straight oblong discharge tube. 3,706,901, Cl. 313-285.000.
De Rosset, Armand J.; and Neuzil, Richard W., to Universal Oil Products Company. Fluid-solid contacting apparatus. 3,706,812, Cl. 260-674.0sa.
De Vost, Valmore F.; and Simkins, John W., to United States of America, Navy. Pressure gage for recording peak pressures. 3,706,229, Cl. 73-396.000.
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Deffner, John F., to Gulf Research & Development Company. Insecticidal compositions containing 2,6,7-trioxa-1-arsabicyclo 2.2.2 octane compounds. 3,706,836, Cl. 424-297.000.
Deguchi, Masahiro; and Hashirano, Masaru, to Matsushita Electric Industrial Co., Ltd. Automatic tape loading type magnetic recording and reproducing apparatus. 3,706,425, Cl. 242-195.000.
Dehlin, Leone S.; and Howard, Vesper J. Artificial breast replacement. 3,706,104, Cl. 3-36.000.
Deibert, Harold Leroy. Umbrella and umbrella tree frost cover. 3,706,160, Cl. 47-21.000.
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Deweyert, Harvey Rudolph: *See*—
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Dexter, Martin; and Knell, Martin, to Ciba-Geigy Corporation. 3,5-dialkyl-4-hydroxyphenyl derivatives of triazines. 3,706,740, Cl. 260-248.0cs.
Di Russo, Ettore; and Conserva, Mario, to Societa per l'Esercizio dell'Istituto Sperimentale dei Metalli Leggeri, S.p.A. Thermomechanical treatment process for heat treatable aluminium alloys. 3,706,606, Cl. 148-12.700.
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Dickson, Robert L.; Johnson, George B.; and Hansen, Kirby W., Jr., to United States of America, Navy. Performance monitor unit for frequency multiplexed HF modems. 3,706,854, Cl. 179-15.0bt.
Dietmann, Karl: *See*—
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Dietrich, Werner; and Stammheim, Andres, to Bayer Aktiengesellschaft. Hydrophilic polyurethane foams prepared from biuret containing polyisocyanates. 3,706,678, Cl. 260-2.5ad.
Dimeler, Glenn R.: *See*—
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Dixon, Jack R. Target type scoring device. 3,706,451, Cl. 273-26.00a.
Dobinson, Bryan; and Winterbottom, Kenneth, to Ciba-Geigy AG. Treatment of keratinous fibres and fabrics with polythiols. 3,706,527, Cl. 8-127.500.
Dobinson, Bryan; Hope, Paul; and Winterbottom, Kenneth, to Ciba-Geigy AG. Modifying keratinous textiles and fibres with mercaptan polyesters. 3,706,528, Cl. 8-128.00a.
Dodson, Joseph J., Jr.: *See*—
  Wald, Ernst A.; and Dodson, Joseph J., Jr., 3,706,205.
Doi, Yoshikazu; Kishikawa, Toshiro; and Sunaga, Yasumasa, to Fuji Shashin Koki Kabushiki Kaisha. Optical system for mechanically scanning with a rotating polyhedral reflector. 3,706,484, Cl. 350-7.000.
Domenico, Penelope B., to Dow Chemical Company, The. Certain polyhalo-4-nitor-picolinonitriles. 3,706,751, Cl. 260-294.900.
Donofrio, Nicholas M.; and Linton, Richard H., to International Business Machines Corporation. A.C. stable storage cell. 3,706,891, Cl. 307-238.000.
Doolittle, Frederick W.: *See*—
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Dostal, Pravomil, to Elitex Zavody Textilniho Strojirenstvi generalni reditelstvi. Device for the continuous and automatically controlled driving of warp beams and similar devices bearing a yarn supply. 3,706,328, Cl. 139-110.000.
Dotson, William P., Jr. Method of measuring (the velocity of a small moving objects. 3,706,495, Cl. 356-28.000.
Douds, Robert G.: *See*—
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Duffy, James V.; and Erickson, Porter W., to United States of America, Navy. Depotting solvent. 3,706,691, Cl. 252-364.000.
Duke, Roy B., Jr., to Marathon Oil Company. Oxidative dealkylation and dehydrogenation of tert-alkyl aromatics. 3,706,811, Cl. 260-669.00r.
Dunbar, Charles C. Tide-actuated machine. 3,706,507, Cl. 415-7.000.
Duncan, Vernon R.; and Owen, Louis L., to General Electric Company. Modulating circuit. 3,706,943, Cl. 332-9.00t.
Duncan, William E., to United States of America, Navy. Orthogonal line generator. 3,706,235, Cl. 74-52.000.
Dunfield, John C. G., to Sperry Rand Corporation. Brushless D.C. motor acceleration system. 3,706,923, Cl. 318-254.000.
Dunlop Tire and Rubber Corporation: *See*—
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Dunnenberger, Max; and Biland, Hans Rudolf, to Ciba-Geigy AG. Bisoxalic acid diamides. 3,706,798, Cl. 260-559.00a.
Dupre, Herman K. Apparatus and method for making snow. 3,706,414, Cl. 239-14.000.
Duve, John P.; and Petry, Stanton H., to Sunbeam Corporation. Lather making apparatus. 3,706,690, Cl. 252-359.00e.
Dykstra, Edward G., to Ethylox Products, Inc. Method and apparatus for forming the end of a plastic tube and sealing the tube within a flexible container. 3,706,620, Cl. 156-221.000.
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Eby, George W. Emergency signal light with magnetic contacts. 3,706,882, Cl. 240-7.10r.
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Eden, Jamal S., to Goodrich, B. F., Company, The. Catalyst for preparation of unsaturated aldehydes and acids. 3,706,692, Cl. 252-432.000.
Edenhofer, Albrecht; Ramuz, Henri; and Spiegelberg, Hans, to Hoffmann-La Roche Inc. Certain 4[3-[4-(phenyl)-3,6-dihydro-1(2H) pyridyl]-2-hydroxy-propoxy]-benzophenones. 3,706,755, Cl. 260-297.00r.
Edwards, John A.; and Fried, John H., to Syntex Corporation. Substituted cyclohexene carboxylic acids and derivatives thereof. 3,706,784, Cl. 260-473.00r.
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Einstman, William J.; Ponzoni, George B.; and Leonard, Richard J., to General Foods Corporation. Process for aggregating prelightened coffee compositions. 3,706,572, Cl. 99-71.000.
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Emshwiller, MacLellan, to Bell Telephone Laboratories, Incorporated. Optical wave correlation. 3,706,881, Cl. 235-181.000.
Engelhardt, Bjorn H., to Raytheon Company. Power regulating amplifier system. 3,706,925, Cl. 323-22.00t.
Engelsmann, Dieter; Hackenberg, Hubert; and Deeg, Karl, to Agfa-Gevaert Aktiengesellschaft. Photographic apparatus. 3,706,268, Cl. 95-53.00r.
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Epifani, Corrado; and Pucci, Luigi. Joint device for a disconnectable mechanical and electric connection of an electric light pendant or other suspended electric apparatus, to a carrying means. 3,706,956, Cl. 339-66.00m.
Eraser Company, Inc., The: *See*—
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Erich, Reuben R., 1/2 to Erich, Richard R. Oil well pump actuating mechanism. 3,706,234, Cl. 74-41.000.
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Erikson, J. A.; and Douds, Robert G., to PPG Industries. Coating compositions of unsaturated carboxylic acid amide polymers and unsaturated organosilanes. 3,706,709, Cl. 260-80.071.
Erlich, Giora. Skimmer assembly having an automatic shut-off weir. 3,706,379, Cl. 210-169.000.
ESB Incorporated: *See*—
  Bergum, Bernard C.; and Youngquist, John A., 3,706,616.
Esclamadon, Christian; Labat, Yves; and Signouret, Jean-Baptiste, to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine. Formal propyl or butyl dithiol. 3,706,806, Cl. 260-609.00r.
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Faure, Denis Marie, to Chrysler France. Telescopic hydraulic damper. 3,706,362, Cl. 188-282.000.
Fawcett, John Anthony; and Gray, William Hugh, to Rank Organisation Limited, The. Multi-layer anti-reflection coatings using intermediate layers having monotonically graded refractive index. 3,706,485, Cl. 350-164.000.
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Ferguson, Harry R., to United States of America, Army. Composite polysulfide propellant cured with a monofunctional mercaptan. 3,706,610, Cl. 149-19.000.
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Ffowces-Williams, John Eirwyn; Hawkins, Roy; Dawson, Hylton; and Smith, William, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defense in Her Britannic Majesty's Government of the. Noise suppressor for jet engines. 3,706,33, Cl. 181-33.0hc.
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Fister, Karoly G.; and Gibbons, Martin D., to General Electric Company. Photocathode-phosphor imaging system for X-ray camera tubes. 3,706,885, Cl. 250-83.30r.
Flensberg, Hermann; and Frey, Felix, to Ciba-Geigy AG. Process for the dyeing or printing of textile fibre mixtures using simultaneously cationic and anionic dyestuff. 3,706,524, Cl. 8-21.000a.
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Foley, James P. Leaf binding. 3,706,503, Cl. 402-69.000.
Folson, Henry J.; Boxley, Denis V.; Kingsbury, James; Kraitzer, Shlomo; Soulakis, George; and Whittington, Jimmie L., to Mattel, Inc. Remotely controlled wheeled toy vehicle system. 3,706,153, Cl. 46-202.000.
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Foreman, Robert J., to Raytheon Company. Coaxial magnetron slot mode suppressor. 3,706,910, Cl. 315-39.510.
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Frey, Harry Robert, to RCA Corporation. Photographic method for printing viewing screen structure including treatment of exposed coating before development. 3,706,558, Cl. 96-27.00e.
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  Marx, Michael; and Fried, John H., 3,706,781.
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Fryer, Rodney Ian; and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. 1,5-dihydro-2 H-1, 4-benzodiazepine. 3,706,734, Cl. 260-239.30d.
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  Nakazawa, Yoshiyuki; Sueyoshi, Tohru; Sato, Akira; and Nakamura, Yashiharu, 3,706,570.
  Shiba, Keisuke; Sueyoshi, Tohru; Akira, Sato; Kubodera, Seiiti; and Tsubota, Motohiko, 3,706,566.
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Fujisawa, Tamotsu; Ohtsuka, Noriko; Kobori, Takeo; and Tsuchihashi, Genichi, to Sagami Chemical Research Center. Process for the preparation of aryl sulfides. 3,706,805, Cl. 260-609.00e.
Fujitsu Limited: *See—*
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Fukushima, Takekazu, to Kabushiki Kaisha Suwa Seikosha. Sealing structure in a waterproof watch. 3,706,198, Cl. 58-90.00r.
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  Batcho, Andrew David; Berger, Julius; Furlenmeier, Andre; Keller, Oscar; Pecherer, Benjamin; Schocher, Arno Johannes; Spiegelberg, Hans; and Vaterlaus, Bruno Peter, 3,706,729.
Furlong, Owen Desmond, to Westland Aircraft Limited. Pressure control systems. 3,706,270, Cl. 98-1.500.
Furman, Rudolph S.; and Zimmer, Jerrold F., to International Business Machines Corporation. Fuser roll cleaning method and apparatus for performing it. 3,706,491, Cl. 355-133.000.
Furuichi, Itsuro: *See—*
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G. T. Products, Inc.: *See—*
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Gamble, Ralph S., to Simmonds Precision Products, Inc. Depth sensing switch with tubular housing having a diaphragm encompassing a portion of said housing. 3,706,864, Cl. 200-83.00b.
Garbalizer Corporation of America: *See—*
  Brewer, John C., 3,706,289.
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Gardner, Tommy R., to Halliburton Company. Composition and method for the dissolution of gypsum. 3,706,669, Cl. 252-82.000.
Garnett, Robert E., to Richards Manufacturing Company. Hanging sling for arm cast. 3,706,310, Cl. 128-94.000.
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Gehman, John B., to General Dynamics Corporation. Intrusion detection system. 3,706,982, Cl. 340-258.00c.
Geier, George; and Mimmack, William E., to United States of America, Army, mesne. Cinetheodolite. 3,706,496, Cl. 356-149.000.
Geisler, Robert L., to United States of America, Air Force. Combustion tailoring of solid propellants by oxidizer encasement. 3,706,608, Cl. 149-6.000.
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Giel, Geroge James, to RCA Corporation. Apparatus for mounting and spacing a signal transducer with respect to a recording medium. 3,706,861, Cl. 179-100.20p.
Gier, Delta W.; and Wasleski, Daniel M., to Chemagro Corporation. Chloronitrophenyl esters of polycarboxylic acids. 3,706,786, Cl. 260-479.00s.
Giese, Ludi: *See—*
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Gillmer, Arnold H.; and Hance, Harold V., to Hughes Aircraft Company. Coherent-angle tracking system incorporating target-velocity tracking apparatus. 3,706,991, Cl. 343-7.700.
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Glause, Loy E.; and Glause, Gene N. Gate latch adaptable for use with multi-panels type farm gates. 3,706,164, Cl. 49-394.000.
Gleeson, Robert Leonard, to Lucas, Joseph, (Industries) Limited. Electrical switches. 3,706,133, Cl. 29-622.000.
Gluckin, Gerald W. Stretch fabric watchband. 3,706,404, Cl. 224-4.00e.
Godoy, Humbert C.; and Vogelsberg, R. Eric, to International Business Machines Corporation. Logical fault screening technique. 3,706,879, Cl. 235-153.0ac.
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Graf, Fritz; and Koenig, Horst, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of furans by reaction of an oxazole with an acetylene compound. 3,706,770, Cl. 260-346.10r.
Grain, Clark F., to Itek Corporation. Image recording material containing titanium dioxide, and zinc oxide in minor amount and the use thereof. 3,706,560, Cl. 96-48.000.
Grakauskas, Vytautas, to Aerojet-General Corporation. N,N-difluorocarbamates. 3,706,788, Cl. 260-482.20c.
Gram S.A.: *See—*
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Gray, Frederick William, to Colgate-Palmolive Company. Bleaching composition. 3,706,670, Cl. 252-95.000.
Gray, Kenneth Russell; Van Blaricom, Lloyd Eugene; Herrick, Franklin Willard; and Deweyert, Harvey Rudolph, to International Telephone and Telegraph Corporation. Foliar sprays. 3,706,545, Cl. 71-1.000.
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Greenwood, Arthur R.; Heinze, Walter W.; Schnitta, Edward; and Boyd, David M., to Universal Oil Products Company. Multiple-stage stacked reactor system for moving bed catalyst particles. 3,706,536, Cl. 23-288.00g.

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Grey, Donald M.; Butler, Lee D.; Welker, Jerry W.; and Crane, Jack W. Method of handling bales. 3,706,389, Cl. 214-152.000.

Grier, John D.; and Hall, Maclin S., to Owens-Illinois, Inc. Electrode configuration for AC pip electrophotography. 3,706,552, Cl. 96-1.400.

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Grinninger, Lowell D., to National Distillers and Chemical Corporation. Control of molecular weight in the production of alfin polymers. 3,706,721, Cl. 260-82.100.

Grivas, John C., to Sherwin-Williams Company, The. 2-(1-Adamantanyl)-1,2-benzisothiazolin-3-one. 3,706,758, Cl. 260-304.000.

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Grundy, Brian; and Hampson, Peter Samuel, to Plessey Handel und Investments A.G. Means for supervision of the control of telecommunications switching networks. 3,706,856, Cl. 179-18.0ge.

Gruska, Ralph, to SEBEC Societe d'Exploitation de Brevets d'Emballage Cosmetique, SA. Case for lipsticks and other pasty products. 3,706,354, Cl. 401-78.000.

Gruska, Ralph, to SEBEC Societe d'Exploitation de Brevets d'Emballage Cosmetique S.A. Holders for housing pasty materials. 3,706,500, Cl. 401-78.000.

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Hafner, Theodore. Frequency adjustment for two-way video transmission. 3,706,996, Cl. 343-186.000.

Hagan, James J.; Chanod, Edward E.; Feldman, Robert S.; and Cords, Helmuth, to Squibb, E. R., & Sons., and Inc. Process for removal of particle-forming proteins from blood sera. 3,706,660, Cl. 210-21.000.

Hagan, Melvin A.; and Batista, Roy I., to TRW Inc. Tantalum clad niobium. 3,706,539, Cl. 29-195.000.

Hagemann, Hermann, to Bayer Aktiengesellschaft. Isocyanates and preparation thereof. 3,706,778, Cl. 260-455.0r.

Hager, Robert Bonner, to Pennwalt Corporation. Alkyl esters of fluoroalkyl dicarboxylic acids. 3,706,787, Cl. 260-481.00r.

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Hall, Maclin S.: *See—*
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Hall, Nelson Lee; and Slocum, Donald Hillman, to Du Pont de Nemours, E. I., and Company. Process for manufacture of an improved multi-colored plastic building product. 3,706,825, Cl. 264-75.000.

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Hanener, John W.; and Reyner, Franklin W. Selective dispenser with clip storage for dispensing small articles in preset quantities. 3,706,395, Cl. 221-119.000.

Hanna, John E., to National Semiconductor Corporation. Gain controlled amplifier for integrated circuit applications. 3,706,937, Cl. 330-28.000.

Hansen, Jay M.; Holscher, Donald J.; and Prince, Paul R., to Hughes Aircraft Company. SEC camera tube and image intensifier protection against excessive light damage. 3,706,903, Cl. 315-10.000.

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Hapgood, William H., to Raytheon Company. Compact heat exchanger with high intensity burner. 3,706,303, Cl. 126-116.00r.

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Hardung-Hardung, Heimo; Corsepius, Horst; and Hofmann, Hansdieter, to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen. Method of making cyclohexanol and cyclohexanone by oxidation of cyclohexane. 3,706,647, Cl. 204-162.0he.

Hardy, Frederick Edward, to Procter & Gamble Company, the. Bleaching agents and additives. 3,706,671, Cl. 252-99.000.

Harner, Robert H., to S & C Electric Company. Redundant, radio transmitter and receiver control systems for telemetering systems. 3,706,930, Cl. 325-56.000.

Harris-Intertype Corporation: *See—*
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Hart, Atlee S. Indicating system for detecting gaseous and non-gaseous states. 3,706,981, Cl. 340-244.00r.

Hartlage, James A.; and McKillip, William J., to Ashland Oil, Inc. Process for the preparation of aminimides. 3,706,800, Cl. 260-561.00h.

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Haskins, Arlie W., to Nuclear Associates, Inc. Process for the preparation of a Sr^{90}-Y^{90} beta source in a radiation hazard free manner. 3,706,689, Cl. 252-301.1.

Hass, Robert H.; and Reeg, Cloyd P., to Union Oil Company of California. Hydrocracking of nitrogen containing feedstocks. 3,706,658, Cl. 208-111.000.

Hasson, Harrith M., to Hollister Incorporated. Gynecological instrument. 3,706,307, Cl. 128-2.00s.

Hastings, Garth W., to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defense in Her Britannic Majesty's Government of the. Method of making pyrotechnic composition containing a polysulphide polymer. 3,706,611, Cl. 149-44.000.

Hatada, Yasutaka: *See—*
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Hatakeyama, Lawrence F., to United States of America, National Aeronautics and Space Administration. Method and system for ejecting fairing sections from a rocket vehicle. 3,706,281, Cl. 102-49.500.

Hatcher, Burrell R.; Miccioli, Aldo R.; Mohr, Max C.; and Sheldon, Edward J., to Raytheon Company. Multiple interleaved phased antenna array providing simultaneous operation at two frequencies and two polarizations. 3,706,998, Cl. 343-754.000.

Hausner, Jerry, to Narda Microwave Corporation, The. High frequency sweep generator. 3,706,940, Cl. 331-76.000.

Hawkes, Richard B.: *See—*
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Heer, John, to Varian Associates. Surface barrier diode having a hypersensitive N region forming a hypersensitive voltage variable capacitor. 3,706,128, Cl. 29-578.000.

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Heilman, William J., to Gulf Research & Development Company. Process for the preparation of cyclic acid anhydrides. 3,706,703, Cl. 260-78.50t.

Heilman, William J., to Gulf Research & Development Company. Preparation of C_6-C_{10} olefin-maleic anhydride copolymers. 3,706,704, Cl. 260-78.50r.

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Kirchmayr, Audolph; Peterli, Hans Jakob; and Heller, Hansjarg, 3,706,700.

Heller, William C., Jr.: *See—*
Leatherman, Alfred F., 3,706,176.

Helmer, Josef, to Daimler-Benz Aktiengesellschaft. Form-locking connection of torque-transmitting structural parts, especially in automatic motor vehicle transmissions. 3,706,364, Cl. 192-48.920.

Helms, August R.: *See—*
Brightmire, Glenn K.; Bossler, Alfred T.; Burnell, Arthur E.; and Helms, August R., 3,706,330.

Hendges, Louis W. Mirrored marine aquarium. 3,706,299, Cl. 119-5.000.

Henrick, Clive A.; and Siddall, John B. Epithio-thiol-dienoates. 3,706,733, Cl. 260-327.00e.

Henry, Nelson R. Automatic filling and weighing apparatus. 3,706,587, Cl. 177-1.000.

Herbert, Hugh P.; and Pelofsky, Arnold H., to Cities Service Oil Company. Regeneration of spent alkylation acid. 3,706,648, Cl. 204-162.00s.

Herbst, Burton C.: *See—*
Herbst, Lewis R.; Herbst, Burton C.; and Herbst, Wayne K., 3,706,356.

Herbst, Lewis R.; Herbst, Burton C.; and Herbst, Wayne K. Vehicle hoist. 3,706,356, Cl. 187-8.590.

Herbst, Wayne K.: *See—*
Herbst, Lewis R.; Herbst, Burton C.; and Herbst, Wayne K., 3,706,356.

Hercules Incorporated: *See—*
Brack, Karl, 3,706,685.
Brack, Karl, 3,706,715.
Thomson, J. Brent, 3,706,592.
Vandenberg, Edwin J., 3,706,706.

Herd, Joseph, to Maschienefabrik Goebel GmbH. Perforating mechanism. 3,706,250, Cl. 83-345.000.

Herold, Carl D., Jr.: *See—*
Bidell, Frederick W.; Herold, Carl D., Jr.; and Lindholm, James H., 3,706,933.

Herr, Milton E.; Murray, Herbert C.; and Fonken, Gunther S., to Upjohn Company, The. 1-Aminoadamantan-4-ols. 3,706,801, Cl. 260-563.00p.

Herrick, Franklin Willard: *See—*
Gray, Kenneth Russell; Van Blaricom, Lloyd Eugene; Herrick, Franklin Willard; and Deweyert, Harvey Rudolph, 3,706,545.

Hershenson, Fred M., to Searle, G. D., & Co. 1-Carbamoyl-2-phenyliminopyrrolidines. 3,706,766, Cl. 260-326.300.

Herz, Arthur H.; Burness, Donald M.; and Seus, Edward J. Photographic materials and processes for developing photographic compositions. 3,706,562, Cl. 96-66.300.

Herzer, Kurt, Company: *See—*
Mertens, Wolfgang, 3,706,472.

Heseltine, Donald W.; and Eldredge, Carl H., to Eastman Kodak Company. Organic photoconductors spectrally sensitized with merocyanine dyes containing a triazolo- or tetrazolo-(1,5-a)pyrimidin-7(6H)-one nucleus. 3,706,555, Cl. 96-1.600.

Hess, Hans-Jurgen Ernst: *See—*
De Angelis, Gerald George; and Hess, Hans-Jurgen Ernst, 3,706,747.

Hewlett-Packard Company: *See—*
Mordan, William J., 3,706,904.

Heyman, Philip Michael; and Gorog, Istvan, to RCA Corporation. Method of improving the α of a cathodochromic display device. 3,706,845, Cl. 178-7.50d.

Higase, Shiro, to Ishihara Sangyo Kaisha, Ltd. and Japan Monopoly Corporation, The. Method of cultivating tobacco and aqueous solution to be used therefor. 3,706,546, Cl. 71-78.000.

Hikota, Toyohiko: *See—*
Toki, Masamichi; Hikota, Toyohiko; and Okamoto, Miyoshi, 3,706,613.

Hiller, Gary L., to Eastman Kodak Company. Supersensitized photographic emulsions. 3,706,567, Cl. 96-126.000.

Hilton, Ralph W.; and Moudry, Gilbert A. Method for the manufacture of an aluminum cartridge case. 3,706,118, Cl. 29-1.300.

Hirane, Seiichi; Aya, Masahiro; and Kishino, Shigeo, to Nihon Tokushu Noyaku Seizo Kabushiki Kaisha and Farbenfabriken Bayer Aktiengesellschaft. Certain O-alkyl-s-phenyl-phosphonothiolate fungicides. 3,706,832, Cl. 424-217.000.

Hirota, Itaru. Friction reduced conveying apparatus of helical chain conveyor type. 3,706,371, Cl. 198-181.000.

Hirshfeld, Julian J.: *See—*
Hacklander, Egon H.; Hirshfeld, Julian J.; and Reuben, Bertie J., 3,706,529.

Hishida, Yukio; Nakai, Toshio; and Kuzuya, Susumu, to Brother Kogyo Kabushiki Kaisha. Repeat typing mechanism for power operated typewriters. 3,706,366, Cl. 197-17.000.

Hjermstad, Erling T.; and Rajtora, Otto J., to Penick & Ford Limited. Method of controlling etherification of granule starch with an alkali-consuming etherifying reagent. 3,706,730, Cl. 260-233.30r.

Hjermstad, Erling T., to Kcinep & Drof, Inc., mesne. Process of preparing highly substituted hydroxyalkyl ethers of uninhibited granule starches substantially free of salts and glycols, and resulting products. 3,706,731, Cl. 260-233.30r.

Hobart Manufacturing Company: *See—*
Fox, Gerald B.; Dudley, Wray E.; and Athey, Stuart E., 3,706,317.

Hobert, Herbert: *See—*
Bohm, Heinz-Dieter; Muller, Unna Wolfgang; and Hobert, Herbert, 3,706,365.

Hodogaya Chemical Industry Co., Limited: *See—*
Ozutsumi, Minoru; Maeda, Shigeo; and Nakajyo, Teruo, 3,706,725.

Hoffman, Joseph Willard; and Demler, Henry William, Sr., to AMP Incorporated. Crimping tool and die assembly. 3,706,219, Cl. 72-402.000.

Hoffmann, Hans: *See—*
Leontaritis, Lambis; Schon, Nikolaus; and Hoffmann, Hans, 3,706,124.

Hoffmann, Hellmut; and Hammann, Ingeborg, to Bayer Aktiengesellschaft. S-alkylmercapto methylthiophosphoric or phosphoric acid esters. 3,706,820, Cl. 260-940.000.

Hoffmann-La Roche Inc.: *See—*
Albrecht, Harry Allen; and Plati, John Thomas, 3,706,761.
Edenhofer, Albrecht; Ramuz, Henri; and Spiegelberg, Hans, 3,706,755.
Fryer, Rodney Ian; and Sternbach, Leo Henryk, 3,706,734.

Hofmann, Hansdieter: *See—*
Hardung-Hardung, Heimo; Corsepius, Horst; and Hofmann, Hansdieter, 3,706,647.

Hoke, Gilbert J., to Dunlop Tire and Rubber Corporation. Tire thread. 3,706,334, Cl. 152-209.000.

Holker, Kenneth: *See—*
Vessey, Clifford A.; Albon, Colin; and Holker, Kenneth, 3,706,603.

Holland, Frank J. System for exhausting gaseous products of combustion. 3,706,290, Cl. 110-184.000.

Hollister Incorporated: *See—*
Hasson, Harrith M., 3,706,307.

Hollister, Kenneth Robert; Perry, Ernest John; and Dappen, Glen Marshall, to Eastman Kodak Company. Process for forming silver halide crystals in the presence of amphiphilic copolymers. 3,706,564, Cl. 96-114.000.

Holm, Lennart: *See—*

Gynt, Lars; and Holm, Lennart, 3,706,285.

Holscher, Donald J.: *See—*

Hansen, Jay M.; Holscher, Donald J.; and Prince, Paul R., 3,706,903.

Holz, Hans; Kleep, Christian; and Koll, Gunter, to Schonzlin Klein & Becker, Aktiengesellschaft. Reactor liquid circulating pump arrangement. 3,706,513, CL 417-360.000.

Holzer, Alexander: *See—*

Sprick, Walter F.; Morse, Frank C.; Holzer, Alexander; Meller, Oscar W.; and Lovich, John W., 3,706,392.

Holzer, Karl, to Laevosan-Gesellschaft Chem. Pharm. Industrie Frank & Dr. Freudl. Polyfructosan trinicotinates. 3,706,732, Cl. 260-234.00r.

Holzer, W., & Co., KG: *See—*

Grenda, Hans August Herbert, 3,706,960.

Honda Motor Company, Ltd.: *See—*

Fukuda, Tadanori; Takahashi, Masao; Ogihara, Shoji; and Sekiya, Masato, 3,706,589.

Honeywell Inc.: *See—*

Wilwerding, Dennis J., 3,706,911.

Hooker Chemical Corporation: *See—*

Camilleri, Louis T.; and Forgione, Anthony F., 3,706,710.

Miller, George T., 3,706,602.

Hope, Paul: *See—*

Dobinson, Bryan; Hope, Paul; and Winterbottom, Kenneth, 3,706,528.

Hopkins, John P., to Hopkins, John P., Co. Pipe line construction method. 3,706,125, Cl. 29-428.000.

Hopkins, John P., Co.: *See—*

Hopkins, John P., 3,706,125.

Hopp Press Incorporated, The: *See—*

Greenberger, William, 3,706,150.

Hopton, Thomas E.; and Socha, Robert P., to Goodyear Tire & Rubber Company, The. Vinyl resin blowable into a rigid smooth skin microcellular profile. 3,706,679, Cl. 260-2.50e.

Horizons Incorporated: *See—*

Wainer, Eugene, 3,706,673.

Horner, Patrick James, to Imperial Chemical Industries Limited. Production of sulphonyl chlorides. 3,706,794, Cl. 260-543.00r.

Horton, Herbert D. Rotary pipe straightener. 3,706,215, Cl. 72-99.000.

Houlihan, William J.: *See—*

Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., 3,706,744.

Hoult, David Parks: *See—*

Cross, Ralph Herbert, III, 3,706,382.

Hoult, Raymond Oliver, to Coal Industry (Patents) Limited. Apparatus for rinsing small particulate material. 3,706,416, Cl. 239-193.000.

Howard, Vesper J.: *See—*

Dehlin, Leone S.; and Howard, Vesper J., 3,706,104.

Howell, Mark I., to Electrolocation Limited. Plotting apparatus for use in conjunction with surveying instruments. 3,707,002, Cl. 346-33.00m.

Hoya Glass Works: *See—*

Matsuura, Takashi; and Chikanon, Mitsuo, 3,706,688.

Hoyt, John M.; and Koch, Karl, to National Distillers and Chemical Corporation. Alpha-methyleneglutarimide polymers and copolymers and preparation thereof. 3,706,716, Cl. 260-78.0va.

Hruby, John O., Jr., to Rain Jet Corporation. Liquid discharge nozzles. 3,706,415, Cl. 239-107.000.

Huba, Francis: *See—*

Bride, John Edwin; and Huba, Francis, 3,706,639.

Huba, Francis; and Bride, John Edwin, to Du Pont de Nemours, E. I., and Company. Chromium plating with chromic compound and organic additive. 3,706,641, Cl. 204-51.000.

Huba, Francis, to Du Pont de Nemours, E. I., and Company. Chromium plating bath containing chromic compound and organic component. 3,706,643, Cl. 204-51.000.

Huber, Buel D.; and Enloe, Howard M. System for heating a section of pipe. 3,706,824, Cl. 263-2.00r.

Hudson, Charles D., to Wyckoff Company. Wood treating composition. 3,706,580, Cl. 106-15.0af.

Huebner, David J.; and Meddauh, Michael D., to Dow Corning Corporation. Method of preparing a silicone emulsion and regenerating same and electrically conductive product. 3,706,695, Cl. 117-226.000.

Hughes Aircraft Company: *See—*

Gillmer, Arnold H.; and Hance, Harold V., 3,706,991.

Hansen, Jay M.; Holscher, Donald J.; and Prince, Paul R., 3,706,903.

Koussa, Edward T.; and Iboshi, Lawrence K., 3,706,906.

Hughes, David Geoffrey, to Decca Limited. Receivers for phase comparison radio navigation systems. 3,706,995, Cl. 343-105.00r.

Hughes, Richard Smith, to United States of America, Navy. Amplitude independent, automatic frequency control discriminator. 3,706,932, Cl. 325-438.000.

Hughes, Richard Smith. Pulse repetition frequency detection and lock-on system. 3,706,935, Cl. 328-155.000.

Hull, Colin G.; and Boor, John, Jr., to Shell Oil Company. Aliphatic polycarbonates. 3,706,713, Cl. 260-77.50d.

Hunt, Jerry Donald: *See—*

Smith, Sydney; Hunt, Jerry Donald; and Esler, Richard Brotherton, 3,706,222.

Hurlburt, Joseph C.; and Freimuth, John H., to Sperry Rand Corporation. Suspension system for a mower unit. 3,706,186, Cl. 56-15.800.

Hurst, John, to Grace, W. R., & Co. Jointed concrete structures. 3,706,264, Cl. 94-17.000.

Hyde, Robert W. Aerator. 3,706,418, Cl. 239-428.500.

Iantorno, James, to Sealectro Corporation. Fastening system. 3,706,957, Cl. 339-126.00r.

Iboshi, Lawrence K.: *See—*

Koussa, Edward T.; and Iboshi, Lawrence K., 3,706,906.

Ikegami, Hideo, to Fujitsu Limited. Gaseous discharge device utilizing cyclotron resonance of electron display. 3,706,912, Cl. 315-169.0tv.

Imperial Chemical Industries Limited: *See—*

Bremner, James Duncan; and McLellan, Ian Alexander, 3,706,826.

Cairns, John Francis, 3,706,752.

Campbell, Alastair; and Carruthers, Rosemary Angela, 3,706,816.

Davis, Anthony Charles; and Amos, Brian Franklyn, 3,706,195.

Gilks, James Harris, 3,706,542.

Horner, Patrick James, 3,706,794.

Keith, Donald George, 3,706,172.

Nott, Robert Edward; and Lander, David Robin, 3,706,827.

Pumphrey, Nicholas William James; and Moss, Keith Graham, 3,706,600.

Inagaki, Junpei, to Tokyo Shibuara Electric Company, Limited. Linear comb-shaped synchronous motor. 3,706,922, Cl. 318-135.000.

Inose, Hideo, to Aisin Seiki Kabushiki Kaisha. Power steering mechanism. 3,706,262, Cl. 91-378.000.

Institut Francais du Petrole des Carburants Lubrifiants: *See—*

Salle, Robert; Sillion, Bernard; and De Gaudemaris, Gabriel, 3,706,803.

International Business Machines Corporation: *See—*

Acquadro, Edward W.; and Monahan, Donald F., 3,706,973.

Barrager, Stephen M.; Bate, Geoffrey; and Smith, Sidney H., 3,706,926.

Bickford, Jerome R.; and Nicholson, James O., 3,706,887.

Bonafino, Edward J.; Doolittle, Frederick W.; Hayes, Charles U.; and Yarrington, James C., 3,706,370.

Chappelow, Ronald E.; Elijah, Leo E.; Elliott, Virgil L.; Grochowski, Edward G.; Harrison, Harry D.; Tice, Homer A.; and York, Ralph S., 3,707,003.

Dailey, Jack R.; and Kuntzleman, Harry C., 3,706,977.

Dailey, Jack R.; Kuntzleman, Harry C.; and Surgent John G., 3,706,978.

Donofrio, Nicholas M.; and Linton, Richard H., 3,706,891.

Furman, Rudolph S.; and Zimmer, Jerrold F., 3,706,491.

Godoy, Humbert C.; and Vogelsberg, R. Eric, 3,706,879.

Johnson, Oliver Duane, 3,706,238.

Li, Pei-Ching; and Tsang, Paul J., 3,706,597.

Lynott, John J., 3,706,857.

Oktay, Sevgin; and Schmeckenbecher, Arnold F., 3,706,127.

Palmer, Myron D., 3,706,612.

Patrick, Robert L.; and Richard, Patrick L., 3,706,974.

Prahl, Marvin E., 3,706,426.

Tagawa, James M., 3,706,979.

Yakubowski, Carl, 3,706,475.

International Flavors and Fragrances, Inc.: *See—*

Katz, Ira; Evers, William John; and Giacino, Christopher, 3,706,577.

International Standard Electric Corporation: *See—*

Brisse, Jacques Daniel Philippe; and Joguet, Jean-Claude, 3,706,992.

International Telephone and Telegraph Corporation: *See—*

Blanchenot, John P., 3,706,958.

Gray, Kenneth Russell; Van Blaricom, Lloyd Eugene; Herrick, Franklin Willard; and Deweyert, Harvey Rudolph, 3,706,545.

Miller, Charles Eveleigh, 3,706,220.

Redmann, Jerome J., 3,706,493.

Intersil Incorporated, mesne: *See—*

Moyle, Kenneth J.; and Mann, Richard S., 3,706,840.

Iozza, Emanuele. Ice breaking passive bow. 3,706,295, Cl. 114-41.000.

Ippolito, Anthony C.: *See—*

Arsem, Alvan D.; Schwartz, Harold O.; and Ippolito, Anthony C., 3,706,837.

Irwin, Arthur S., to TRW Inc. Heat transfer bearing mounting. 3,706,483, Cl. 308-77.000.

Isachsen, Henning: *See—*

Patterson, Roger Lee; and Isachsen, Henning, 3,706,345.

Ishida, Hiroshi; and Mukai, Minoru, to Fuji Photo Film Co., Ltd. Inclination correcting device for bags carrying fasteners. 3,706,369, Cl. 198-33.0ad.

Ishihara Sangyo Kaisha, Ltd.: *See—*

Higase, Shiro, 3,706,546.

Ishii, Shogo, to Syntak Company, Ltd. Nail buffer. 3,706,316, Cl. 132-76.400.

Ishikawajima-Harima Jukogyo Kabushiki Kaisha: *See—*

Saiga, Yoshinori; and Mohri, Kazunori, 3,706,343.

Itek Corporation: *See—*

Grain, Clark F., 3,706,560.

Sprague, Robert H., 3,706,559.

Ito, Fukuzo; Sekine, Masaoki; and Arai, Yasusuke, to Tokyo Denki Kagaku Kogyo Kabushiki Kaisha. Endless tape cartridge. 3,706,422, Cl. 242-55.19a.

Ito, Itsuya: *See—*

Nabeta, Saburo; Yamada, Yuzo; and Ito, Itsuya, 3,706,779.

ITW-Ateco G.m.b.H.: *See—*

Wibrow, Gunter, 3,706,391.

J/D Scientific: *See—*

Jensen, David R., 3,706,158.

Jackson, Byron, Inc.: *See—*

Wilms, Carl Alfred, 3,706,243.

Jackson, Lloyd J.: *See—*

Willard, Robert C.; Craig, Jimmie M.; and Jackson, Lloyd J., 3,706,277.

Japan Monopoly Corporation, The: *See—*

Higase, Shiro, 3,706,546.

Jedrychowski, Jerzy L.; and Robinson, Peter, to Raytheon Company. Variable phase equalizer. 3,706,947, Cl. 333-28.00r.

Jedvall, Gustaf I.; deceased (by Mogensen, Arne; administrator). Method for measuring the absolute distance to a leakage fault in an electrical conductor. 3,706,927, Cl. 324-52.000.

Jefferson Chemical Company, Inc.: *See—*

Lloyd, Rodney Frederick; and Cuscurida, Michael, 3,706,714.

Jeger, Oskar: *See—*

Wehrli, Hansuli; and Jeger, Oskar, 3,706,737.

Jeger, Oskar; and Wehrli, Hans Ueli, to Ciba-Geigy Corporation. 19-Hydroxy-3-aza-a-homo-steroids. 3,706,736, Cl. 260-239.0bb.

Jensen, David R., to J/D Scientific. Multi-magnet magnetic toy. 3,706,158, Cl. 46-236.000.

Jensen Machinery Inc.: *See—*

Gerstenberger, Roland W.; and Gunn, David P., 3,706,450.

Jenson, Clark E. Tree medication capsule. 3,706,161, Cl. 47-57.500.

Jeument-Schneider: *See—*

Darmon, Jacques; and Coffre, Philippe, 3,706,985.

Jeumont-Schneider: *See—*

Ricaud, Pierre; and Cynober, Simon, 3,706,286.

Jeurissen, Lambert Gaston: *See—*

Conix, Andre Jan; and Jeurissen, Lambert Gaston, 3,706,699.

Conix, Andre Jan; and Jeurissen, Lambert Gaston, 3,706,711.

Jezuit, Arthur D.: *See—*

Young, William E.; and Jezuit, Arthur D., 3,706,174.

Jochimsen, William George: *See—*

Plotnikoff, Nicholas Peter; Dren, Anthony Thomas; and Jochimsen, William George, 3,706,831.

Joguet, Jean-Claude: *See—*

Brisse, Jacques Daniel Philippe; and Joguet, Jean-Claude, 3,706,992.

Johansen, Bent Georg, to Bristol-Myers Company. Hairwinder. 3,706,315, Cl. 132-33.00r.

John, Erwin Roy; and Laupheimer, Robert, to Newro-Data, Inc. Life detecting medical instrument. 3,706,308, Cl. 128-2.06r.

Johnson and Johnson Corporation: *See—*

Drelich, Arthur H.; and Bowman, Bobby R., 3,706,595.

Johnson, George B.: *See—*

Dickson, Robert L.; Johnson, George B.; and Hansen, Kirby W., Jr., 3,706,854.

Johnson, Guy L., to United States of America, Navy. Fluidic steering control. 3,706,263, Cl. 91-388.000.

Johnson, Oliver Duane, to International Business Machines Corporation. Apparatus and method for converting rotary to harmonic reciprocating motion. 3,706,238, Cl. 74-573.000.

Johnson, Robert E., to Pacific Car and Foundry Company. Cab tilt hydraulic circuit. 3,706,470, Cl. 296-28.00c.

Johnston, Robert R.: *See—*

Paulssen, Walter A.; and Johnston, Robert R., 3,706,361.

Johnston, Shaun C. Display assembly. 3,706,148, Cl. 40-77.700.

Jones, Darryl L.: *See—*

Mickelson, Grant A.; Jones, Darryl L.; and Baral, William J., 3,706,693.

Jones, Elwyn David; and Rowley, Edward Kenneth, to Canadian Industries Limited. Machine for fabricating bag handles. 3,706,625, Cl. 156-517.000.

Jones, Henry F. Ring puzzle with changeable number of rings. 3,706,458, Cl. 273-158.000.

Jones, Neville Murray: *See—*

Bell, Cyril Ove Robert; and Jones, Neville Murray, 3,706,665.

Joynes, Peter Leonard; and Maggs, Robert James, to Pye Limited. Chromatographic apparatus. 3,706,381, Cl. 210-198.00c.

Juhran, Wolfgang: *See—*

Fauland, Erich; Kampe, Wolfgang; Thiel, Max; Juhran, Wolfgang; Dietmann, Karl; and Stork, Harald, 3,706,728.

Jurow, Victor A.: *See—*

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Kabushiki Kaisha Daini Seikosha: *See—*

Matsura, Eiichi, 3,706,197.

Kabushiki Kaisha Suwa Seikosha: *See—*

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Kabushiki Kaisha Suwa Sukosha: *See—*

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Kabushiki Kaisha Toyota Chuo Kenkyusho: *See—*

Umehara, Hanji; Kimura, Takashi; and Hamamoto, Hiroshi, 3,706,550.

Kadi, Frank J.; Longsworth, Ralph C.; and Meier, Richard N., to Air Products and Chemicals, Inc. Flexible cryogenic liquid transfer system and improved support means therefor. 3,706,208, Cl. 62-55.000.

Kadota, Shinsuke: *See—*

Saito, Noriaki; and Kadota, Shinsuke, 3,706,853.

Kaeding, Warren W.: *See—*

Etherington, Robert W., Jr.; and Kaeding, Warren W., 3,706,807.

Kalst, Manmohan S., to ACF Industries, Incorporated. Pressure drop variation compensating and valve positioning mechanism. 3,706,320, Cl. 137-487.000.

Kaltenbronn, James S., to Parke, Davis & Company. Acetic acid compounds and methods for their production. 3,706,767, Cl. 260-330.500.

Kaminski, Friedrich: *See—*

Cornelius, Werner; and Kaminski, Friedrich, 3,706,207.

Kampe, Wolfgang: *See—*

Fauland, Erich; Kampe, Wolfgang; Thiel, Max; Juhran, Wolfgang; Dietmann, Karl; and Stork, Harald, 3,706,728.

Kaneko, Keiji: *See—*

Tanaka, Hiroshisa; Wada, Mitiaki; and Kaneko, Keiji, 3,706,179.

Kaneko, Keiji; Shoji, Kitimaru; and Mukai, Minoru, to Fuji Photo Film Co., Ltd. Bag opening device. 3,706,180, Cl. 53-386.000.

Kasner, William. Calculator. 3,706,875, Cl. 235-74.000.

Katchalski, Ephraim; Goldstein, Leon; Levin, Yehuda; and Blumberg, Shmaryahu, to Monsanto Company. Preparation of water-insoluble enzyme derivatives. 3,706,633, Cl. 195-63.000.

Katcher, Emanuel Edward, to United States of America, Navy. Environmental safe and arm device for igniter for rockets and missiles. 3,706,258, Cl. 89-1.812.

Kato, Mahiko; Saito, Isamu; and Nishiba, Tuneo, to Tokico Ltd. Fixed quantity liquid supplying apparatus using fluidic devices. 3,706,398, Cl. 222-20.000.

Kato, Sinzo: *See—*

Masaki, Kenji; and Kato, Sinzo, 3,706,444.

Katz, Ira; Evers, William John; and Giacino, Christopher, to International Flavors and Fragrances, Inc. Sulfur-containing flavoring compositions and processes therefor. 3,706,577, Cl. 99-140.00r.

Kaufman Mfg., Co.: *See—*

Dorak, Marvin H., 3,706,506.

Kawakami, Takaya; Kitamura, Toshinori; Ajichi, Yoshio; and Ono, Masayoshi, to Nichicon Capacitor, Limited. High frequency filter. 3,706,949, Cl. 333-79.000.

Kcinep & Drof, Inc., mesne: *See—*

Hjermstad, Erling T., 3,706,731.

Kearnan, James Edward; and Newsbaum, Robert William, to Stauffer Chemical Company. Uniformly dispersible insoluble sulfur vulcanizing compositions. 3,706,708, Cl. 260-79.500.

Keitel, John C., to McGraw-Edison Company. Supervisory control system for selectively connecting recorders and transcribing stations. 3,706,858, Cl. 179-100.1dr.

Keith, Donald George, to Imperial Chemical Industries Limited. Foam laminates. 3,706,172, Cl. 52-521.000.

Keith, Norval A., to Olin Corporation. Process for slitting sheet metal. 3,706,246, Cl. 83-7.000.

Kellar, Richard L.: *See—*

Paelian, Owen; Rister, Donald R.; and Kellar, Richard L., 3,706,349.

Keller, Oscar: *See—*

Batcho, Andrew David; Berger, Julius; Furlenmeier, Andre; Keller, Oscar; Pecherer, Benjamin; Schocher, Arno Johannes; Spiegelberg, Hans; and Vaterlaus, Bruno Peter, 3,706,729.

Keller, Robert Christian: *See—*

Baumann, Hans-Peter; and Keller, Robert Christian, 3,706,530.

Kelley, Buster E.: *See—*

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Kelly, Ralph E.: *See—*

Curtis, George L.; Riesenberg, James H.; and Kelly, Ralph E., 3,706,393.

Kelly, Richard Howard: *See—*

Martin, Preston Kuhn; and Kelly, Richard Howard, 3,706,672.

Kelsey-Hayes Company: *See—*

Stelzer, William, 3,706,477.

Kendall, Jerry A.: *See—*

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Kendrick, Gary R.: *See—*

Sauder, Robert A.; and Kendrick, Gary R., 3,706,870.

Kennedy, James S.: *See—*

Blanchard, Robert R.; Kennedy, James S.; and Roberts, Reginald F., 3,706,724.

Kerwin, Richard G.: *See—*

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Klein, Milton. Rural delivery mail box. 3,706,411, Cl. 232-17.000.

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Kowalski, Xavier, to Monsanto Company. Electrochemical compositions and processes. 3,706,635, Cl. 204-46.000.

Koyanagi, Shunichi; Kitamura, Hajime; and Shimizu, Toshihide, to Shinetsu Chemical Company. Method for suspension-polymerizing vinyl chloride. 3,706,705, Cl. 260-78.5cl.

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Kramer, James H., to Goodrich, B. F., Company, The. Vehicle suspension. 3,706,481, Cl. 305-27.000.

Kramer, Otis G., to United States of America, Air Force. Calorimeter for objects of low solar absorptivity. 3,706,226, Cl. 73-190.00h.

Krause, Rudolf J., to Rhewum Rheinische Werkzeug-u. Maschinenfabrik, G.m.b.H. Screen with differently tensioned surface zones. 3,706,376, Cl. 209-347.000.

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Krohn, Earl H., to Krohn-Hite Corporation. Selectively switched multi purpose electrical filter. 3,706,936, Cl. 330-21.000.

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La Forgia, Salvatore F., to United States of America, Army. Photochromic projection system. 3,706,487, Cl. 353-11.000.

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Labat, Yves: *See—*

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Larkin, Donald R., to Celanese Corporation. Preparation of bis (2-hydroxyalkyl) esters of terephthalic or isophthalic acid. 3,706,785, Cl. 260-475.0pr.

Lasser, Howard G., to United States of America, Army. Process including photolytic enhancement for anodic dissolution of a gallium arsenide wafer. 3,706,645, Cl. 204-143.0ge.

Latham, Allen, Jr., to Haemonetics Corporation. Pressure-actuated centrifuge chuck and centrifuge incorporating the same. 3,706,412, Cl. 233-1.00b.

Laub, Leonard J., to Zenith Radio Corporation. Narrow-bandwidth television system. 3,706,843, Cl. 178-6.800.

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Le Ouinquis, Jean Pierre, to Compagnie d'Etudes et de Recherches des Services Operationnels d'Assainissement en France Compagnie SAAF. Apparatus for treatment of sewage. 3,706,380, Cl. 210-197.000.

Leatherman, Alfred F., to Heller, William C., Jr. Closure member and method for closing containers. 3,706,176, Cl. 53-42.000.

Lederer, Edwin H., to General Electric Company. Semiconductor lead attachment system including a semiconductor pellet orientation plate. 3,706,409, Cl. 228-6.000.

Lee, Kyu Tai, to Du Pont de Nemours, E. I., and Company. Phenyldialkylbicyclo-2.2.2-oct-2-ene nitriles. 3,706,780, Cl. 260-465.00f.

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Li, Pei-Ching; and Tsang, Paul J., to International Business Machines Corporation. Glass vapor deposition on surfaces of semiconductor elements. 3,706,597, Cl. 117-201.000.

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Lichtman, Joseph Z., to United States of America, Navy. Vacuum process for application of sheet coatings. 3,706,621, Cl. 156-285.000.

Light, William A.: *See—*

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Malatcbi, James M. Plural channel light dimming system. 3,706,913, Cl. 315-292.000.
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Martinsons, Aleksandrs, to PPG Industries, Inc. Method of regenerating spinel surfaced electrodes. 3,706,644, Cl. 204-98.000.
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Masetta, Joseph P., to Xerox Corporation. Variable film reel. 3,706,488, Cl. 353-26.000.
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Matsura, Eiichi, to Kabushiki Kaisha Daini Seikosha. Date correcting device for wrist watches. 3,706,197, Cl. 58-58.000.
Matsushita Electric Industrial Co., Ltd.: *See—*
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Fukunaga, Masao; and Amo, Kiyoyuki, 3,706,135.
Matsuura, Takashi; and Chikanon, Mitsuo, to Hoya Glass Works. Glass color filter for use under daylight color fluorescent light. 3,706,688, Cl. 252-300.000.
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Mazzaferro, Gene Alfred: *See—*
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Mc Neill, Robert M. Gun and projectile for shooting fluids. 3,706,151, Cl. 42-1.00r.
McCoy, Mary Eloise; and Redin, Gunnar Sigurd, to American Cyanamid Company. Use of 4,6-diaminopyrimidine hydrochloride as an antifungal agent. 3,706,833, Cl. 424-251.000.
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McGraw, Thomas F. Orbiting system simulator. 3,706,141, Cl. 35-45.000.
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Keitel, John C., 3,706,858.
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Meldrum, David R.; and Eckert, Frank J., to Cities Service Company. Method of producing a pearlescent basic lead carbonate pigment. 3,706,586, Cl. 106-291.000.
Melges, Frederick J., to Rymel Corporation. Surgical instrument. 3,706,312, Cl. 128-305.000.

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Meyer, Burton C., to Glass, Marvin, & Associates. Maze type game. 3,706,455, Cl. 273-110.000.
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Michael, Harold J., to North American Rockwell Corporation. Cermet protective coating. 3,706,579, Cl. 106-1.000.
Michalik, Edmund R., to PPG Industries, Inc. Method of liquid quenching of glass sheets. 3,706,544, Cl. 65-116.000.
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Mieczkowski, Robert W. Inlet control. 3,706,271, Cl. 98-41.000.
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Milani, Dean L.; and Kerwin, Richard G., to Medical Research Laboratories. Trapezoidal waveshape defibrillator. 3,706,313, Cl. 128-419.00d.
Milde, Karl F., Jr. Sailboat. 3,706,296, Cl. 114-102.000.
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Moore, Edgar E.; and Foster, William A., to Dow Chemical Company, The. Drainage improvement in paper pulp suspensions containing lignin residues. 3,706,629, Cl. 162-168.000.
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Moroe, Tatsuo; Komatsu, Akira; Akutagawa, Susumu; Sakaguchi, Toshiaki; and Matsuyama, Hirokazu, to Takasago Perfumery Co., Ltd. Process for preparing highly reactive organomagnesium compounds. 3,706,809, Cl. 260-665.00r.
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  - Choi, Charles; and McGhay, Maynard H., 3,706,948.
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- Mowrey, Rowland G.; Stephen, Keith H.; and Wolfarth, Eugene F., to Eastman Kodak Company. Compositions for making blixes. 3,706,561, Cl. 96-60.0bf.
- Moxness, James G.; Nelson, Harold H.; and Mara, Edward A. O., to Minnesota Mining and Manufacturing Company. Copying and duplicating apparatus. 3,706,489, Cl. 355-3.000.
- Moyer, Ronald C.; and Uffner, Melville W., to Air Products and Chemicals, Inc. Functional surface coating compositions for cellulosic material. 3,706,590, Cl. 117-111.00b.
- Moyle, Kenneth J.; and Mann, Richard S., to Intersil Incorporated, mesne. Semiconductor device packaging. 3,706,840, Cl. 174-52.0pe.
- Mueller, Clair W., to Rex Chainbelt Inc. Method of forming a conveyor chain link having knuckles formed integrally with edge. 3,706,200, Cl. 59-35.000.
- Mueller, Johannes: *See—*
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- Mueller, Max B.: *See—*
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  - Kaneko, Keiji; Shoji, Kitimaru; and Mukai, Minoru, 3,706,180.
- Mulhall, Kenneth George. Heat treatment apparatus for the treatment of sewage and other sludges. 3,706,447, Cl. 263-37.000.
- Mullen, John W. Structural module and furniture or other structures formed therefrom. 3,706,473, Cl. 297-456.000.
- Muller, Unna Wolfgang: *See—*
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- Murphey, Carey E., Jr., to Shell Oil Company. Well deviation control system. 3,706,348, Cl. 175-320.000.
- Murphy, James R.: *See—*
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- Murray, Herbert C.: *See—*
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- Musschoot, Albert, to General Kinematics Corporation. Support structure for use with vibratory devices. 3,706,372, Cl. 198-218.000.
- Myers, Albert F., to Boise Cascade Corporation. Pinion differential mechanism having internal bias torque. 3,706,239, Cl. 74-715.000.
- N-S-W Corporation: *See—*
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- Nabeta, Saburo; Yamada, Yuzo; and Ito, Itsuya, to Daiichi Seiyaku Co., Ltd. Process for preparing 4-cyanocyclohexane carboxylic acid. 3,706,779, Cl. 260-464.000.
- Nagae, Tadashi; Oishi, Yasushi; and Hayashi, Jun, to Fuji Photo Film Co., Ltd. Method for preventing color mixing in multiple layer-type reversal color photographic light-sensitive materials. 3,706,556, Cl. 96-22.000.
- Nagai, Yoshiro: *See—*
  - Nishiyama, Shigeru; Kusano, Hiroshi; Nagai, Yoshiro; and Miura, Satoshi, 3,706,615.
- Naganuma, Masaaki; and Saito, Kazuyoski, to Nippon Electric Company, Limited. Code translation device. 3,706,984, Cl. 340-347.0dd.
- Nagashima, Shinichiro; and Tsuchiya, Kaichi, to Canon Kabushiki Kaisha. Electroconductized organic insulating material. 3,706,551, Cl. 96-1.500.
- Nakai, Toshio: *See—*
  - Hishida, Yukio; Nakai, Toshio; and Kuzuya, Susumu, 3,706,366.
- Nakajyo, Teruo: *See—*
  - Ozutsumi, Minoru; Maeda, Shigeo; and Nakajyo, Teruo, 3,706,725.
- Nakamura, Masanobu. Bulging apparatus. 3,706,213, Cl. 72-58.000.
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- Nakanishi, Michio; Munakata, Tomohiko; and Setoguchi, Shinro, to Yoshitomi Pharmaceutical Industries, Ltd. Phenethylaminomethylchromanones and-thiochromanones. 3,706,764, Cl. 260-327.0th.
- Nakazawa, Yoshiyuki; Sueyoshi, Tohru; Sato, Akira; and Nakamura, Yashiharu, to Fuji Photo Film Co., Ltd. Spectrally sensitized negative emulsion containing silver halide grains of less than 0.18 micron. 3,706,570, Cl. 96-137.000.
- Narda Microwave Corporation, The: *See—*
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- National Distillers and Chemical Corporation: *See—*
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- National Steel Corporation: *See—*
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- Neal, Charles Bailey; and Scott, Benton Boyd, to GTE Sylvania Incorporated. Color image display system employing altered scanning. 3,706,849, Cl. 178-502.00d.
- Nederlandse Organistie voor Toegepast-Natuurweten-schappelyk Onderzoek Ten behoeve van Nyverheid: *See—*
  - Turnhout, Jan Van, 3,706,131.
- Neese, John W.; and Gaylor, James E. Apparatus for evacuating septic tanks or the like. 3,706,319, Cl. 137-205.000.
- Neff, Joseph J., to Bell & Howell Company. Automatic loading and unloading tape transport apparatus utilizing a captive leader. 3,706,423, Cl. 242-195.000.
- Neisch, James C., to North American Rockwell Corporation. Differential control. 3,706,351, Cl. 180-75.000.
- Nelson, Alfred R.; and Floria, Vernon D., to Dow Chemical Company, The. Polymers from essentially water-insoluble unsaturated liquid monomers and process for preparing same. 3,706,722, Cl. 260-85.5za.
- Nelson, Harold H.: *See—*
  - Moxness, James G.; Nelson, Harold H.; and Mara, Edward A. O., 3,706,489.
- Neuenburg, Henry. Motor-driven chiseling device. 3,706,474, Cl. 299-38.000.
- Neuzil, Richard W.: *See—*
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- Neuzil, Richard W., to Universal Oil Products Company. Selectively adsorbing multi-branched paraffins. 3,706,813, Cl. 260-676.0ms.
- Newbury, Dale E.; and Prengaman, Raymond David, to St. Joe Minerals Corporation. Superplastic lead alloys. 3,706,605, Cl. 148-11.50r.
- Newell, Ronald C. Door stop. 3,706,112, Cl. 16-82.000.
- Newro-Data, Inc.: *See—*
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- Newsbaum, Robert William: *See—*
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  - Kawakami, Takaya; Kitamura, Toshinori; Ajichi, Yoshio; and Ono, Masayoshi, 3,706,949.
- Nicholas, Winslow C.; and Loomis, Joseph L. Portable play platform. 3,706,105, Cl. 5-93.00r.
- Nicholson, James O.: *See—*
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- Nihon Tokushu Noyaku Seizo Kabushiki Kaisha: *See—*
  - Hirane, Seiichi; Aya, Masahiro; and Kishino, Shigeo, 3,706,832.
- Niles, Donald E., to Outboard Marine Corporation. Lawn mower friction drive with slip clutch. 3,706,363, Cl. 192-3.540.
- Nippon Electric Company, Limited: *See—*
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- Nippon Electronics Co., Ltd.: *See—*
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- Nishiyama, Shigeru; Kusano, Hiroshi; Nagai, Yoshiro; and Miura, Satoshi, to Kubota Iron & Machinery Works, Ltd. Composite tube and a method of producing the same using the filament winding process. 3,706,615, Cl. 156-169.000.
- Nissan Motor Company, Limited: *See—*
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- Nitz, Rolf-Eberhard: *See—*
  - Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf, 3,706,739.
- Nitzsche, Siegfried; Burkhardt, Jurgen; and Wegehaupt, Karl-Heinrich, to Wacker-Chemie G.m.b.H. Method for preparing organopolysiloxane elastomers. 3,706,591, Cl. 117-124.00f.
- Nitzsche, Siegfried; Rurkhardt, Jurgen; and Wegehaupt, Karl-Heinrich, to Wacker-Chemie G.m.b.H. Method of preparing high molecular weight linear organopolysiloxanes. 3,706,775, Cl. 260-448.20e.
- Noar, Raymond; Tuffias, Robert H.; and Gow, Kenneth P., to North American Rockwell Corporation. Turbulence and vortex suppression in gyros. 3,706,231, Cl. 74-5.00r.
- Nodine, John H. Digital data entry device. 3,706,873, Cl. 235-61.100.
- Noll, Charles A. Method for determining zinc concentration in aqueous mediums. 3,706,532, Cl. 23-230.00r.
- Nomarski, Georges: *See—*
  - Roblin, Gerard; and Nomarski, Georges, 3,706,492.
- Norden, Alexander R., to O. Z. Electrical Manufacturing Company. Ground connector for conduit. 3,706,959, Cl. 339-14.00r.
- Nordstrom, Wallace C.; and Welles, Albert W., to United States of America, Navy. Acoustic target source. 3,706,963, Cl. 340-5.00d.
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- Rinker, William R., to Goodrich, B. F., Company, The. Apparatus for making plastic hose. 3,706,624, Cl. 156-432.000.
- Rister, Donald R.: *See*—
  - Paelian, Owen; Rister, Donald R.; and Kellar, Richard L., 3,706,349.
- Robbins, Clyde F.: *See*—
  - Halbeck, Werner B.; Quaal, John A.; Robbins, Clyde F.; Rutchik, Walter L.; and Ryczek, Lawrence J., 3,706,916.
- Roberts, Paul G.: *See*—
  - Borneman, Karl J.; Byler, Eichard E.; Roberts, Paul G.; and Smalinskas, Stepas, 3,706,240.
- Roberts, Reginald F.: *See*—
  - Blanchard, Robert R.; Kennedy, James S.; and Roberts, Reginald F., 3,706,724.
- Robertson, Alexander, to General Instrument Corporation. Preset tuner with improved tuning linkage. 3,706,232, Cl. 74-10.600.
- Robertson, Gene D., to Magnavox Company, The. Method to double transmission speed of telephone network facsimile. 3,706,842, Cl. 178-6.000.
- Robinette, Hillary, Jr., to Robinette Research Laboratories, Inc. Surface active sulfonates and process of preparing same by the reaction of alpha olefin and bisulfite. 3,706,791, Cl. 260-513.00b.
- Robinette Research Laboratories, Inc.: *See*—
  - Robinette, Hillary, Jr., 3,706,791.
- Robinson, John L.; and Munnich, Robert F., to Philco-Ford Corporation. Combined modem and vocoder pipeline processor. 3,706,929, Cl. 325-15.000.
- Robinson, Peter: *See*—
  - Jedrychowski, Jerzy L.; and Robinson, Peter, 3,706,947.
- Robinson, Robert W., to Sperry Rand Corporation. Apparatus for linearizing a non-linear signal. 3,706,934, Cl. 328-1.000.
- Roblin, Gerard; and Nomarski, Georges, to Agence Nationale de Valorisation de la Recherch (ANVAR). Photoelectric system and method for detecting the longitudinal location of surfaces. 3,706,492, Cl. 356-5.000.
- Rodriguez, Herman Robert; and deStevens, George, to Ciba-Geigy Corporation. 2,4-benzodiazepines used as antihypertensive agents. 3,706,830, Cl. 424-244.000.
- Rohm and Haas Company: *See*—
  - Lewis, Sheldon N.; and Miller, George Allen, 3,706,757.
- Rolls-Royce Limited: *See*—
  - Britt, Jack, 3,706,509.
- Rosasco, Nate, Jr., to Northwestern Golf Company. Golf club with finger orientating grip. 3,706,453, Cl. 273-81.400.
- Rosen, Jacob J.: *See*—
  - Brightmire, Glenn K.; Bossler, Alfred T.; Burnell, Arthur E.; and Helms, August R., 3,706,330.
- Rosen, Melvin Harris; and Blatter, Herbert Morton, to Ciba-Geigy Corporation. Thiophene-1,1-dioxides. 3,706,769, Cl. 260-332.100.
- Rosen, Philip J., to Diamond Power Specialty Corporation. Reactor control including individual and group rod motor controls. 3,706,921, Cl. 318-564.000.
- Rosenberg, Susan M. W.: *See*—
  - Witherow, William W., 3,706,871.
- Rosenfeld, Daniel D.; and Rosenhouse, Stanley. Substituted uracil phosphates as pesticides. 3,706,748, Cl. 260-260.000.
- Rosenhouse, Stanley: *See*—
  - Rosenfeld, Daniel D.; and Rosenhouse, Stanley, 3,706,748.
- Ross, Howard C., to Kinkead Industries, Inc. Tail block for carpet stretching tool. 3,706,440, Cl. 254-62.000.
- Ross, Roger J., to Singer Company, The. Incremental pattern control system for sewing machines. 3,706,291, Cl. 112-77.000.
- Rossell, John Barry: *See*—
  - Caverly, Brian Leonard; and Rossell, John Barry, 3,706,576.
- Rothhaar, Charles W.: *See*—
  - Condon, James A.; and Rothhaar, Charles W., 3,706,438.
- Rouet, Paul, to Ateliers de Constructions Electriques de Charleroi (ACEC) Societe Anonyme. Optical system for a camera. 3,706,848, Cl. 178-7.920.
- Rowan, Thomas M.: *See*—
  - Olivieri, George, 3,706,149.
- Rowley, Edward Kenneth: *See*—
  - Jones, Elwyn David; and Rowley, Edward Kenneth, 3,706,625.
- Royal Industries, Inc.: *See*—
  - Adler, Jason A., 3,706,924.
- Rucharski, Thaddeus W.: *See*—
  - Borel, Robert J.; Corey, Leonard S.; Rucharski, Thaddeus W.; Stocking, John L.; and Thomas, Frederick H., 3,706,406.
- Rudzki, Henryk S. Urethane foam production and catalyst therefor comprising a mixture of an aliphatic tertiary amine compound and a tertiary amine salt of an alkylarylsulfonic acid. 3,706,687, Cl. 260-2.5ac.
- Rueger, Herman: *See*—
  - Sweeney, Joseph Patrick; and Rueger, Herman, 3,706,134.
- Rumanowski, Edmund J., to Tenneco Chemicals Inc. N-cycloalkyl-2,3,6-trichlorobenzylidene-imines and their use as herbicides. 3,706,548, Cl. 71-121.000.
- Rurkhardt, Jurgen: *See*—
  - Nitzsche, Siegfried; Rurkhardt, Jurgen; and Wegehaupt, Karl-Heinrich, 3,706,775.
- Rush, Donald J., to Butler Manufacturing Company. Method of adhering urethane foams. 3,706,622, Cl. 156-306.000.
- Rutchik, Walter L.: *See*—
  - Halbeck, Werner B.; Quaal, John A.; Robbins, Clyde F.; Rutchik, Walter L.; and Ryczek, Lawrence J., 3,706,916.
- Rutherford, Harry T. Safety mower and leaf harvester-mulcher. 3,706,189, Cl. 56-13.400.
- Ryczek, Lawrence J.: *See*—
  - Halbeck, Werner B.; Quaal, John A.; Robbins, Clyde F.; Rutchik, Walter L.; and Ryczek, Lawrence J., 3,706,916.
- Ryder, Mabel H.: *See*—
  - Rampy, Gordon A.; Parsons, Norman C.; and Ryder, Mabel H., 3,706,823.
- Rymel Corporation: *See*—
  - Melges, Frederick J., 3,706,312.
- Rys, Tadeusz J., to Square D Company. Arc chute. 3,706,868, Cl. 200-144.00r.
- S & C Electric Company: *See*—
  - Harner, Robert H., 3,706,930.
- Sack, Rolf E.: *See*—
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- Sagami Chemical Research Center: *See*—

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Saiga, Yoshinori; and Mohri, Kazunori, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Stave cooling device employing double-tubes. 3,706,343, Cl. 165-70.000.
Saito, Isamu: *See—*
  Kato, Mahiko; Saito, Isamu; and Nishiba, Tuneo, 3,706,398.
Saito, Kazuyoski: *See—*
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Saito, Noriaki; and Kadota, Shinsuke, to Nippon Electric Company, Limited. Time division communication apparatus. 3,706,853, Cl. 179-15.0al.
Sakaguchi, Toshiaki: *See—*
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Saleeba, Wallace: *See—*
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Salle, Robert; Sillion, Bernard; and De Gaudemaris, Gabriel, to Institut Francais du Petrole des Carburants Lubrifiants. Bis (phenoxybenzoyl) aromatic compounds. 3,706,803, Cl. 260-591.000.
Sallmann, Alfred; and Pfister, Rudolf, to Ciba-Geigy Corporation. Basic derivatives of 5H-dibenz [b,f] azepines. 3,706,735, Cl. 260-239.00d.
Salsbury Laboratories: *See—*
  Peterson, Oliver H., 3,706,663.
Salter, Frank Michael; and Dibley, John Edwin, to British Iron and Steel Research Association, The. Skids or beams for furnaces. 3,706,448, Cl. 266-1.00r.
Sanders Associates, Inc.: *See—*
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Sandoz Ltd.: *See—*
  Baumann, Hans-Peter; and Keller, Robert Christian, 3,706,530.
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  Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., 3,706,744.
Sanz, Manuel Claude; and Weber, Rene, to Micromedic Systems, Inc. Eccentric mechanism for converting a rotary movement into a reciprocating pectilinear movement of variable amplitude. 3,706,233, Cl. 74-25.000.
Sargent, Ray. Anti-pollution apparatus. 3,706,182, Cl. 55-124.000.
Sato, Akira: *See—*
  Nakazawa, Yoshiyuki; Sueyoshi, Tohru; Sato, Akira; and Nakamura, Yashiharu, 3,706,570.
Sato, Shui: *See—*
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Sauder, Robert A.; and Kendrick, Gary R., to Sauder Industries, Inc. Method and apparatus for stud welding. 3,706,870, Cl. 219-98.000.
Sauer, Thomas H.: *See—*
  United States of America, National Aeronautics and Space Administration, 3,706,221.
Sauer, Winfriede: *See—*
  Berger, Herbert; Gall, Rudi; Merdes, Hartmut; Stach, Kurt; Sauer, Winfriede; and Vomel, Wolfgang, 3,706,745.
Saunders, William T., to National Steel Corporation. Manufacture of metal containers with rimmed opening. 3,706,292, Cl. 113-1.00g.
Savard, Guy: *See—*
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Schadlich, Gottfried: *See—*
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Schaffel, Martin: *See—*
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Schaffernicht, Klaua; and Schadlich, Gottfried, to Licentia Patent-Verwaltungs-G.m.b.H. Cathode-ray tube having planar grid accelerator adjacent and on screen side of beam deflectors. 3,706,896, Cl. 313-78.000.
Schaffner Manufacturing Co., Inc.: *See—*
  Schaffner, Robert D., 3,706,167.
Schaffner, Robert D., to Schaffner Manufacturing Co., Inc. Finishing apparatus. 3,706,167, Cl. 51-334.000.
Schelle, Axel; and Baronnet, Pierre, to Knorr-Bremse KG. Line coupling for railway vehicles. 3,706,386, Cl. 213-76.000.
Schellenbaum, Max; and Duennenberger, Max, to Ciba-Geigy Corporation. Method for combating bacteria certain 2-(2'- hydroxyphenyl)-oxazoles. 3,706,834, Cl. 424-272.000.
Schindler, Claude, to Zyma S.A. Distributor apparatus. 3,706,400, Cl. 222-95.000.
Schlumberger Technology Corporation: *See—*
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Schmeckenbecher, Arnold F.: *See—*
  Oktay, Sevgin; and Schmeckenbecher, Arnold F., 3,706,127.
Schmidt, Paul; Eichenberger, Kurt; and Schweizer, Ernst, to Ciba-Geigy Corporation. 5,6-Dihydro-8H-thiopyrano [4',3':4,5] thieno [2,3-a] pyrimidines. 3,706,738, Cl. 260-247.100.
Schneider, Jos., & Co. Optische Werke Kreuznach: *See—*
  Eberhardt, Toni, 3,706,437.
Schnitta, Edward: *See—*
  Greenwood, Arthur R.; Heinze, Walter W.; Schnitta, Edward; and Boyd, David M., 3,706,536.
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Schofield, Arthur T., to Manufacturers Brush Company, The. Method and apparatus for intertwisting lengths of filamentary material. 3,706,329, Cl. 140-149.000.
Schon, Nikolaus: *See—*
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Schonzlin Klein & Becker, Aktiengesellschaft: *See—*
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Schuierer, Manfred, to Bruckner-Apparatebau Michelstadt GmbH. Method and device for sealing adjacent chambers from each other. 3,706,138, Cl. 34-16.000.
Schuil, Roelof Egbert, to U.S. Philips Corporation. Method of manufacturing a luminescent oxysulphide. 3,706,666, Cl. 252-301.40s.
Schuller, Walter H.: *See—*
  Takeda, Hiroshi; Schuller, Walter H.; Lawrence, Ray V.; and Block, Seymour S., 3,706,762.
Schuster, Nick A., to Schlumberger Technology Corporation. Methods for perforating an arth formation. 3,706,340, Cl. 166-297.000.
Schwartz, Harold O.: *See—*
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Schweizer, Ernst: *See—*
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Seeman, Stephen E.: *See—*
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Seiler, Claus-Dietrich; Vahlensieck, Hans-Joachim; and Boje, Kurt, to Dynamit Nobel Aktiengesellschaft. Process for the manufacture of vinyl trichlorosilane. 3,706,776, Cl. 260-448.20e.
Seiler, Claus-Dietrich; and Vahlensieck, Hans-Joachim, to Dynamit Nobel AG. Process for the production of alkyl silanes. 3,706,777, Cl. 260-448.20e.
Sekine, Masaoki: *See—*
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Sekiya, Masato: *See—*
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Semerjian, Joseph K.: *See—*
  Britton, Leon R.; and Semerjian, Joseph K., 3,706,863.
Senser, Karl E., to Sears, Roebuck and Co. Brief and method of production. 3,706,103, Cl. 2-224.00a.
Sesti, Ferdinand: *See—*
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Sesti, Joseph J.; and Sesti, Ferdinand. Board game apparatus. 3,706,456, Cl. 273-135.0ac.
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Seus, Edward J.: *See—*
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Shaffer, John W., to Sylvania Electric Products, Inc. Photoflash lamp and method of providing deflector-shield therefor. 3,706,522, Cl. 431-93.000.
Sharp Corporation: *See—*
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Shayman, Harry I. Decorative acoustical ceiling panel. 3,706,171, Cl. 52-475.000.
Sheldon, Edward J.: *See—*
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  Murphey, Carey E., Jr., 3,706,348.
  Verheul, Cornelis M.; and Sternling, Charles V., 3,706,534.
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Shen, Taung-Ying; Witzel, Bruce E.; and Walford, Gordon L., to Merck & Co., Inc. Substituted phenylsulfonylmethyl salicylic acids and esters and salts thereof. 3,706,792, Cl. 260-520.000.
Shepardson, Harvey K. Spark plugs. 3,706,897, Cl. 313-141.000.
Shepherd, Brian: *See—*
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Sherwin-Williams Company, The: *See—*
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Shiba, Keisuke; Sueyoshi, Tohru; Akira, Sato; Kubodera, Seiiti; and Tsubota, Motohiko, to Fuji Photo Film Co., Ltd. Photographic emulsion containing optically dye-sensitized silver halide grains of less than 2.2 micron. 3,706,566, Cl. 96-120.000.
Shimizu, Toshihide: *See—*
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Shimola, Howard G., to Addressograph-Multigraph Corporation. Method of fixing electrostatically produced images. 3,706,588, Cl. 117-21.000.
Shimosawa, Ron, to Kiku Co. Seating unit. 3,706,471, Cl. 297-158.000.
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Shintani, Sotokichi: *See—*
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Siddall, John B.: *See—*
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Siddall, John B., to Zoecon Corporation. Quaternary alkyl aliphatic ketones. 3,706,804, Cl. 260-593.00r.
Siebecker, Hans; Wichmann, Gunter; and Kurotschka, Georg, to Eltro GmbH & Co. Optical electronic process and apparatus for recording temperature pictures. 3,706,886, Cl. 250-83.3hp.
Siegal, Burton L., to Conco Inc. Conduit cleaning apparatus. 3,706,110, Cl. 15-104.3sn.
Siegel, Maxwell E.: *See—*
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Siegele, Frederick Herman, to American Cyanamid Company. Copolymers of fumaric acid and allyl sulfonic acid. 3,706,717, Cl. 260-78.50r.
Siegerist, Walter L., to Meeco, Inc. Adjustable guide holder assembly. 3,706,214, Cl. 72-99.000.
Sielaff, Ernst A., to Collins Radio Company. Vehicle maneuver indicator. 3,706,136, Cl. 33-1.000.
Siemens Aktiengesellschaft: *See—*
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Signouret, Jean-Baptiste: *See—*
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Sikes, Robert L. F. Gun holding device. 3,706,403, Cl. 224-1.00r.
Sillion, Bernard: *See—*
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Silverstein, Martin S.: *See—*
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Simmonds Precision Products, Inc.: *See—*
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Simon, Horst; and Kirpol, Franz, to Eastman Kodak Company. Photographic apparatus for firing a plurality of flash lamps. 3,706,265, Cl. 95-11.00l.
Simonffy, Louis. Spiral drill having unequal cutting faces. 3,706,504, Cl. 408-228/.000.
Simpson, Joseph Elmer. Elevator emergency actuator and rescue unit. 3,706,357, Cl. 187-29.00r.
Singer Company, The: *See—*
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Sisler, Hampson A. Optical ophthalmodynamometer. 3,706,304, Cl. 128-2.00t.
Siwko, Karol, to GTE Sylvania Incorporated. Television receiver intermediate frequency amplifier circuitry. 3,706,846, Cl. 178-7.30r.
Sjovall, Jan: *See—*
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Skinner, James R.; Uitz, Mark O.; and Hait, Paul W., to Action Film, Inc. Motion picture viewer with removable cartridge. 3,706,439, Cl. 352-78.000.
Skralskis, Edward P., to Omark Industries, Inc. Energy absorbing structures. 3,706,359, Cl. 188-1.00c.
Slater, John M.; and Wilcox, Doyle E., to North American Rockwell Corporation. Accelerometer. 3,706,217, Cl. 73-497.000.
Slocum, Donald Hillman: *See—*
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Sluijters, Robert: *See—*
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Smalinskas, Stepas: *See—*
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Smatko, Joseph S.: *See—*
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Smeulers, Wouter, to U.S. Philips Corporation. Slicing synchronizing pulse separator circuit. 3,706,847, Cl. 178-7.350.
Smith, Donald G., to Lockheed Aircraft Corporation. Auxiliary flap actuator for aircraft. 3,706,431, Cl. 244-42.0da.
Smith, Gerald C., to Eastman Kodak Company. Method and apparatus for correlating rejected photographic prints with corresponding photographic negatives. 3,706,373, Cl. 209-73.000.
Smith, Joseph F., to Pem-Ims Inc. Apparatus for imparting false twist to yarn. 3,706,194, Cl. 57-77.450.
Smith, Robert A., Jr., to Superior Tobacco Machiney & Sheet Metal, Inc. Tobacco threshing apparatus and method. 3,706,314, Cl. 131-145.000.
Smith, Roger M.: *See—*
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Smith, Sidney H.: *See—*
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Smith, Sydney; Hunt, Jerry Donald; and Esler, Richard Brotherton, to Firestone Tire & Rubber Company, The. Aquatic torsion-fatigue test apparatus. 3,706,222, Cl. 73-91.000.
Smith, Thomas M.; and Gregory, Walter D., to Monarch Marking Systems, Inc. Pressure sensitive labels. 3,706,626, Cl. 161-37.000.
Smith, William: *See—*
  Ffowces-Williams, John Eirwyn; Hawkins, Roy; Dawson, Hylton; and Smith, William, 3,706,353.
Smiths Industries Limited: *See—*
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Smyth, Richard K.: *See—*
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So, Richard T.; and Mueller, Reinhold, to Solidyne Corporation. Automotive burglar alarm having battery current flow detector. 3,706,966, Cl. 340-63.000.
Socha, Robert P.: *See—*
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Societa Italiana Resine S.p.A.: *See—*
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Societa per l'Esercizio dell'Istituto Sperimentale dei Metalli Leggeri, S.p.A.: *See—*
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- Sprick, Walter F.; Morse, Frank C.; Holzer, Alexander; Meller, Oscar W.; and Lovich, John W., to Goodyear Aerospace Corporation. Baggage and cargo container door mechanism. 3,706,392, Cl. 220-38.000.
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- Tanaka, Hiroshisa; Wada, Mitiaki; and Kaneko, Keiji, to Fuji Photo Film Co., Ltd. Bag opening and supplying device. 3,706,179, Cl. 53-188.000.
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- Taylor, John W., Jr., to United States of America, Air Force. Digital motion compensation system for radar. 3,706,989, Cl. 343-7.00a.
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2	3,706,147
77.7	3,706,148
106.22	3,706,149
124.1	3,706,150
CLASS 42	
1R	3,706,151
70D	3,706,152
CLASS 43	
10	3,706,520
33.5	3,706,154
CLASS 44	
2	3,706,540
63	3,706,541
CLASS 46	
151	3,706,155
175R	3,706,156
202	3,706,153
220	3,706,157
236	3,706,158
240	3,706,159
CLASS 47	
21	3,706,160
37.5	3,706,161
CLASS 48	
197FM	3,706,542
CLASS 49	
312	3,706,162
362	3,706,163
394	3,706,164
403	3,706,165
CLASS 51	
12	3,706,166
334	3,706,167
CLASS 52	
189	3,706,170
234	3,706,168
263	3,706,169
475	3,706,171
521	3,706,172
716	3,706,173
CLASS 53	
39	3,706,175
42	3,706,176
76	3,706,177
112R	3,706,174
131	3,706,178
188	3,706,179
329	3,706,183
386	3,706,180
CLASS 55	
63	3,706,181
124	3,706,182
336	3,706,184
CLASS 56	
9	3,706,185
11.6	3,706,188
13.4	3,706,189
	3,706,190
13.8	3,706,186
329	3,706,187
377	3,706,191
CLASS 57	
34HS	3,706,192
38.89	3,706,193
77.45	3,706,194
140BY	3,706,195
CLASS 58	
32	3,706,196
58	3,706,197
90R	3,706,198
CLASS 59	
8	3,706,199
35	3,706,200
CLASS 60	
39.28R	3,706,201
39.65	3,706,203
54.5R	3,706,202
CLASS 61	
36R	3,706,581
46	3,706,204
	3,706,205
69R	3,706,206
72.6	3,706,207
CLASS 62	
35	3,706,208
341	3,706,209
CLASS 65	
105	3,706,543
116	3,706,544
CLASS 68	
152	3,706,210
CLASS 70	
232	3,706,211
369	3,706,212
CLASS 71	
1	3,706,545
78	3,706,546
90	3,706,547
121	3,706,548
CLASS 72	
58	3,706,213
99	3,706,214
	3,706,215
258	3,706,216
379	3,706,218
402	3,706,219
CLASS 73	
32	3,706,220
57	3,706,221
91	3,706,222
184	3,706,223
187	3,706,224
189	3,706,225
190H	3,706,226
339A	3,706,227
343R	3,706,228
396	3,706,229
497	3,706,217
CLASS 74	
-2	3,706,230
5R	3,706,231
10.6	3,706,232
25	3,706,233
41	3,706,234
52	3,706,235
89.11	3,706,236
410	3,706,237
573	3,706,238
715	3,706,239
869	3,706,240
CLASS 75	
60	3,706,549
200	3,706,550
CLASS 81	
9.51	3,706,241
	3,706,242
57.18	3,706,243
57.32	3,706,244
301	3,706,245
CLASS 83	
7	3,706,246
24	3,706,247
69	3,706,249
74	3,706,248
345	3,706,250
456	3,706,251
470	3,706,252
CLASS 84	
1.03	3,706,837
433	3,706,253
458	3,706,254
CLASS 86	
1	3,706,255
	3,706,256
20R	3,706,257
CLASS 89	
1.812	3,706,258
12	3,706,259
35R	3,706,260
154	3,706,261
CLASS 91	
378	3,706,262
388	3,706,263
CLASS 94	
17	3,706,264
CLASS 95	
11L	3,706,265
	3,706,266
39	3,706,267
53R	3,706,268
64B	3,706,269
CLASS 96	
1.4	3,706,552
	3,706,553
1.5	3,706,551
1.6	3,706,554
	3,706,555
22	3,706,556
27E	3,706,558
29D	3,706,557
29R	3,706,568
48PD	3,706,559
	3,706,560
60BF	3,706,561
66.3	3,706,562
84A	3,706,563
114	3,706,564
	3,706,565
120	3,706,566
126	3,706,567
134R	3,706,569
137	3,706,570
CLASS 98	
1.5	3,706,270
41	3,706,271
CLASS 99	
21	3,706,571
69	3,706,574
71	3,706,572
80R	3,706,573
114	3,706,575
118R	3,706,576
	3,706,578
140R	3,706,577
340	3,706,272
CLASS 100	
189	3,706,273
CLASS 101	
333	3,706,274
382MV	3,706,275
453	3,706,276
CLASS 102	
27R	3,706,277
38	3,706,278
43R	3,706,279
43	3,706,280
49.5	3,706,281
76R	3,706,282
87	3,706,283
CLASS 104	
7B	3,706,284
124	3,706,285
172S	3,706,286
CLASS 105	
282R	3,706,287
CLASS 106	
1	3,706,579
15AF	3,706,580
39R	3,706,582
	3,706,583
178	3,706,700
214	3,706,584
291	3,706,585
	3,706,586
CLASS 110	
10	3,706,288
18R	3,706,289
184	3,706,290
CLASS 112	
77	3,706,291
CLASS 113	
1G	3,706,292
CLASS 114	
20R	3,706,294
20	3,706,293
41	3,706,295
102	3,706,296
CLASS 116	
174	3,706,297
CLASS 117	
6	3,706,589
21	3,706,588
38	3,706,595
72	3,706,592
111B	3,706,590
124F	3,706,591
127	3,706,593
139.5A	3,706,594
169A	3,706,596
201	3,706,597
226	3,706,695
CLASS 118	
5	3,706,298
CLASS 119	
	3,706,299
15	3,706,300
CLASS 122	
32	3,706,301
CLASS 126	
19R	3,706,302
116R	3,706,303
CLASS 127	
29	3,706,598
62	3,706,599
CLASS 128	
2F	3,706,305
	3,706,306
2S	3,706,307
2T	3,706,304
2.06R	3,706,308
69	3,706,309
94	3,706,310
285	3,706,311
305	3,706,312
419D	3,706,313
CLASS 131	
145	3,706,314
CLASS 132	
33R	3,706,315
76.4	3,706,316
CLASS 134	
3	3,706,600
57DL	3,706,317
CLASS 136	
20	3,706,601
120FC	3,706,602
175	3,706,616
178	3,706,617
CLASS 137	
205	3,706,319
487	3,706,320
554	3,706,321
614.03	3,706,318
625.3	3,706,323
625.41	3,706,324
625.66	3,706,322
	3,706,325
CLASS 138	
129	3,706,326
CLASS 139	
110	3,706,328
187	3,706,327
CLASS 140	
1	3,706,330
112	3,706,331
149	3,706,329
CLASS 143	
159	3,706,332
CLASS 146	
228	3,706,333
CLASS 148	
6.16	3,706,604
6.2	3,706,603
11.5R	3,706,605
12.7	3,706,606
CLASS 149	
2	3,706,607
6	3,706,608
18	3,706,609
19	3,706,610
44	3,706,611
CLASS 152	
209	3,706,334
CLASS 153	
160	3,706,914
CLASS 156	
17	3,706,612
83	3,706,613
151	3,706,614
169	3,706,615
179	3,706,618
221	3,706,620
283	3,706,621
306	3,706,622
315	3,706,619
336	3,706,950
394	3,706,623
432	3,706,624
517	3,706,625
CLASS 157	
1.17	3,706,335
CLASS 161	
12	3,706,339
37	3,706,626
131	3,706,627
159	3,706,628
CLASS 162	
168	3,706,629
CLASS 164	
281	3,706,336
303	3,706,337
357	3,706,338
CLASS 165	
70	3,706,343
CLASS 166	
134	3,706,342
275	3,706,341
297	3,706,340
	3,706,344
CLASS 172	
102	3,706,346
572	3,706,345
CLASS 174	
25R	3,706,838
43TD	3,706,839
52PE	3,706,840
CLASS 175	
85	3,706,347
320	3,706,348
CLASS 176	
87	3,706,630
CLASS 177	
1	3,706,587
211	3,706,349
CLASS 178	
5.4R	3,706,841
6	3,706,842
6.8	3,706,843
	3,706,851
7.2	3,706,844
7.3R	3,706,846
7.3S	3,706,847
7.5D	3,706,845
7.92	3,706,848
18	3,706,850
502D	3,706,849
CLASS 179	
1A	3,706,852
15AL	3,706,853
15BT	3,706,854
18ES	3,706,855
18GE	3,706,856
100.1DR	3,706,858
100.2CA	3,706,860
100.2P	3,706,861
100.2R	3,706,859
100.2T	3,706,857
170T	3,706,862
CLASS 180	
24.09	3,706,350
75	3,706,351
103	3,706,352
CLASS 181	
33HC	3,706,353
CLASS 184	
7R	3,706,355
CLASS 187	
8.59	3,706,356
29R	3,706,357
29	3,706,358
CLASS 188	
1C	3,706,359

CLASSIFICATION OF PATENTS

79.5P	3,706,360
189	3,706,361
282	3,706,362
CLASS 192	
3.54	3,706,363
48.92	3,706,364
85CA	3,706,365
CLASS 195	
1.8	3,706,631
63	3,706,633
CLASS 197	
17	3,706,366
55	3,706,367
CLASS 198	
33AA	3,706,368
33AD	3,706,369
76	3,706,370
181	3,706,371
218	3,706,372
CLASS 200	
5R	3,706,863
50C	3,706,866
61.52	3,706,867
83B	3,706,864
83T	3,706,865
144R	3,706,868
168C	3,706,869
CLASS 204	
46	3,706,634
	3,706,635
51	3,706,636
	3,706,637
	3,706,638
	3,706,639
	3,706,640
	3,706,641
	3,706,642
	3,706,643
98	3,706,644
143GE	3,706,645
149	3,706,646
162HE	3,706,647
162S	3,706,648
195M	3,706,649
217	3,706,650
218	3,706,651
312	3,706,652
CLASS 208	
64	3,706,653
74	3,706,654
82	3,706,655
	3,706,656
111	3,706,658
216	3,706,657
CLASS 209	
73	3,706,373
75	3,706,374
121	3,706,375
347	3,706,376
446	3,706,377
CLASS 210	
21	3,706,659
	3,706,660
24	3,706,661
63	3,706,662
64	3,706,663
65	3,706,664
107	3,706,378
169	3,706,379
197	3,706,380
198C	3,706,381
242	3,706,382
374	3,706,383
519	3,706,384
CLASS 212	
71	3,706,385
CLASS 213	
76	3,706,386
CLASS 214	
37	3,706,387
145	3,706,388
152	3,706,389
CLASS 219	
98	3,706,870
242	3,706,871
300	3,706,872
CLASS 220	
25	3,706,390
	3,706,391
38	3,706,392
67	3,706,393
CLASS 221	
75	3,706,394
119	3,706,395
265	3,706,396
311	3,706,397
CLASS 222	
20	3,706,398
56	3,706,399
95	3,706,400
153	3,706,401
CLASS 223	
106	3,706,402
CLASS 224	
1R	3,706,403
4E	3,706,404
122AD	3,706,434
CLASS 225	
94	3,706,405
CLASS 226	
95	3,706,406
97	3,706,407
CLASS 227	
45	3,706,408
CLASS 228	
6	3,706,409
CLASS 229	
16R	3,706,410
CLASS 232	
17	3,706,411
CLASS 233	
1B	3,706,412
26	3,706,413
CLASS 235	
61.1	3,706,873
61.11E	3,706,874
74	3,706,875
	3,706,876
151.35	3,706,877
153AC	3,706,879
155	3,706,878
	3,706,880
181	3,706,881
CLASS 239	
14	3,706,414
17	3,706,415
193	3,706,416
222	3,706,417
428.5	3,706,418
CLASS 240	
7.1R	3,706,882
CLASS 241	
220	3,706,419
CLASS 242	
43	3,706,420
55.19A	3,706,422
55.2	3,706,421
191	3,706,424
195	3,706,423
	3,706,425
198	3,706,426
205	3,706,427
CLASS 243	
19	3,706,428
CLASS 244	
3.19	3,706,429
35	3,706,430
42DA	3,706,431
83R	3,706,432
128	3,706,433
CLASS 248	
48	3,706,435
63	3,706,436
230	3,706,437
CLASS 250	
59	3,706,883
83.3HP	3,706,886
83.3D	3,706,888
83.3R	3,706,884
	3,706,885
219DC	3,706,887
CLASS 251	
251	3,706,438
CLASS 252	
32.7HC	3,706,665
42.7	3,706,632
49.9	3,706,668
51.5A	3,706,667
82	3,706,669
95	3,706,670
99	3,706,671
156	3,706,672
300	3,706,688
301.1	3,706,689
301.4S	3,706,666
359E	3,706,690
364	3,706,691
432	3,706,692
435	3,706,693
455Z	3,706,694
501	3,706,673
527	3,706,674
539	3,706,675
544	3,706,676
CLASS 254	
62	3,706,440
98	3,706,441
CLASS 259	
41	3,706,442
72	3,706,443
CLASS 260	
2H	3,706,677
2.5AC	3,706,687
2.5AD	3,706,678
2.5AH	3,706,681
2.5AM	3,706,680
2.5E	3,706,679
2.5R	3,706,683
17.2	3,706,682
18EP	3,706,684
22R	3,706,685
23XA	3,706,686
29.2M	3,706,697
29.7E	3,706,696
37NP	3,706,698
40R	3,706,699
45.85V	3,706,701
47R	3,706,702
75NE	3,706,710
75C	3,706,711
75S	3,706,712
77.5AC	3,706,715
77.5AP	3,706,714
77.5D	3,706,713
78VA	3,706,716
78.5CL	3,706,705
78.5R	3,706,704
	3,706,717
78.5T	3,706,703
79.3R	3,706,706
	3,706,707
79.5	3,706,708
80.71	3,706,709
80.78	3,706,718
	3,706,719
82.1	3,706,720
	3,706,721
85.5ZA	3,706,722
87.7	3,706,723
94.9GD	3,706,724
157	3,706,725
210R	3,706,726
	3,706,729
210.5	3,706,727
211.5R	3,706,728
233.3R	3,706,730
	3,706,731
234R	3,706,732
239BB	3,706,736
239D	3,706,735
239.3D	3,706,734
239.35R	3,706,737
243C	3,706,746
247.1	3,706,738
	3,706,810
247.2B	3,706,739
248CS	3,706,740
249.6	3,706,741
250A	3,706,743
	3,706,744
250R	3,706,742
256.4N	3,706,745
256.5R	3,706,747
260	3,706,748
287R	3,706,749
293.71	3,706,750
294.9	3,706,751
295.3	3,706,756
296D	3,706,752
296R	3,706,753
297R	3,706,754
	3,706,755
299	3,706,757
304	3,706,758
305	3,706,759
307D	3,706,760
307H	3,706,761
326.14T	3,706,765
326.3	3,706,766
326.55	3,706,763
327TH	3,706,764
327E	3,706,733
330.5	3,706,767
332.1	3,706,769
335	3,706,768
346.1R	3,706,770
346.8	3,706,771
348R	3,706,772
408	3,706,773
429.7	3,706,774
448.2E	3,706,775
	3,706,776
	3,706,777
455R	3,706,778
463	3,706,783
464	3,706,779
465F	3,706,780
468D	3,706,789
468.5	3,706,781
469	3,706,782
473R	3,706,784
475PR	3,706,785
479S	3,706,786
481R	3,706,787
482.2C	3,706,788
513B	3,706,791
518A	3,706,790
520	3,706,792
542	3,706,793
543R	3,706,794
544F	3,706,795
558D	3,706,796
558H	3,706,797
559A	3,706,798
559S	3,706,799
561H	3,706,800
563P	3,706,801
566F	3,706,802
591	3,706,803
593R	3,706,804
609E	3,706,805
609R	3,706,806
624C	3,706,807
638.65	3,706,815
644	3,706,808
658R	3,706,816
665R	3,706,809
669R	3,706,811
674SA	3,706,812
676MS	3,706,813
683.43	3,706,814
880B	3,706,817
885	3,706,818
889	3,706,819
940	3,706,820
951	3,706,821
990	3,706,822
	3,706,823
CLASS 261	
39D	3,706,444
CLASS 263	
2R	3,706,824
8R	3,706,445
19A	3,706,446
37	3,706,447
CLASS 264	
75	3,706,825
176F	3,706,826
176	3,706,827
182	3,706,828
CLASS 266	
1R	3,706,448
34V	3,706,449
CLASS 270	
84	3,706,450
CLASS 273	
26A	3,706,451
35R	3,706,452
81.4	3,706,453
89	3,706,454
110	3,706,455
135AC	3,706,456
153S	3,706,457
158	3,706,458
CLASS 277	
40	3,706,459
CLASS 280	
33.99F	3,706,460
47.26	3,706,461
150AB	3,706,462
	3,706,463
401	3,706,464
CLASS 287	
85R	3,706,465
CLASS 289	
17	3,706,466
CLASS 292	
111	3,706,467
CLASS 293	
88	3,706,468
CLASS 296	
23MC	3,706,469
28C	3,706,470
CLASS 297	
158	3,706,471
397	3,706,472
436	3,706,473
CLASS 299	
38	3,706,474
CLASS 302	
31	3,706,475
	3,706,476
CLASS 303	
6C	3,706,477
10	3,706,478
21F	3,706,479
36	3,706,480
CLASS 305	
27	3,706,481
CLASS 307	
205	3,706,889
225	3,706,890
238	3,706,891
241	3,706,892
CLASS 308	
1	3,706,482
77	3,706,483
CLASS 310	
3B	3,706,893
10	3,706,894
CLASS 313	
42	3,706,895
78	3,706,896
141	3,706,897
188	3,706,899
197	3,706,898
222	3,706,900
285	3,706,901
318	3,706,902
CLASS 315	
10	3,706,903
19	3,706,904
21CH	3,706,905
22	3,706,906
27GD	3,706,907
	3,706,909
275R	3,706,908
39.31	3,706,910
158	3,706,911
169TV	3,706,912
292	3,706,913
CLASS 317	
33SC	3,706,916
230	3,706,917
234R	3,706,915
	3,706,920
235R	3,706,918
246	3,706,919
CLASS 318	
135	3,706,922
254	3,706,923
564	3,706,921
685	3,706,924
CLASS 323	
22T	3,706,925
CLASS 324	
33	3,706,938
34R	3,706,926
52	3,706,927
CLASS 325	
15	3,706,929
33	3,706,928
56	3,706,930
67	3,706,931
438	3,706,932
479	3,706,933
CLASS 328	
1	3,706,934
155	3,706,935
CLASS 330	
4.3	3,706,939
21	3,706,936
28	3,706,937
CLASS 331	
76	3,706,940
78	3,706,941
94.5G	3,706,942
CLASS 332	
9T	3,706,943
11D	3,706,944
17	3,706,945
23	3,706,946
CLASS 333	
28R	3,706,947
73C	3,706,948
79	3,706,949
CLASS 337	
163	3,706,951
348	3,706,952
CLASS 338	
4	3,706,953
CLASS 339	
14R	3,706,959
17L	3,706,954
28	3,706,955
66M	3,706,956
126R	3,706,957
177E	3,706,958
258	3,706,960
CLASS 340	
1R	3,706,961
4R	3,706,962
5MP	3,706,965
5D	3,706,963
5R	3,706,964
10	3,706,967
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PATENT OFFICE NOTICES

ICIREPAT Numbers for Identification of Bibliographic Data on the First Page of Patent and Like Documents

The Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices (ICIREPAT) has recently approved revisions in INID Codes (ICIREPAT Numbers for Identification of Data) which become effective for use by the countries which apply such codes to their documents on January 1, 1973. A complete list of the Codes, as revised, appears below.

Changes in INID Codes which particularly affect their application to U.S. patents consist of the provision of the new codes [75] and [76] that are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. Use of the code [72] which was heretofore applied to U.S. patents will be discontinued and, in lieu thereof, codes [75] and [76], as appropriate, will be used effective with the patent issue of January 2, 1973.

The purpose of INID Codes is to provide a means whereby the various data appearing on the first page of patent and like documents can be identified without knowledge of the language used and the laws applied. They are now used by a number of Patent Offices and have been applied to U.S. patents since Aug. 4, 1970. Some of the codes are not pertinent to the documents of a particular country and some which are may, in fact, not be used. Those codes which are not applicable to U.S. patents or not used are identified in the list below.

- [10] *Document identification*
    - [11] Number of the document
    - [19] ICIREPAT country code, or other identification, of the country publishing the document
- [20] *Domestic filing data*
    - [21] Number(s) assigned to the application(s), e.g. "Numero d'enregistrement national," "Aktenzeichen"
    - [22] Date(s) of filing application(s)
    - [23] Other date(s) of filing, including exhibition filing date and date of filing complete specification following provisional specification [1]
- [30] *Convention priority data* [2]
    - [31] Number(s) assigned to priority application(s)[1]
    - [32] Date(s) of filing of priority application(s)[1]
    - [33] Country (countries) in which priority application(s) was (were) filed [1]
- [40] *Date(s) of making available to the public*
    - [41] Date of making available to the public by viewing, or copying on request, an unexamined document, on which no grant has taken place on or before the said date [1]
    - [42] Date of making available to the public by viewing, or copying on request, an examined document, on which no grant has taken place on or before the said date [1]
    - [43] Date of publication by printing or similar process of an unexamined document, on which no grant has taken place on or before the said date [1]
    - [44] Date of publication by printing or similar process of an examined document, on which no grant has taken place on or before the said date [1]
    - [45] Date of publication by printing or similar process of a document, on which grant has taken place on or before the said date
    - [46] Date of publication by printing or similar process of the claim(s) only of a document [1]
    - [47] Date of making available to the public by viewing, or copying on request, a document on which grant has taken place on or before the said date [1]
- [50] *Technical information*
    - [51] International Patent Classification
    - [52] Domestic or national classification
    - [53] Universal Decimal Classification [1]
    - [54] Title of the invention
    - [55] Keywords [1]
    - [56] List of prior art documents, if separate from descriptive text
    - [57] Abstract or claim
    - [58] Field of search
- [60] *Reference(s) to other legally related domestic document(s)* [3]
    - [61] Related by addition(s)[1]
    - [62] Related by division(s)
    - [63] Related by continuation(s)
    - [64] Related by reissue(s)
- [70] *Identification of parties concerned with the document*
    - [71] Name(s) of applicant(s)[1]
    - [72] Name(s) of inventor(s) if known to be such [1]
    - [73] Name(s) of grantee(s)
    - [74] Name(s) of attorney(s) or agent(s)[1]
    - [75] Name(s) of inventor(s) who is(are) also applicant(s)
    - [76] Name(s) of inventor(s) who is(are) also applicant(s) and grantee(s)

Codes [75] and [76] are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. In other cases [71] and [72] or [71], [72] and [73] should generally be used.

Notes concerning the application of INID Codes to U.S. patents:

[1] This item is either not applicable to U.S. patents or, if applicable, is either not coded or not assigned this code.

[2] The respective specific data elements within this category are not individually coded. They are printed in a particular format under the caption "Foreign Application Priority Data" which is identified by the INID Code [30].

[3] The specific data applicable to a particular patent is printed under the caption "Related U.S. Application Data." Where the relationship is due solely to division or to continuation and/or continuation-in-part, the data is identified by the appropriate specific INID Code, i.e., [62] or [63], respectively. Where the relationship is due to any combination of these two specific sub-categories, the data is identified by use of the generic INID Code [60].

Approved:

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Nov. 21, 1972.

Proposed Implementation of Inventor's Certificate Legislation

[37 CFR Part 1]

Serial Number and Filing Date

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, P.L. 92–132, 85 Stat. 364, the Patent Office proposes to add a new paragraph (c) to § 1.55 (37 CFR 1.55(c)) to read as set forth below.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before February 12, 1973. No oral hearings will be held. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed rule change is intended to implement P.L. 92–358, dated July 28, 1972, reprinted below, which accords rights of priority to applications where the claims for priority are based on earlier filed applications for inventor's certificates under certain conditions. This legislation now enables the United States to complete its ratification of the Stockholm Revision of the Paris Convention.

By the terms of the new legislation, inventor's certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate may form the basis for rights of priority.

The new paragraph proposed below would insure that the right of priority would be granted for inventor's certificates involving subject matter for which an applicant in the country of earlier filing has an option to file for either a patent or inventor's certificate, as required by the new legislation. It should be noted that in certain countries which grant both patents and inventor's certificates to reward inventors, applicants may only be able to apply for inventor's certificates as to certain subject matter, generally pharmaceuticals, foodstuffs, and cosmetics.

The text of the proposed new paragraph is as follows:

§ 1.55 *Serial number and filing date of application.*

* * * * *

(c) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he has satisfied himself that to the best of his knowledge the applicant, when filing his application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: Nov. 21, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

PUBLIC LAW 92–358, JULY 28, 1972

To carry into effect a provision of the Convention of Paris for the Protection of Industrial Property, as revised at Stockholm, Sweden, July 14, 1967.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 119 of title 35 of the United States Code, entitled "Patents," is amended by adding at the end thereof the following paragraph:

> "Applications for inventors' certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate shall be treated in this country in the same manner and have the same effect for purpose of the right of priority under this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents, provided such applicants are entitled to the benefits of the Stockholm Revision of the Paris Convention at the time of such filing."

SEC. 2. Subsection 102(d) of title 35 of the United States Code is amended to read as follows:

> "(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the Untied States, or."

SEC. 3. (a) Section 1 of this Act shall take effect on the date when Articles 1–12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply only to applications thereafter filed in the United States.

(b) Section 2 of this Act shall take effect six months from the date when Articles 1–12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply to applications thereafter filed in the United States.

Published in 37 FR 25172, Nov. 28, 1972

Certificates of Correction for the Week of Dec. 26, 1972

Re. 27,389
D. 223,885
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3,484,489
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Disclaimers and Dedications

3,608,631.—*Phillip S. Sizer,* Dallas, and *Harry E. Schwegman,* Richardson, Tex. APPARATUS FOR PUMPING TOOLS INTO AND OUT OF A WELL. Patent dated Sept. 28, 1971. Disclaimer and dedication filed Feb. 18, 1972, by the assignee, *Otis Engineering Corporation.*

Hereby enters this disclaimer to claims 1, 2, 8, 12, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28 and dedicates same to the Public for the remainder of the term of said patent.

3,678,220.—*Otto R. Luhrs,* Boulder, Colo. ANGULATED POSITIONING MARKS FOR MOVING WEB. Patent dated July 18, 1972. Disclaimer and dedication filed Aug. 28, 1972, by the assignee, *International Business Machines Corporation.*

Hereby disclaims and dedicates to the Public the entire term of said patent.

Disclaimers

Des. No. 222,735.—*Karl Wiedemann,* Cherry Hill, N.J. BOWL. Patent dated Dec. 14, 1971. Disclaimer filed Apr. 19, 1972, by the assignee, *Melitta, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to July 27, 1985.

2,783,384.—*Richard L. Bright,* Adamsburg, and *George H. Royer,* Pittsburgh, Pa. ELECTRICAL INVERTER CIRCUITS. Patent dated Feb. 26, 1957. Disclaimer filed Nov. 10, 1971, by the assignee, *Westinghouse Electric Corporation,*

Hereby enters this disclaimer to claims 2, 3, 5, 6, 7, 8, 11, 12, 18, 15, 16, 17 and 19 of said patent.

3,149,797.—*Sheldon Lee Pastor,* Chicago, *Carl W. Claras,* Western Springs, *Robert L. Moore,* La Grange Highlands, *Rudolph A. Rom,* Berwyn, and *Myron Zarr,* Chicago, Ill. SELF-THREADING MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS. Patent dated Sept. 22, 1964. Disclaimer filed Sept. 29, 1972, by the assignee, *Minnesota Mining and Manufacturing Company,* consenting.

Hereby enters this disclaimer to claims 1, 2 and 4 of said patent.

3,278,534.—*Max Schellenbaum,* Rieben, *Christian Luethi,* Muenchenstein, and *Max Duennenberger,* Frenkendorf, Basel-Land, Switzerland. NEW HYDROXYPHENYL-1,3,5-TRIAZINES. Patent dated Oct. 11, 1966. Disclaimer filed Apr. 11, 1972, by the inventors, and the assignee, *Ciba-Geigy AG,* assenting.

Hereby enter this disclaimer to claims 1 and 2 of said patent.

3,293,247.—*Max Duennenberger,* Frenkendorf, *Hans Rudolf Biland,* Basel, *Christian Luethi,* Muenchenstein, and *Max Schellenbaum,* Rieben, Switzerland. HYDROXYPHENYL-1,3,5-TRIAZINES. Patent dated Dec. 20, 1966. Disclaimer filed Apr. 11, 1972, by the inventors, and the assignee, *Ciba-Geigy AG,* assenting.

Hereby enter this disclaimer to claims 1, 2, 3, 5, 7, 8 and 9 of said patent.

3,293,249.—*Hans Rudolf Biland,* Basel, *Christian Luethi,* Muenchenstein, and *Max Duennenberger,* Frenkendorf, Switzerland. HYDROXYPHENYL - TRIAZINES AND PROCESS FOR THEIR MANUFACTURE. Patent dated Dec. 20, 1966. Disclaimer filed Apr. 11, 1972, by the inventors, and the assignee, *Ciba Limited,* assenting.

Hereby enter this disclaimer to claims 1 and 2 of said patent.

3,476,611.—*Anthony Sabatino,* Minneapolis, Minn. INTERCELL CONNECTION AND METHOD OF MAKING SAME. Patent dated Nov. 4, 1969. Disclaimer filed Apr. 5, 1972, by the assignee, *Globe-Union Inc.*

Hereby enters this disclaimer to claims 13 and 15 of said patent.

3,565,910.—*Donald L. Elbert,* Gulf Breeze, and *Robert T. Wright,* Pensacola Beach, Fla. PIGMENTED FIBER-FORMING NYLON COMPOSITION. Patent dated Feb. 23, 1971. Disclaimer filed Jan. 5, 1971, by the assignee, *Monsanto Company.*

Hereby enters this disclaimer to the portion of the term of the patent subsequent to July 24, 1984.

3,574,627.—*Max H. Stern* and *Gregory J. Lestina,* Rochester, N.Y. COLOR PHOTOGRAPHIC ELEMENTS. Patent dated Apr. 13, 1971. Disclaimer filed Nov. 9, 1972, by the assignee, *Eastman Kodak Company.*

Hereby enters this disclaimer to claims 1, 3, 4, 6, 7, 8, 16, 17, 18 and 19, for the remaining term of said patent.

3,638,957.—*Joseph A. Marsi,* Baldwin Park, Calif. MECHANICAL SEAL WITH LUBRICATING MEANS. Patent dated Feb. 1, 1972. Disclaimer filed Oct. 10, 1972, by the assignee, *Borg-Warner Corporation.*

Hereby enters this disclaimer to claims 1 to 9 of said patent.

3,662,117.—*Jayantkumar Bhatt,* Ottawa, Ontario, *John George Mlacak,* Kanata, Ontario, and *Thomas Arthur Winlow,* Ottawa, Ontario, Canada. CROSSTALK MINIMIZATION IN MULTI-WIRE NETWORKS. Patent dated May 9, 1972. Disclaimer filed Oct. 10, 1972, by the assignee, *Northern Electric Company Limited.*

Hereby enter this disclaimer to claims 1 to 3, inclusive, of said patent.

3,662,482.—*Robert Sarkisian,* Oak Park, Mich. POSTER DISPLAY DEVICE. Patent dated May 16, 1972. Disclaimer filed June 1, 1972, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to Mar. 7, 1989.

Dedications

2,865,730.—*Robert L. Gates,* Medina, and *Kenneth P. Dorschner,* Middleport, N.Y. METHOD OF REGULATING PLANT GROWTH. Patent dated Dec. 23, 1958. Dedication filed Nov. 4, 1971, by the assignee, *Food Machinery and Chemical Corporation.*

Hereby dedicates to the Public the remaining term of this patent.

3,286,606.—*Jack D. Layton,* Salem, Oreg. HEATED SCREED ASSEMBLY. Patent dated Nov. 22, 1966. Dedication filed Feb. 2, 1972, by the assignee, *Layton Manufacturing Co.*

Hereby dedicates to the Public the entire remaining term of said patent.

3,473,509.—*Mitsutake Miyamura,* Tokyo, Japan. METHOD FOR THE ARTIFICIAL CULTURE OF SHRIMP. Patent dated Oct. 21, 1969. Dedication filed Nov. 10, 1972, by the assignee, *Marifarms, Incorporated.*

Hereby dedicates to the Public the full term of said patent.

3,477,406.—*Motosaku Fujinaga,* Tokyo, Japan. METHOD OF CULTIVATION OF PENAEID SHRIMP. Patent dated Nov. 11, 1969. Dedication filed Nov. 10, 1972, by the assignee, *Marifarms, Incorporated.*

Hereby dedicates to the Public the full term of said patent.

3,566,887.—*Thomas F. Nelson,* Stratford, Conn. HAIR CURLER. Patent dated Mar. 2, 1971. Dedication filed Oct. 16, 1972, by the assignee, *General Electric Company.*

Hereby dedicates to the Public the remaining term of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 12, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries, Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-18-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-07-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-09-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-30-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	8-03-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	4-19-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	12-13-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	1-03-72
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director Receptacles; Joint Packing: Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	8-09-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-29-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts: Household, Personal and Fine Arts.	4-27-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	12-13-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-07-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-18-71
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	1-03-72
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	10-04-71

Expiration of patents: The patents within the range of numbers indicated below expire during January 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,728,913 to 2,733,438, inclusive
Plant Patents	Numbers 1,442 to 1,455, inclusive

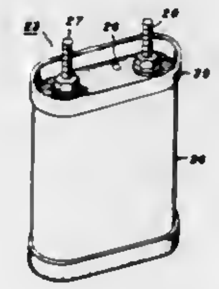
REISSUES

DECEMBER 26, 1972

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,533
IMPREGNATED DIELECTRIC SYSTEMS

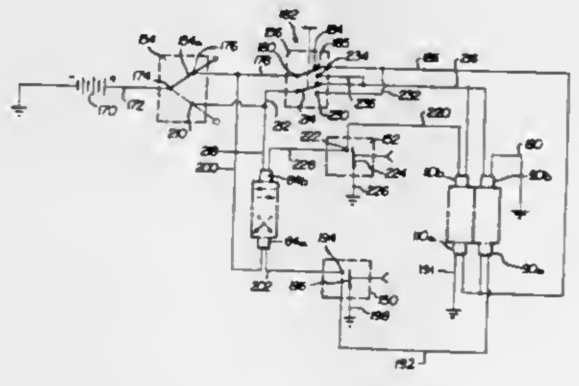
Eugene B. Cox, Fairfield, Conn., assignor to General Electric Company
Original No. 3,530,561, dated Sept. 29, 1970, Ser. No. 746,427, July 22, 1968, which is a division of Ser. No. 659,133, Aug. 8, 1967, now Patent No. 3,450,968, dated June 17, 1969, which in turn is a division of Ser. No. 587,835, Oct. 19, 1966, now Patent No. 3,363,156, dated Jan. 9, 1968, which is a continuation-in-part of Ser. No. 508,529, Nov. 18, 1965 and Ser. No. 513,240, Dec. 13, 1965. Application for reissue Apr. 12, 1971, Ser. No. 133,113
Int. Cl. H01g ***13/00***
U.S. Cl. 29—25.42 — 15 Claims



Non-porous [polyolefin materials are] *polypropylene is uniformly or* essentially completely impregnated with a dielectric liquid impregnant to provide an improved dielectric, insulating system.

27,534
CONTROL SYSTEM FOR CONCRETE PUMP

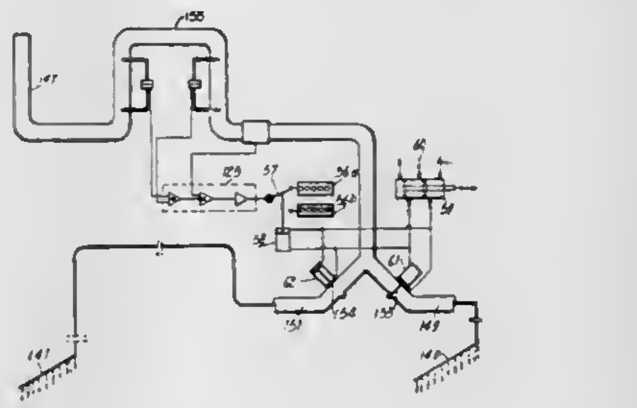
Aaron M. Schaible, deceased, late of West Terre Haute, Ind., by J. I. Case Company, assignee, Racine, Wis.
Original No. 3,494,290, dated Feb. 10, 1970, Ser. No. 746,048, July 19, 1968. Application for reissue Jan. 11, 1971, Ser. No. 105,746
Int. Cl. F04b ***17/00, 39/08***
U.S. Cl. 417—342 — 7 Claims



An electro-pneumatic control system for a concrete pump having a pair of power cylinders respectively connected to delivery lines each having an outlet valve therein. Each delivery line has a supply line connected thereto with a supply valve located in each supply line. Pressure fluid is supplied to the power cylinders and to the respective valves through electrically actuated fluid control valves which are controlled by a pair of pressure switches, a manual reversing switch and an automatic reversing switch so that normal reversal of the power cylinders occurs at the end of each stroke after the closing of all of the valves and manual reversal may be achieved at any time in the cycle.

27,535
METHOD AND DEVICE FOR DETERMINING THE QUANTITY OF DREDGING SPOIL TO BE PAID

Romke van der Veen, Jutphaas, Netherlands, assignor to N.V. Ingenieursbureau voor Systemen en Octrooien "Spanstaal," Rotterdam, Netherlands
Original No. 3,554,009, dated Jan. 12, 1971, Ser. No. 817,691, Apr. 21, 1969. Application for reissue July 19, 1971, Ser. No. 164,153
Claims priority, application Netherlands, Apr. 24, 1968, 6805777
Int. Cl. G01n ***9/26, 15/06***
U.S. Cl. 73—61 R — 15 Claims

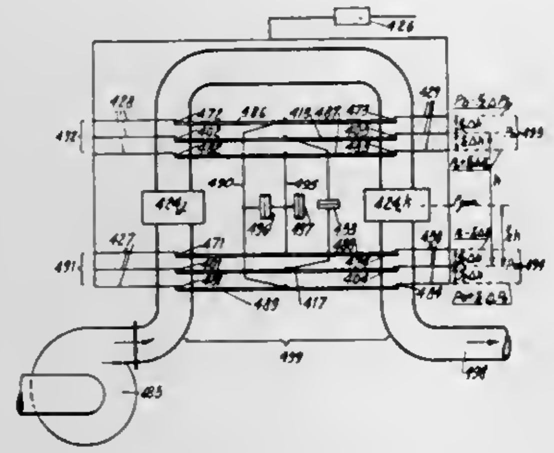


A method and apparatus are disclosed for measuring the quantity of dredging spoil. A flow of the spoil and water is guided vertically upwards along a first flow section and downwards along a second flow section. Pressure differentials between vertically spaced points on each flow section are obtained and added. The product of the pressure differential and flow velocity is integrated during the period in which the dredging spoil is being conveyed.

27,536
METHOD AND SUCTION DREDGING INSTALLATIONS FOR CONVEYING DREDGING SPOIL

Romke van der Veen, Jutphaas, and Jan de Koning, Amsterdam, Netherlands, assignors to N.V. Ingenieursbureau voor Systemen en Octrooien "Spanstaal," Binnenweg, Rotterdam, Netherlands
Original No. 3,554,010, dated Jan. 12, 1971, Ser. No. 817,692, Apr. 21, 1969. Application for reissue July 19, 1971, Ser. No. 164,154
Claims priority, application Netherlands, Apr. 24, 1968, 6805778
Int. Cl. G01n ***9/26, 15/06***
U.S. Cl. 73—61 R — 22 Claims

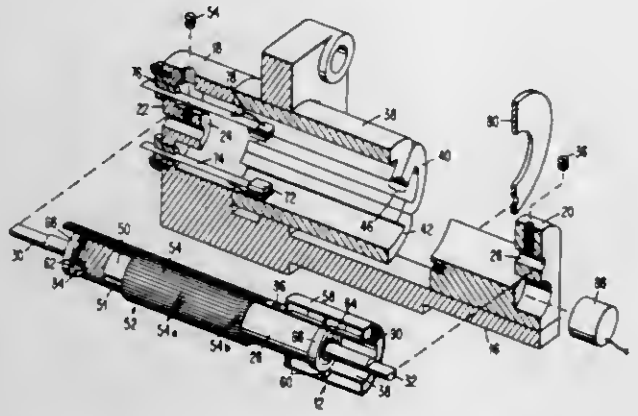
In a method and apparatus for measuring the quantity of a suspension of dredging spoil and water, means are provided to compensate for the presence of air in the suspension. The measure compensation is derived by taking



pressure measurements of at least two flow sections in the system at which the prevailing pressures are different.

27,537
MOTION CONTROL DEVICE

Gene A. Fisher, Lafayette, and Howard E. Van Winkle, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.
Original No. 3,490,672, dated Jan. 20, 1970, Ser. No. 737,662, June 17, 1968. Application for reissue Nov. 10, 1971, Ser. No. 197,450
Int. Cl. B65h *17/20*
U.S. Cl. 226—188 **8 Claims**

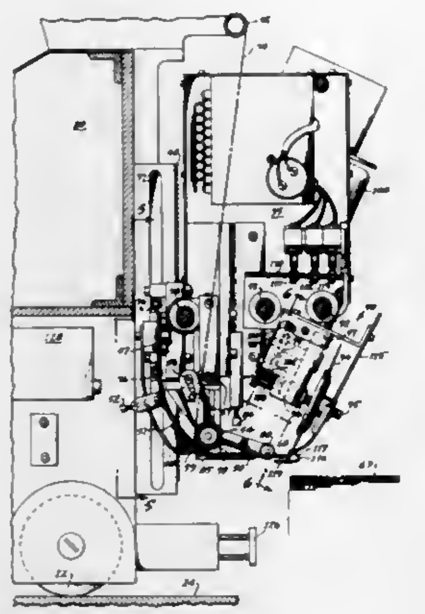


A motion control device including an electric motor having an integral armature and driving capstan assembly. The capstan is mounted directly on the armature adjacent one end and the assembly is rotatably mounted on a stationary mandrel positioned at the rotational axis of the device.

27,538
CUTTING APPARATUS FOR CLOTH SPREADING MACHINE

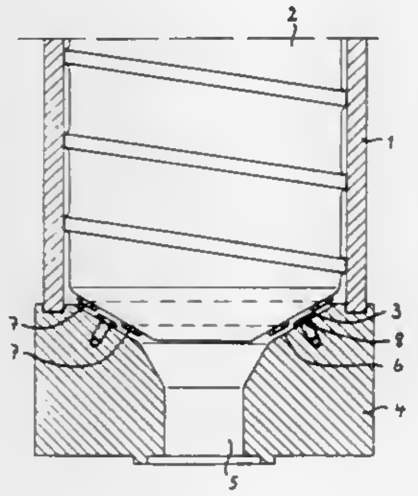
Thomas W. Martin and Albert F. Warner, Nashville, Tenn., by Arthur J. Rebrovick, Cutters Machine Company, Inc., assignee
Original No. 3,503,604, dated Mar. 31, 1970, Ser. No. 655,407, July 24, 1967. Application for reissue Dec. 8, 1971, Ser. No. 206,220
Int. Cl. B26d *1/18*; B65h *29/46*
U.S. Cl. 270—31 **8 Claims**

A transversely reciprocating cutter mounted on the mobile frame of a cloth spreading machine and cooperating with a spreader blade in order to cut the cloth after a layer of cloth has been spread. The spreader blade is also adapted to cooperate with a catcher mechanism for removing the cut end of the cloth from the spreader blade.



27,539
WORM MELTER AND EXTRUDER

Wilhelm Schwalm, Frankfurt am Main, Germany, assignor to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany
Original No. 3,496,604, dated Feb. 24, 1970, Ser. No. 675,987, Oct. 17, 1967. Application for reissue Oct. 29, 1970, Ser. No. 85,314
Claims priority, application Germany, Oct. 31, 1966, V 32,234
Int. Cl. B28b *27/02*
U.S. Cl. 259—191 **4 Claims**



The specification discloses an improved worm melter or extruder for highly viscous plastic melts which normally flow in laminar fashion. The discharge end of such melter or extruder is usually formed by an end surface of a worm and an inside surface of a mouthpiece. The present invention provides means projecting from said end surface and said inside surface to break up the melt passing through the discharge end to effect a turbulence and mixing within the melt to produce a more uniform product.

PLANT PATENTS

GRANTED DECEMBER 26, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,277
CHRYSANTHEMUM PLANT

Grace H. Mack, New Canaan, Conn., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Grace H. Mack, New Canaan, Conn.
Filed Mar. 30, 1971, Ser. No. 129,646
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Early Gold by its ¾" larger flowers, stronger stems, more decorative flower form, 10 days longer keeping quality, lighter yellow color, taller, more spreading, more prolific habit, lighter colored and larger foliage, more prominent stipules, and less leaf serration.

3,278
CHRYSANTHEMUM PLANT

Grace H. Mack, New Canaan, Conn., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Grace H. Mack, New Canaan, Conn.
Filed Mar. 30, 1971, Ser. No. 129,647
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar White Grandchild by its ¼" larger flowers which have a more ivory color which does not tinge pink with age, 3" shorter habit, lighter foliage, a more deeply indented leaf with a coarser serration to the leaf margin, more prominent stipules, and 6 days longer keeping quality under outdoor conditions.

3,279
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Feb. 3, 1971, Ser. No. 112,489
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Shining Light by its ½" smaller flowers, darker, more opaque golden yellow flower coloration, fewer disc or perfect florets, less pollen, 3–4" shorter, and its more dense and prolific habit, thereby providing more resistance to lodging or falling over outdoors, less indented foliage with less serration, brighter green foliage, better frost tolerance, approximately twice the number of breaks from a pinch therefore producing a fuller, denser plant even though the spread or diameter is approximately the same, its 2–3 days earlier natural flowering outdoors, and its more compact and shapely pot habit when used in a spring pot flowering program in the greenhouse.

3,280
CHRYSANTHEMUM MORIFOLIUM

Robert E. Danielson, West Chicago, Ill., assignor to Pan-American Plant Company, Chicago, Ill.
Filed Mar. 22, 1971, Ser. No. 127,018
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—78 **1 Claim**

A new variety of chrysanthemum plant originating as a yellow sport of May Shoesmith (unpatented) and characterized by its light yellow coloring, its very large ball-flower type of blooms and its eleven week year-around response to photoperiod culture as a greenhouse plant.

PATENTS

GRANTED DECEMBER 26, 1972

GENERAL AND MECHANICAL

3,707,004

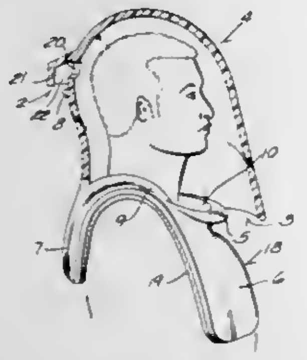
BALLISTIC RESISTANT PROTECTIVE GUARD

John R. Kapitan, and Christine S. Kapitan, both of 9882 Kentucky Drive, Lakewood, Colo.

Filed Feb. 2, 1971, Ser. No. 111,861

Int. Cl. F41h *1/02*

U.S. Cl. 2—2.5 **16 Claims**



A bulletproof, shatterproof and shock-resistant guard to afford complete protection of the head, face, neck and upper torso of the human body. The guard incorporates an integral, transparent domelike top which is supported not by the head and neck but by the shoulders of the wearer thereby allowing unhampered head movements and unrestricted vision. As a defensive one-piece encasement for the head, neck and upper torso, the guard can be used by soldiers, sailors, policemen, firemen, civil defense workers, guards, and others engaged in hazardous occupations. In a modified embodiment the guard comprises a supplemental transparent safety hood of essentially the same construction as the basic protective piece but adapted for use by the industrial worker for protection against the impact hazards that might be encountered in a dangerous environment. The safety hood, like the basic protective piece, rests on the shoulders of the wearer, is transparent, and allows free head movement and unrestricted vision.

3,707,005

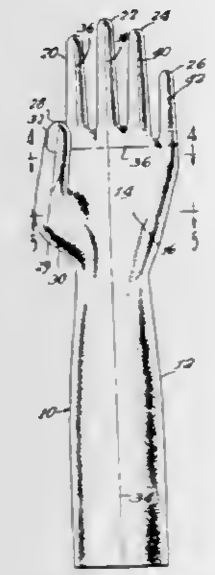
ELASTIC GLOVES

Harry Joseph Giambrone, Kettering, Ohio, assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Division of Ser. No. 868,331, Oct. 22, 1969, Pat. No. 3,613,172. This application July 15, 1971, Ser. No. 162,862

Int. Cl. A41d *19/00*

U.S. Cl. 2—163 **8 Claims**



Elastic form-fitting surgical gloves and the like in which the center of the first joint of the thumb portion is transversely located forward of the palm of the hand shaped form, and is laterally located at one side of the finger portions, and in which the thumb portion bends at a traverse angle away from the palm and at a later angle toward the side of the thumb on which the finger portions are located.

3,707,006

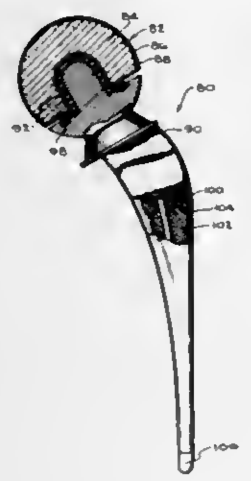
ORTHOPEDIC DEVICE FOR REPAIR OR REPLACEMENT OF BONE

Jack C. Bokros, San Diego, and Willard H. Ellis, Leucadia, both of Calif., assignors to Gulf Oil Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 649,811, June 29, 1967, Pat. No. 3,526,005. This application Aug. 26, 1970, Ser. No. 67,148

Int. Cl. A61f *1/24*

U.S. Cl. 3—1 **14 Claims**



Prosthetic devices for repair of replacement of bone structure in a living body, and methods of orthopedic repair which employ such devices. The orthopedic devices comprise a substrate and a pyrolytic carbon coating on the substrate, which pyrolytic carbon coating is compatible with living tissue and which has a density of at least about 1.5 grams per cubic centimeter. Examples of suitable substrates are those which have a modulus of elasticity approximating that of natural bone such as polycrystalline carbon, and fiber aggregates such as carbon fiber aggregates and refractory wire metal screens. The pyrolytic carbon coating of the orthopedic devices may be polished to provide an effective wear surface, while the surface roughness of the as-deposited coating may be employed to achieve a bond with natural bone tissue. The pyrolytic carbon coating is preferably isotropic and may be doped with a suitable carbide-forming element, such as silicon, to provide additional structural strength and wear resistance.

3,707,007

POOL COVER ARRANGEMENT

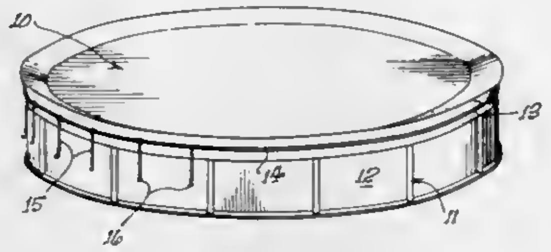
Richard M. Trostler, 1730 Woodbend Drive, Claremont, Calif.

Filed July 14, 1971, Ser. No. 162,547

Int. Cl. E04h *3/16, 3/18*

U.S. Cl. 4—172.14 **5 Claims**

A pool cover arrangement for above-ground swimming pools, in which arrangement a flexible pool cover is disposed over the pool surface with its peripheral edge draped over the exterior sides of the pool, the pool cover being held in position by a line secured under tension about the exterior of the pool and overlying the peripheral edge of the pool cover. Storage straps are secured to a section of the line and are utilized to store the pool cover when it is folded, the cover when stored hanging on the outside of the pool. The tension in the line is such as to permit a roller device to be inserted between the line and the pool walls and moved about the entire perimeter of the pool, facilitating the pool cover being released from or secured by the line.



3,707,008

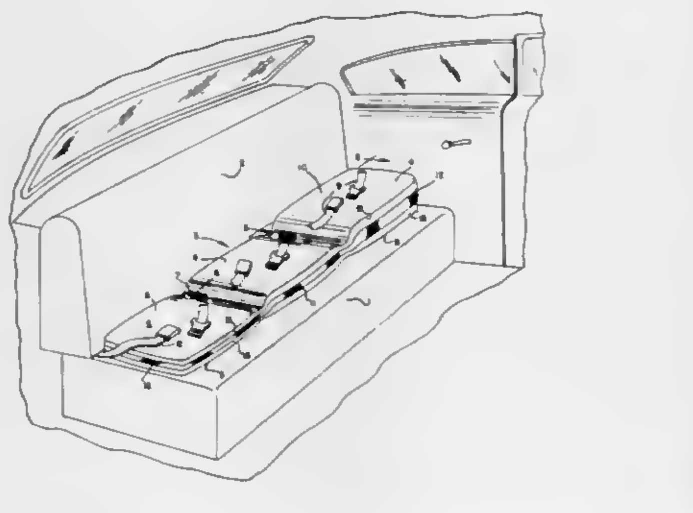
AUTOMOTIVE SEAT PAD FOR USE BY CHILDREN

Jack J. Fellin, and Karin E. Fellin, both of 1495 West 24th Place, Eugene, Oreg.

Filed Dec. 31, 1970, Ser. No. 103,118

Int. Cl. A47g *7/06;* **A47d** *1/10*

U.S. Cl. 5—345 **4 Claims**



A seat pad for placement on an automobile seat enabling children or other users of same to sit at a substantially normal eye level. The pad includes integral sections with each section being adjustable to provide the seating height desired. The pad includes openings for the passage of the automobiles seat belts which in addition to their normal function serve to retain the pad in place. Each section of the pad receives insertable layers of resilient foamed material the number and thicknesses of which will determine the effective seating height. The sidewalls of the pad are of a pliable nature to permit varying of the pads seating surface.

3,707,009

RESILIENT FURNITURE SUPPORT STRUCTURE

Karl A. Wagner, Schramelstrasse 43, 8 Munich 60, Germany

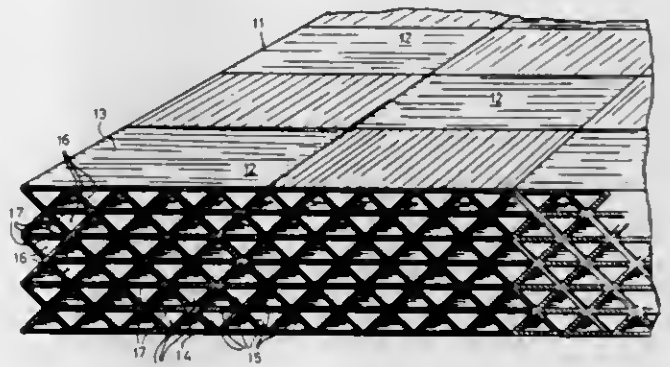
Filed Aug. 21, 1970, Ser. No. 66,025

Claims priority, application Germany, Aug. 28, 1969, P 19 43 832.5

Int. Cl. A47c *27/00*

U.S. Cl. 5—355 **15 Claims**

Filling support material used in furniture, such as beds and chairs within covering made from resilient material such as plastic having planar form and parallel elongate cavities in plural layers to provide spring like action. The filling structure can be modular and interengaged by lugs and sockets or suitable bonding. Within the elongate cavities load bearing ribs can be included to provide additional firmness.



3,707,010

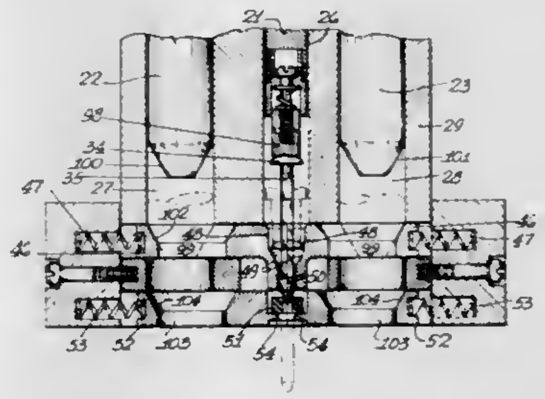
MACHINE FOR ASSEMBLING NAILS AND SEALING WASHERS

Walter F. Gronwald, 7680 7th Avenue, Ville St. Michel, Montreal, Quebec, Canada

Filed Nov. 9, 1970, Ser. No. 87,760

Int. Cl. B23p *19/08*

U.S. Cl. 10—155 **12 Claims**



A machine is disclosed for applying sealing washers to nails in an automatic and rapid manner. A plurality of plungers are reciprocally mounted in bores in a block and means are provided for imparting reciprocating movement simultaneously to the plungers. Means are provided in one of the bores for positioning and retaining a nail and a washer in axial alignment therein. The plunger in the bore engages the nail head to drive its shank through the washer. The positioning means for the nail and washer are appropriately actuated by the other plungers to accomplish the operation and ultimately permit ejection of the assembled nail and washer. Means are provided for feeding a row of nails to the machine. Means are also provided for forming and feeding a row of washers to the machine. The various operations are closely integrated and carried out by means of a single driving shaft.

3,707,011

BRACING APPARATUS FOR MOVEMENT OF A BRIDGING WORK

Pierre Launay, Versailles, France, assignor to Compagnie Industrielle de Travaux, Paris, France

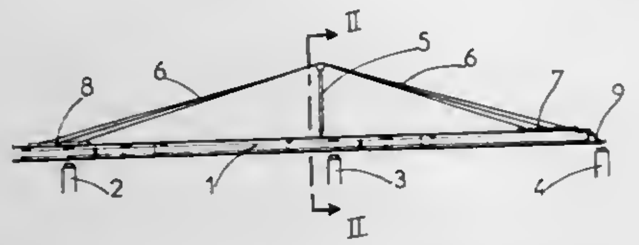
Filed March 1, 1971, Ser. No. 119,709

Claims priority, application France, March 11, 1970, 7008699

Int. Cl. E01d *1/00*

U.S. Cl. 14—1 **3 Claims**

The unsupported end of a bridging structure being moved from a support to the next support is braced by cables extending from the unsupported end over a mast to the inshore end of the structure. Hydraulic means at the foot of the mast raise



and lower the mast to provide compensating forces on the cables as the structure is moved.

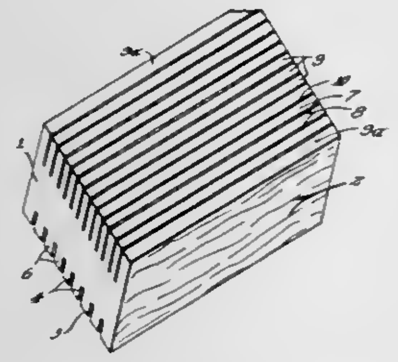
3,707,012
DISPOSABLE SCRUB BRUSH

Kenneth R. Lane, Salt Lake City, Utah, assignor to LeVoy's Inc., Salt Lake City, Utah

Filed Nov. 18, 1968, Ser. No. 776,507

Int. Cl. A47k *7/03*

U.S. Cl. 15—104.93 **6 Claims**



A disposable scrub brush, preferably made of chemical foam, and which is sufficiently economical to warrant discarding after a single usage. The brush, while being highly desirable for surgical usage for scrubbing the arms and hands prior to an operation, may also be utilized for numerous other purposes including use as a cosmetic brush, industrial usage, and many others as will be apparent to one skilled in the art. The brush carries its own soap or detergent supply and this, of course, may be varied in accordance with the intended usage of the brush.

3,707,013
DISPOSABLE BRUSH-LIKE CLEANING UTENSILS, PARTICULARLY INTENDED FOR DENTAL HYGIENE PURPOSES

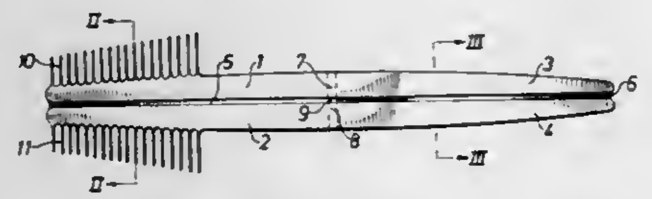
Nils Arne Erkers, Styckjunkaregatan 7, 114 34 Stockholm, Sweden

Filed Oct. 23, 1970, Ser. No. 83,531

Claims priority, application Sweden, Oct. 24, 1969, 14607/69

Int. Cl. A46b *15/00*

U.S. Cl. 15—167 R **6 Claims**



A brush-like plastic cleaning utensil having a handle portion and brush portion moulded in one piece, wherein said handle portion comprises at least two pair of longitudinally extending ribs, longitudinally extending hinge means holding the ribs in each pair together, hinge means connecting said pairs of ribs at adjacent end surfaces of said ribs with each of said hinges means being integral with the ribs, and the brush portion comprising laterally outwardly extending bristle-like projections at the end of each one of said ribs in one of said pair so that the pairs of ribs can be brought into abutment with each other in a folded position by rotation about the hinge means at the adjacent end surfaces of the ribs and the ribs in each pair in the extended position can be brought into abutment by rotation about the longitudinally extending hinge means.

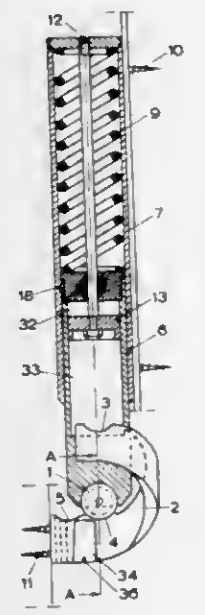
3,707,014
DEVICE FOR CLOSING, HOLDING OPEN AND HOLDING CLOSED A DOOR OR EQUIVALENT, IN PARTICULAR ONE FOR DOORS WITH CONCEALED HINGES

Mauno Kalevi Koivusalo, Tiilhentie 21 as. 234, Turku 31, Finland

Filed Oct. 9, 1970, Ser. No. 79,562

Int. Cl. E05f *3/10*

U.S. Cl. 16—52 **20 Claims**



The present invention concerns a device for closing, holding open and holding closed a door or equivalent, in which device all the functions mentioned have been advantageously combined in one device entity. Furthermore, the invention concerns such a combination of a hinge of a door or equivalent and a device for closing, holding open and holding closed the same which can be countersunk out of sight in the door and/or its frame so that all these devices are invisible when the door is closed. When a device according to the invention is used, no particular device, provided with a turning handle, for keeping it closed need be installed because also this function has been combined with the other functions of the device.

3,707,015
DETACHABLE HANDLE ASSEMBLY FOR COOKING UTENSILS

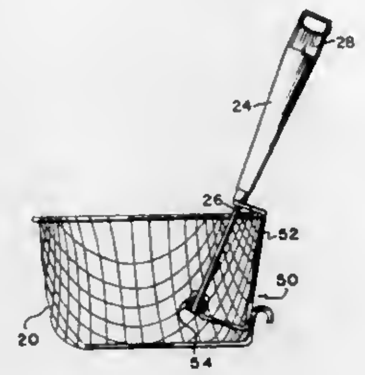
Edmund M. Maynard, Santa Monica, Calif., assignor to Gaydell, Inc., Santa Monica, Calif.

Filed Dec. 23, 1970, Ser. No. 100,925

Int. Cl. A47b *95/02*

U.S. Cl. 16—114 **9 Claims**

A detachable handle for cooking utensils in which the handle may take the form of a thermometer for indicating the cooking temperature in the interior of the utensil. Two exemplary forms of mounting clips for detachably securing a handle having an elongate tubular stem to a pot or wire mesh deep fry basket are disclosed. The elongate tubular stem is formed with a pair of radially projecting axially extending ribs near its distal end which cooperate with the mounting clip to resiliently retain the handle in a fixed relationship to the utensil. The stem preferably takes the form of the temperature



sensing probe of a thermometer which carries a scale at the upper end of the handle.

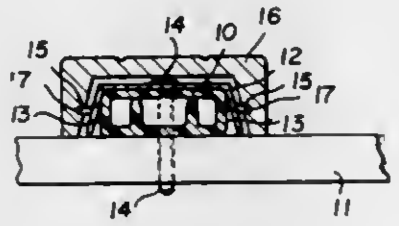
3,707,016
STRAP HANDLE ANCHORAGE

Edward H. Smoot, Holcomb, N.Y., assignor to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed June 21, 1071, Ser. No. 154,740

Int. Cl. A47b *95/02*

U.S. Cl. 16—125 **5 Claims**



A strap handle is anchored in place by a retainer formed to straddle the end of the handle so that a fastener can be driven through a hole in the retainer and through the end of the handle into a mounting structure. The retainer has fins projecting outward along the edges of the strap handle, and an escutcheon plate shaped to cover the retainer and the end of the handle has internally opening slots to receive and slide over the retainer fins which are shaped to lock in the slots to hold the escutcheon plate in place.

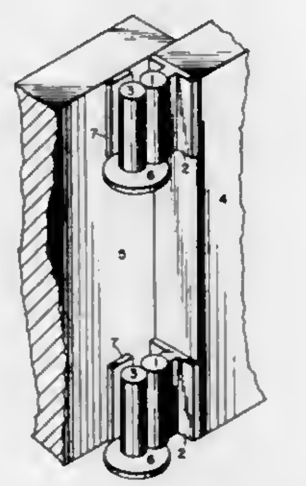
3,707,017
MAGNETIC HINGE

Elmer G. Paquette, Madison, Wis., assignor to Bjorksten Research Laboratories, Inc.

Filed Nov. 20, 1970, Ser. No. 91,493

Int. Cl. E05d *7/02*

U.S. Cl. 16—170 **1 Claim**



Hinge for a magnetically held door, which can be very readily detached and reversed. This hinge is based on a design where two magnetically attracting rollers, rods or cylinders are placed in parallel positions contacting each other lengthwise, one fixed, the other one resting on a shelf attached to the lower end of the first magnet or held perpendicular to said magnet so as to support the weight of the second magnet and any door attached to it.

3,707,018
METHOD FOR KILLING AND BLEEDING POULTRY

Ralph S. Zebarth, Kansas City, Mo., assignor to Gainesville Machine Company Inc., Gainesville, Ga.

Filed Dec. 30, 1969, Ser. No. 889,305

Int. Cl. A22c *21/00*

U.S. Cl. 17—45 **6 Claims**

A method for killing and bleeding poultry consisting of forming an opening through the skull into the brain cavity of a bird, and allowing it to bleed through said opening.

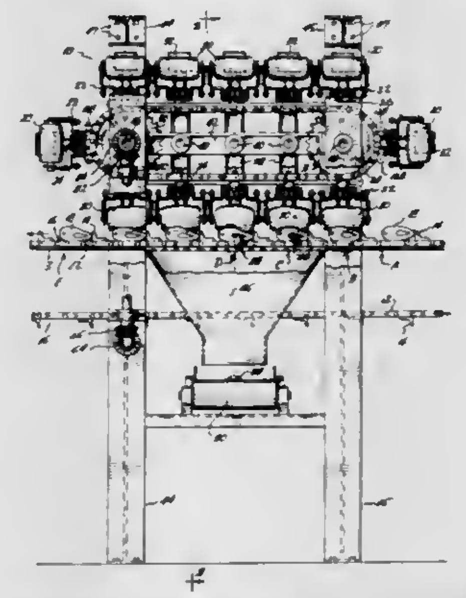
3,707,019
APPARATUS FOR REMOVING VISCERA FROM A FISH

Gary K. Wiggins, Seattle, Wash., assignor to Marine Construction & Design Co., Seattle, Wash.

Filed Feb. 13, 1970, Ser. No. 11,092

Int. Cl. A22c *25/14*

U.S. Cl. 17—58 **28 Claims**



Apparatus utilizing compressive force externally applied by a roller or other mechanical means advanced headward along a fish extrudes the roe (substantially intact), milt-producing organs and other entrails therefrom while the fish is being conveyed for further processing after beheading in a processing plant. In the disclosed embodiment recirculating presser rollers in turn are brought to bear on individual fish advancing sidewise in succession on a conveyor and while thus bearing on the fish are cam-advanced from an initial location near the tail end of the body cavity toward the head end thereof so as to progressively extrude the viscera out the opened head end.

3,707,020
APPARATUS FOR REDUCING ACCUMULATION OF WASTE AND DISPOSING OF WASTE IN CARDING MACHINES

Richard Gordon Stewart, Heaton Mersey, near Manchester, England, assignor to Parks-Cramer (Great Britain) Ltd., Oldham, Lancashire, England

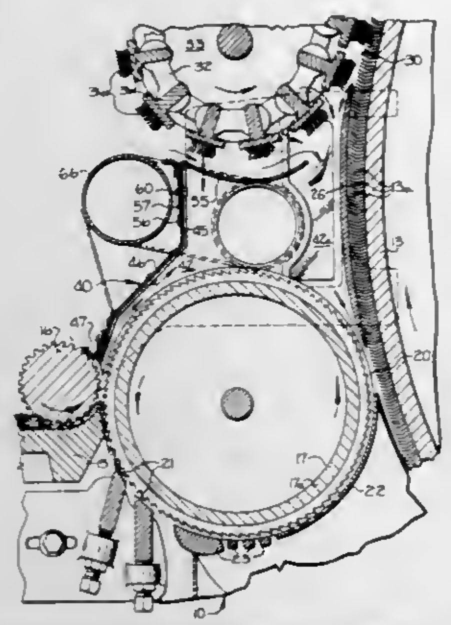
Filed Sept. 14, 1970, Ser. No. 72,079

Claims priority, application Great Britain, Oct. 14, 1969, 50,445/69

Int. Cl. D01g *15/76*

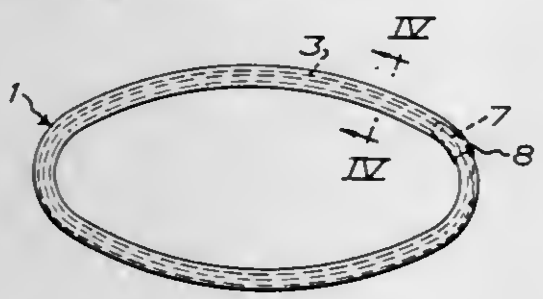
U.S. Cl. 19—107 **2 Claims**

To reduce the liberation of dust and fly from the taker-in and adjacent areas of a carding machine, the usual taker-in cover is eliminated and a housing means, defining an expansion chamber of substantial volume in open communication with the upper portion of the taker-in, is positioned between the revolving flats, the taker-in feed roll, the taker-in and the main cylinder back plate, and air is continuously exhausted from the taker-in and the expansion chamber to relieve pressure incident to rotation of the taker-in while thereby removing any liberated dust and fly from the chamber.



3,707,021
STRAPS

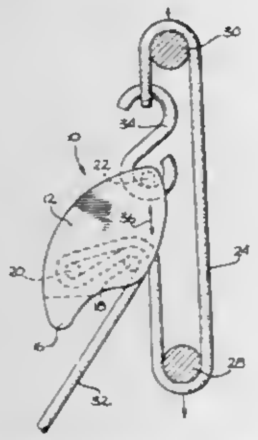
Ruben Henry Norrman, Malmo, Sweden, assignor to Spanset Inter AG, Basel, Switzerland
Filed June 16, 1971, Ser. No. 153,774
Claims priority, application Sweden, June 17, 1970, 8374/70
Int. Cl. B65d *63/00*
U.S. Cl. 24—16 R **1 Claim**



A strap consisting of a core of one or more skeins and a protective covering of flexible material around the core, said covering consisting of a hose or tube with an unbroken seamless wall.

3,707,022
TIE DOWN CLAMP

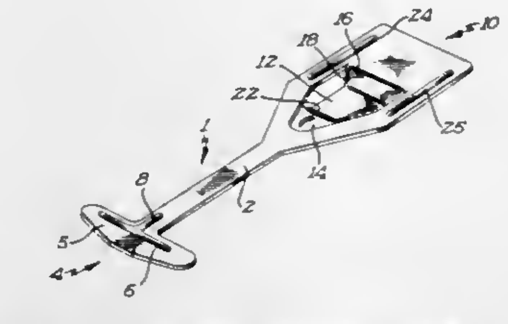
Alan Diebl, 11144 Wystone Avenue, Northbridge, Calif.
Filed Sept. 23, 1970, Ser. No. 74,681
Int. Cl. F16g *11/14;* **A44b** *11/02*
U.S. Cl. 24—115 J **4 Claims**



A rope tie down clamp which employs a dual pin arrangement upon which the rope is wound, the arrangement being such that in use the tie down force being transmitted through the clamp is substantially lineal, the dual pin arrangement causing the rope to frictionally bind upon itself during use, release of the clamp being effected by movement of the clamp housing in a particular direction.

3,707,023
FLAP CLOSURE FOR CONTAINERS

James L. Pfalfendorf, Maple Grove, and Marlyn D. Johnson, Minneapolis, both of Minn., assignors to Safco Products Co., Minneapolis, Minn.
Filed May 14, 1971, Ser. No. 143,540
Int. Cl. A44b *9/00;* **B65d** *45/00;* **E65c** *19/18*
U.S. Cl. 24—85 B **14 Claims**



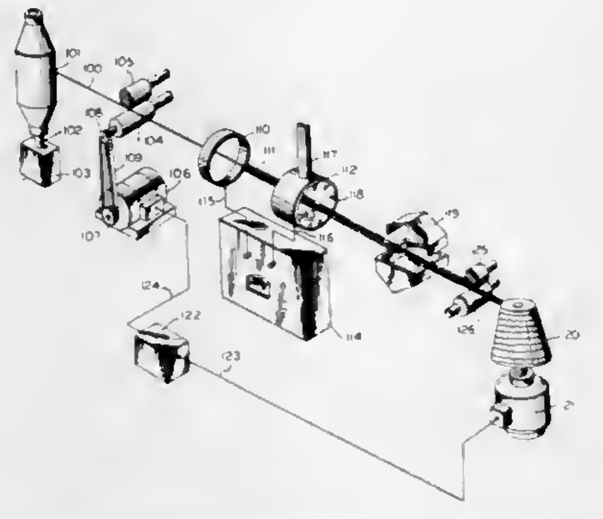
An elongated, flexible strap having an enlarged, T-shaped locking head at one end and an attached locking tongue on the opposite end is utilized to hold foldable closure flaps of a fiberboard container in a closed position by engaging the locking head in a slot in a closure flap, extending the strap over one edge of the container and engaging the locking tongue in a slot in an adjacent container wall. The locking tongue is offset from the strap and extends towards the locking head from its connection to the strap body.

ERRATUM

For Class 28—1 see:
Patent No. 3,707,299

3,707,024
METHOD FOR ELECTROSTATICALLY BULKING AND IMPREGNATING STAPLE YARNS

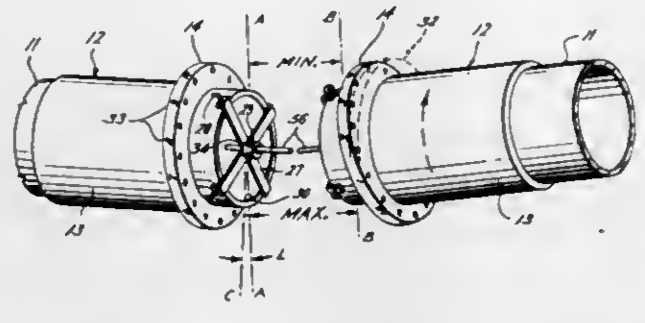
Mayer Mayer, Jr., New Orleans, and Albert Baril, Jr., Metairie, both of La., assignors to The United States of America as represented by the United States Department of Agriculture
Filed March 31, 1971, Ser. No. 129,735
Int. Cl. D02g *1/00;* **D02j** *1/20;* **D06m** *13/00*
U.S. Cl. 28—75 WT **3 Claims**



Chemical and physical methods and apparatuses have been employed to impart permanently bulked configuration to cellulosic and certain non-cellulosic yarns. This has been accomplished by passing the yarn through an electrostatic field either before or after impregnating the yarn with certain chemical crosslinking formulations.

3,707,025
APPARATUS FOR JOINING PIPES IN A HOSTILE ENVIRONMENT

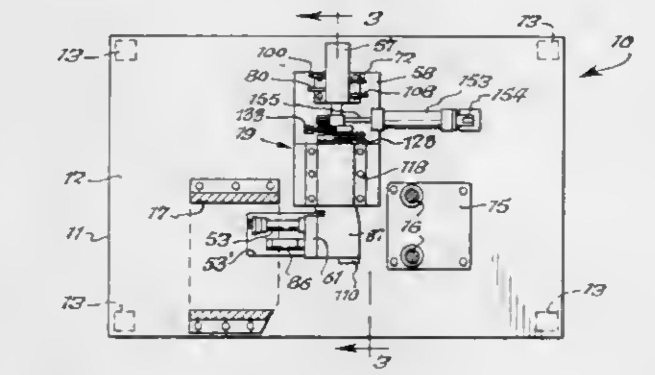
William E. White, Jr., and Lloyd E. Billingsly, both of Houston, Tex., assignors to Hydro Tech Services, Inc., Houston, Tex.
Filed Aug. 20, 1970, Ser. No. 65,648
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 P **8 Claims**



Apparatus for joining the ends of two work pipes in a generally hostile environment and wherein the pipes are generally not parallel. The method includes loosely mounting work couplings on each of the work pipe ends and with each of the work couplings having biased flanges arranged to accommodate the bend which will occur in the pipe when the coupling is completed and wherein the couplings will have to be rotated relative to each other to arrive at the proper angular relationship therebetween. The work pipes are moved to the position such that the axes thereof intersect. The method includes constructing a model, preferably in a favorable environment, which is positionally representative of the work pipe ends and work couplings. Thereafter, the model couplings are manipulated to the mating position by trial and error. Preferably, the model couplings will be dimensionally representative of the work couplings and both the work couplings and the model couplings will have identical indicia, such as numerals, marked thereon. Once the mated position of the model couplings is known, the relative position of the indicia thereon is utilized to similarly manipulate the work couplings to the mating position, to thereby eliminate trial and error in aligning the work couplings in the hostile environment.

3,707,026
PLUG ASSEMBLING MACHINE

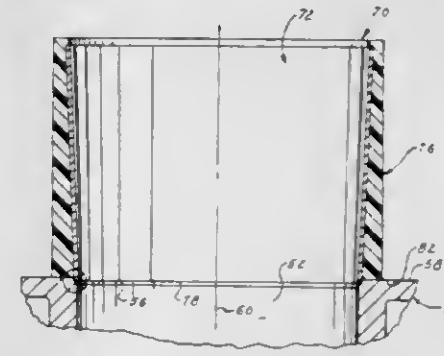
John F. Kopczynski, 1671 Sweeney Street, North Tonawanda, N.Y.
Filed Feb. 1, 1971, Ser. No. 111,278
Int. Cl. H01r *43/04*
U.S. Cl. 29—203 D **18 Claims**



A machine for effecting a plurality of operations on a plug having clamping bands thereon including a head having an opening for receiving the plug, a probe for determining whether the plug is in proper position in the head, a clamping member for securely clamping the plug in the head when it is in proper position in response to the action of the probe, a shaft journalled in bearings for mounting said head, a plurality of sleeves journalled on said shaft, a bending jaw mounted on each of said sleeves for engaging the clamping bands on the plug and bending them when said sleeves are rotated, a core in the shaft for providing a plurality of pneumatic conduits leading to the head and a bore for housing a plurality of electrical conductors leading to the head, whereby pneumatic pressure and electric current are conducted through the shaft to the head, and pneumatic and electrical circuits for automatically providing a sequence of operations whereby the clamping bands on the plug are bent in position, a screw is inserted through them to secure them in clamping position, the plug is rotated, an additional screw is automatically inserted into the plug, and the plug is released from clamping engagement with the head so that it may be withdrawn.

3,707,027
LOADING SLEEVE FOR INSTALLING A PISTON AND RING ASSEMBLY INTO A CYLINDER BORE

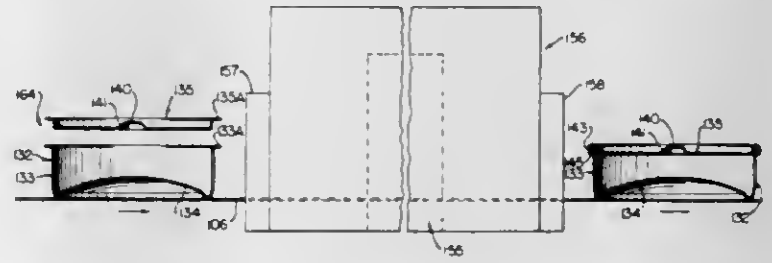
Lewis M. Davis, and Frank G. Warrick, both of Muskegon, Mich., assignors to Sealed Power Corporation, Muskegon, Mich.
Filed Nov. 12, 1970, Ser. No. 88,703
Int. Cl. B23p *19/04*
U.S. Cl. 29—222 **10 Claims**



A loading sleeve for installing a piston equipped with radially compressible piston rings into a cylinder bore of an engine block. The sleeve is a generally cylindrical body open at its axially opposite ends and its tapered internally to squeeze the rings from their free state diameter down to bore diameter as the piston moves axially through the sleeve. The sleeve is adapted to mount on the marginal surface of the engine block surrounding the cylinder bore and has a necked down configuration forming an entrance lip for piloting the sleeve and thus the piston contained therein into the combustion chamber end of the cylinder bore. An all-plastic embodiment as well as a composite metal and plastic embodiment of the sleeve is disclosed.

3,707,028
METHOD OF MAKING ACTUATING CAPSULE FOR FLUID PRESSURE REGULATOR

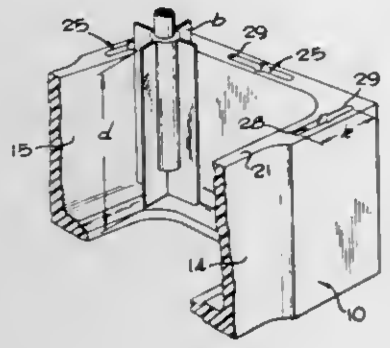
Calvin L. Wilson, and John H. Fox, Jr., both of Chesterfield County, Va., assignors to Reynolds Metals Company, Richmond, Va.
Division of Ser. No. 735,722, June 10, 1968, Pat. No. 3,583,289. This application Jan. 7, 1971, Ser. No. 104,752
Int. Cl. B23q *17/00*
U.S. Cl. 29—404 **10 Claims**



A method of making an enclosed actuating capsule for a fluid pressure regulator is provided by placing a plurality of cooperating wall-forming members in an assembly chamber, controlling the environment within the chamber, and assembling the members in the controlled environment of the chamber to form the capsule and simultaneously provide the controlled environment within the capsule during its assembly to thus provide a fully calibrated capsule.

3,707,029
SUPERIMPOSED MODULAR CONSTRUCTION OF VAPORIZABLE PATTERNS

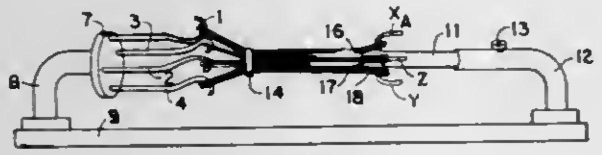
John T. Parsons, 205 Wellington, Traverse City, Mich.
Continuation-in-part of Ser. Nos. 867,980, Oct. 20, 1969, Pat. No. 3,635,124, and Ser. No. 874,930, Nov. 7, 1969, Pat. No. 3,625,280. This application Sept. 25, 1970, Ser. No. 75,538
Int. Cl. B23q *17/00;* B23p *11/02, 19/02*
U.S. Cl. 29—407 6 Claims



Vaporizable patterns of substantial depth and/or complexity are carved in modules by tape-controlled milling machines. The modules have abutting edge surfaces into which oversize bi-symmetrical dovetail splines of the same material are inserted. A standard depth for the modules is the working length of rotating cutter tools. The partial elasticity of the material makes assembly possible and gives the joint bend resistance to exclude foundry sand.

3,707,030
METHOD OF MAKING FIBER LIGHT-PIPE DIFFUSER FOR COLORIMETERS

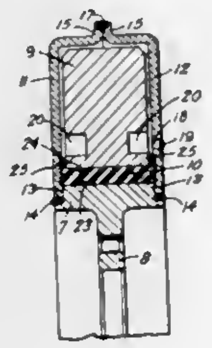
Richard S. Hunter; John S. Christie, and Roland D. Robinson, all of Fairfax County, Va., assignors to Hunter Associates Laboratory, Inc.
Continuation of Ser. No. 705,702, Feb. 15, 1968, abandoned. This application Oct. 20, 1970, Ser. No. 82,499
Int. Cl. B23p *17/00*
U.S. Cl. 29—419 2 Claims



In a commercial colorimeter, a device is provided for conducting light from a specimen to several photocells in such a way that each photocell receives geometrically the same illumination from the specimen. By using different filters and spectral responses, differences in photocell signal are used in the colorimeter to provide chromatic information of high precision. It is important that this information not be biased by differences in geometric distribution of light to the different photocell positions. The light-conducting device comprises a bundle of internal light reflecting filaments (light fibers), the filaments of which are individually pre-set in place in the bundle in such a manner as to insure that light from each area of the specimen is distributed in the same proportion to each photocell.

3,707,031
METHOD OF MAKING TUNED TORSIONAL VISCOUS VIBRATION DAMPERS

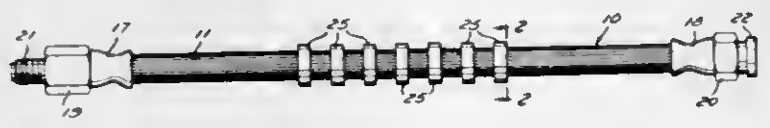
Jeffrey Hall, Huddersfield, England, assignor to Houdaille Industries, Inc., Buffalo, N.Y.
Division of Ser. No. 780,779, Dec. 3, 1968, Pat. No. 3,603,172. This application April 5, 1971, Ser. No. 131,481
Claims priority, application Great Britain, Dec. 12, 1967, 56,365/67
Int. Cl. B21d *39/00;* B23p *19/04*
U.S. Cl. 29—455 14 Claims



A tuned torsional viscous vibration damper is made by bonding elastic spacer and tuning material to, and in the space between, torsionally movable members one of which is an inertia mass, assembling additional structure with the members to provide an enclosed working chamber, engaging a spacer of the material between working surfaces of the structure and one member, and filling viscous damping fluid into the working chamber and between said surfaces.

3,707,032
METHOD OF FORMING AN ABRASION RESISTANT HOSE ASSEMBLY

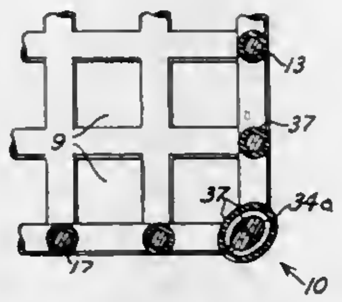
William Brunelle, Columbia City, Ind., and James W. Cartwright, Columbus, Ohio, assignors to The Weatherhead Company
Division of Ser. No. 793,304, Jan. 23, 1969, abandoned. This application Nov. 20, 1970, Ser. No. 91,305
Int. Cl. B23p *3/00, 19/04*
U.S. Cl. 29—460 4 Claims



An abrasion resistant flexible hose assembly includes a length of flexible hose having hose end fittings attached to its ends and abrasion resistant means in the form of separate annular bumpers arranged along the hose in longitudinally spaced positions. Each bumper encircles a small portion of the length of the hose and cooperates with the other bumpers to protect the hose from abrading engagement with adjacent structures. The bumpers individually engage the hose with a shrink fit to maintain their spacing.

3,707,033
MANUFACTURING METHOD FOR MULTI-ELEMENT STRUCTURES

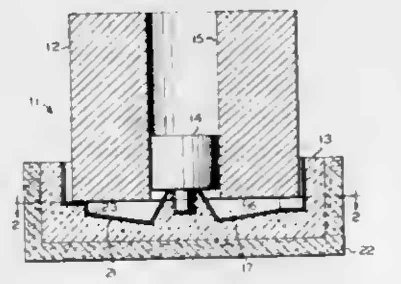
James M. Knott, Wellesley, Mass., assignor to Coatings Engineering Corporation, Natick, Mass.
Filed Aug. 24, 1970, Ser. No. 66,222
Int. Cl. B23p *3/00, 19/04*
U.S. Cl. 29—460 18 Claims



Disclosed is a method for fabricating multi-element latticed structures including temporary fastening of the elements and subsequent plastic encapsulation of the entire structure to provide structural integrity.

3,707,034
METHOD OF PRODUCING STEEL CYLINDER BARRELS HAVING BONDED BRONZE VALVE PLATES

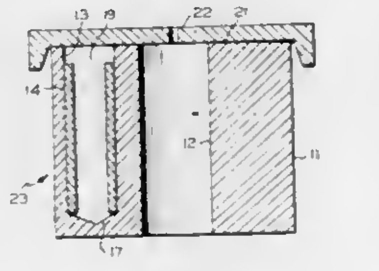
Martin J. Alger, Jr., and Nelson H. Dunn, both of Watertown, N.Y., assignors to General Signal Corporation
Filed Nov. 27, 1970, Ser. No. 93,129
Int. Cl. B23k *19/00*
U.S. Cl. 29—527.6 8 Claims



The disclosure concerns a process for providing the steel cylinder barrel of a piston pump or motor with an adherent, bronze valve plate. The finished valve plate is machined from a bronze member which is cast in place against one end of the cylinder barrel blank under conditions which effect a sound metallurgical and mechanical bond between the steel and the bronze.

3,707,035
METHOD OF PRODUCING STEEL CYLINDER BARRELS HAVING BONDED BRONZE CYLINDER LINERS

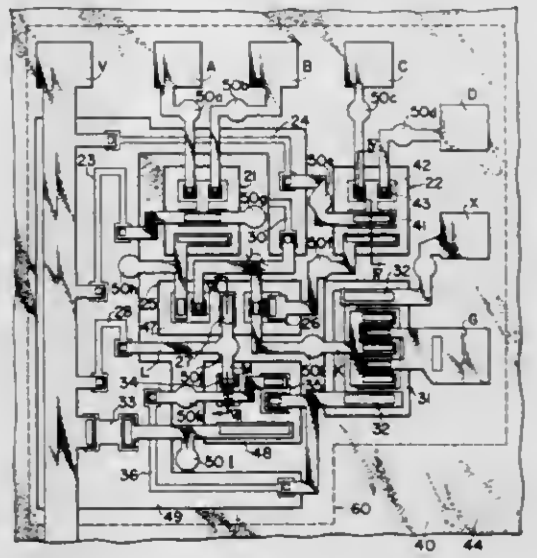
Martin J. Alger, Jr., and Nelson H. Dunn, both of Watertown, N.Y., assignors to General Signal Corporation
Filed Nov. 27, 1970, Ser. No. 93,130
Int. Cl. B23k *19/00*
U.S. Cl. 29—527.6 8 Claims



The disclosure concerns a method for producing bronze lined cylinder bores in the steel cylinder barrel of a piston pump or motor. The liners are machined from bronze sleeves which are slip fitted into blind bores in a cylinder barrel blank, enveloped by sand, and then melted, bonded and re-solidified in a non-oxidizing atmosphere.

3,707,036
METHOD FOR FABRICATING SEMICONDUCTOR LSI CIRCUIT DEVICES

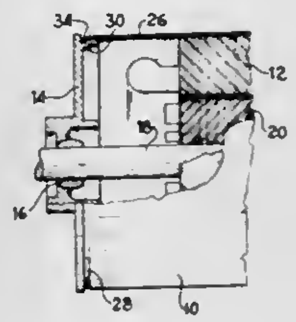
Takahiro Okabe, Hachioji; Minoru Nagata, and Tsugio Makimoto, both of Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 27, 1970, Ser. No. 15,135
Claims priority, application Japan, Feb. 28, 1969, 44/14620
Int. Cl. B01j *17/00*
U.S. Cl. 29—574 5 Claims



LSI circuit devices are fabricated by forming a plurality of unit cells having a relatively large number of circuit elements. The unit cells are tested and the cells having predetermined characteristics are selected. A portion of the selected unit cells are divided to form sub-unit cells. The sub-unit cells are then interconnected with or without undivided unit cells to form LSI circuit devices.

3,707,037
METHOD FOR ASSEMBLING ELECTRIC MOTORS

Giorgio Gutris, 49, Viale Certosa, Milan, Italy
Filed Nov. 3, 1970, Ser. No. 86,531
Int. Cl. H02k *15/00, 15/14, 15/16*
U.S. Cl. 29—596 1 Claim

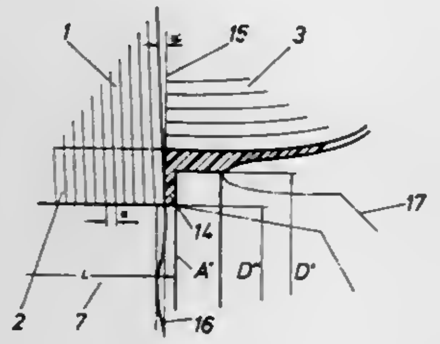


The specification describes a method for assembling electric motors comprising a casing and opposite head members co-axial therewith, including the step of permanently securing said head members to said casing by inwardly clinching the end portions of said casing to the periphery of the adjacent head member, and electric motors wherein their head members are permanently secured to the motor yoke casing according to the method.

3,707,038
METHOD FOR MANUFACTURING STATOR UNITS OF ELECTRIC ROTARY MACHINES

Stig Lennart Hallerback, 12 Blodboksgatan, Vastra Frolunda, Sweden

Filed Nov. 18, 1970, Ser. No. 90,728
Int. Cl. H02k *15/00, 15/14, 15/16*
U.S. Cl. 29—596 **2 Claims**

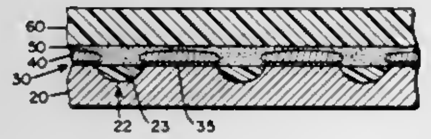


The present disclosure relates to a method of manufacturing a stator unit for rotary electric machines such as electric motors having a lamellate stator core and provided with cup-shaped bearing support means secured by the larger end relative to the stator core end face. To overcome the difficulties of such a mounting and to attain high geometrical and dimensional accuracy of the stator unit and the rotor assembly mounting, the invention provides a method of moulding on at the stator core end face a formation of a setting substance affording accurate locating surface for mating surfaces at the bearing support means, the latter being rigidly secured in the position thus determined as by bonding.

3,707,039
TERMINATION ARRANGEMENT FOR WIRE DEVICES

John R. Niemirovich, Royersford, Pa., assignor to Sperry Rand Corporation, Americas, N.Y.

Filed June 3, 1970, Ser. No. 42,942
Int. Cl. H05k *3/00*
U.S. Cl. 29—625 **6 Claims**



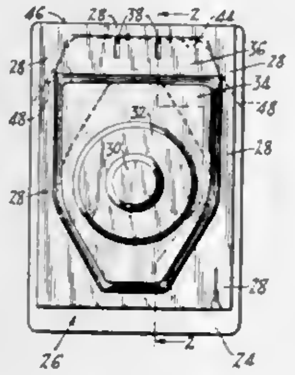
An arrangement for terminating elements such as plated wire memory devices ((which have the size of a human hair), wire resistor elements, or similar devices for connection to external circuitry. The arrangement is also suitable for coupling similar devices which are on different planes and are oriented either in parallel or at different angles. The arrangement includes positioning slots which serve as connecting lands as well as non-conducting walls to prevent short circuits between adjacent wires when molten solder is applied to the end of the wire.

3,707,040
SAFETY PACKAGE FOR ELECTRICAL LINE-CORD ACCESSORY AND METHOD OF INSTALLING ACCESSORY

Herbert G. Lehmann, 5 Kent Road, Easton, Conn.

Filed Nov. 16, 1970, Ser. No. 89,892
Int. Cl. H01r *43/00;* **B65d** *73/02*
U.S. Cl. 29—628 **10 Claims**

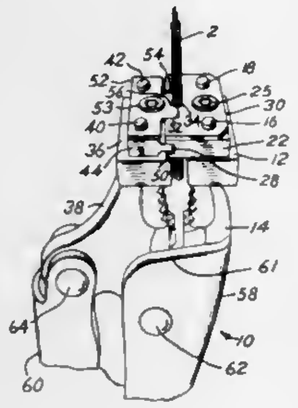
A method of installing an electrical line-cord accessory and a safety package adapted to contain said accessory for display and sales purposes. The electrical accessory is of the type intended to be inserted in a lamp cord, clock cord, radio cord or the like, and is so arranged that it requires snipping through of the cord by a scissors or knife, prior to the installation. This act, which is required on the part of the consumer, has a dangerous aspect if the cord is cut through without first pulling out the plug from the wall socket or receptacle. By packaging the accessory in a special safety package, this danger and likelihood of injury is eliminated, for the reason that the opening of the package requires the user to utilize, as an opening tool, the two-prong plug of the lamp, clock or radio. Thus, prior to opening the package the user or consumer reads the opening directions, instructing him or her to first pull out the plug from the wall receptacle, and then cut through the electric cord, thereafter utilizing the plug as a wrench or opening tool to remove the accessory from the package. After the package has been opened in this manner the consumer then finds further instructions enclosed therein, telling him or her that now the cord possibly must be cut through again, this time at the exact location near the lamp base. Since the cord has already been disconnected for the purpose of opening the package, the danger of electrical short circuit or shock is now eliminated. Prior to the opening of the package, the consumer is not aware that for the installation of the accessory the electrical cord must be cut completely through.



3,707,041
SHIELD TERMINATION APPARATUS

Raymond J. Ramsey, Mishawaka, Ind., assignor to The Bendix Corporation

Filed March 18, 1971, Ser. No. 125,664
Int. Cl. H02g *1/12*
U.S. Cl. 30—91.2 **6 Claims**

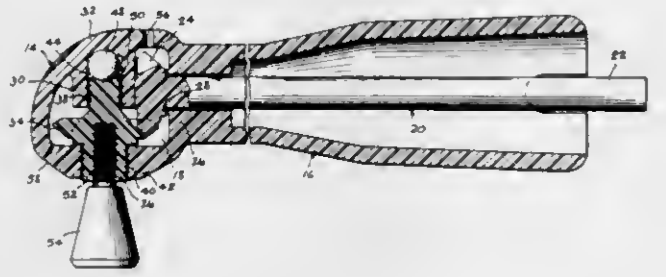


An apparatus for terminating a portion of an external woven shield of a shielded wire to be removed without damaging the insulation covering a center conductor of the shielded wire.

3,707,042
POWERED MEDICAL TOOL INCORPORATING MEANS FOR CLEANING THE SAME

Thomas E. Talaga, 3603 Michigan Court, Duneland Beach, Michigan City, Ind.

Filed Nov. 20, 1970, Ser. No. 91,312
Int. Cl. A61c *1/10*
U.S. Cl. 32—27 **5 Claims**

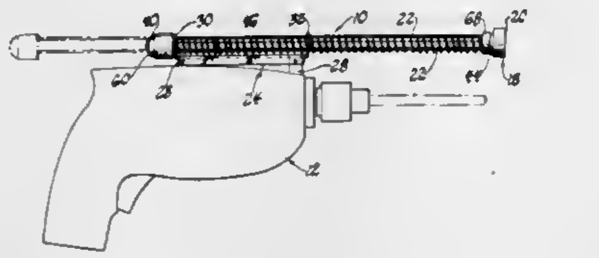


A powered tool utilized by physicians and dentists which includes a housing having a chamber therein. Gear means interconnecting drive and driven shafts are positioned within the chamber. The housing includes a passage which extends from the exterior of the housing into the chamber and through which cleaning fluid is drawn upon rotation of the drive shaft with the housing submerged in a cleaning fluid.

3,707,043
ALIGNMENT ASSEMBLY

David P. Jones, 3160 Second Avenue, Detroit, Mich.

Filed Jan. 12, 1970, Ser. No. 2,295
Int. Cl. B27g *23/00*
U.S. Cl. 33—185 R **23 Claims**

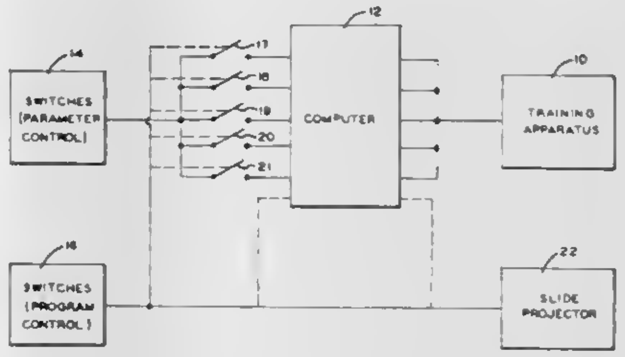


An alignment assembly for indicating the angle of incidence with respect to a workpiece including attachment means adapted to be attached to a device such as a portable hand drill. The assembly includes a central shaft interconnecting two balls. The ball at one end supports an input member for pivotal movement about the center of the ball while the ball at the other end supports an indicator member for pivotal movement about the center thereof. Three rods engage and interconnect the input member and the indicator member so that the indicator member pivots in response to pivotal movement of the input member. A female socket member having a spherical cavity supports the indicator member and a translucent dome is attached to the female member. A circular groove is disposed on the interior surface of the dome and a second circular groove is disposed on the spherical surface of the indicator member with the two circles being of equal diameter so that when they are in registry or concentric with one another the longitudinal axis of the assembly is perpendicular to a workpiece engaged by the input member.

3,707,044
SWITCHING DEVICE AND ASSOCIATED VISUAL DISPLAY FOR TRAINING APPARATUS

Victor Faconti, Jr., Binghamton, N.Y., and William C. Booth, Reisterstown, Md., assignors to The Singer Company, New York, N.Y.

Filed May 20, 1969, Ser. No. 826,178
Int. Cl. B64g *7/00;* **G09b** *9/08*
U.S. Cl. 35—12 **8 Claims**

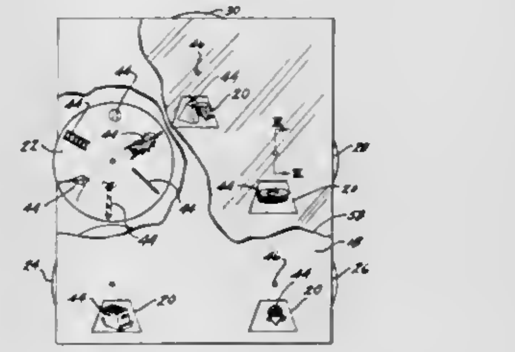


A system for use in conjunction with training apparatus such as an aircraft simulator, for example, to allow selective changes in the parameters affecting operation of the apparatus by providing a plurality of manually operable switch means, each being programmable to control various ones of such parameters, with a visual display which changes as the program is changed to indicate to an instructor the particular parameter which each switch is connected to control for that particular program.

3,707,045
TEACHING DEVICE

Patrick H. O'Hare, 80 Carrol Street, Pentwater, Mich.

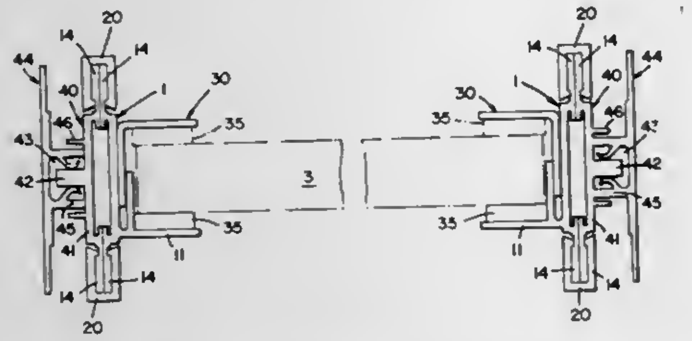
Filed March 3, 1970, Ser. No. 16,142
Int. Cl. G09b *1/22*
U.S. Cl. 35—74 **1 Claim**



A teaching device having sets of conceptually related forms on a plurality of cards or wheels mounted behind a screen so that only one form from each card or wheel is visible at a given time and so that the cards or wheels are movable with respect to the screen. The rear sides of the cards or wheels have sets of colored edges or similar coded forms which are positioned behind a second screen with openings for one colored area from each card. The sets of colored areas are so related to the conceptually related forms that when one set of like colors is seen at the second screen, one set of conceptually related forms will be seen at the first screen.

3,707,046
UNIVERSAL FILTER HOLDING FRAME AND MEDIA ASSEMBLY

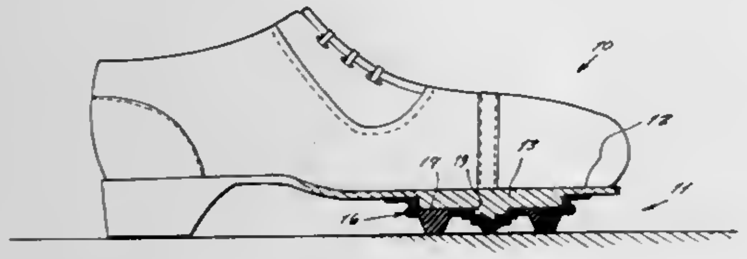
Kenneth W. De Baun, Novato, Calif., assignor to Servodyne Corporation
Filed Feb. 16, 1971, Ser. No. 115,522
Int. Cl. B01d *46/40*
U.S. Cl. 55—483 **8 Claims**



A universal open-ended filter holding frame structure is assembled from specially shaped support components which are snapped together or to similarly shaped peripheral seals or slides at duct or plenum chamber walls by semi-rigid channels that provide positive air seals between the assembled components. Interference type locking clips releasably hold filter media units in the holding frame structure.

3,707,047
SWIVEL ATHLETIC SHOE

Zygmund Nedwick, c/o Athletic Devices Inc., P.O. Box 161, Glen Cove, N.Y.
Filed Feb. 1, 1971, Ser. No. 111,453
Int. Cl. A43b
U.S. Cl. 36—2.5 R **3 Claims**

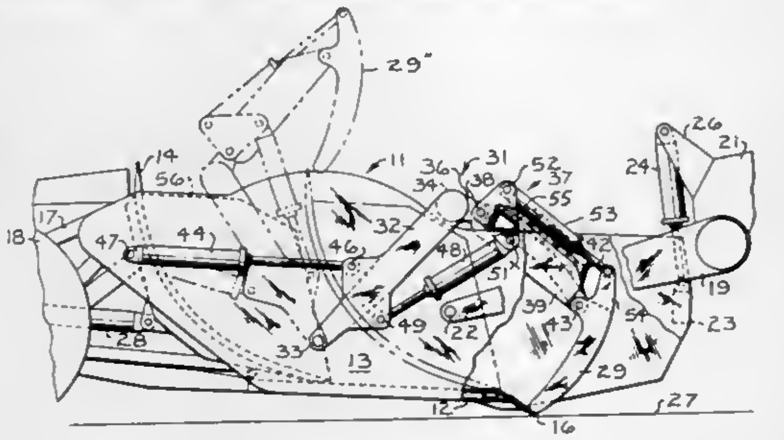


An athletic shoe with cleats for traction such as is used in games of football, soccer, baseball and other field sports where sudden direction change and maneuverability must be employed in fair or foul weather, and wherein such cleat gripping aids to meet force, to apply force or to avoid it, the invention consisting of a cleat assembly on the underside of the shoe, and which is rotatable upon application of relatively increased turning force.

3,707,048
METHOD OF OPERATING A SCRAPER HAVING A MANIPULATABLE APRON

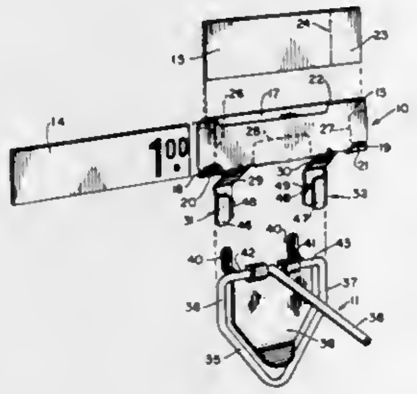
Robert A. Peterson, San Leandro, Calif., assignor to Caterpillar Tractor Co, Peoria, Ill.
Division of Ser. No. 589,978, Oct. 27, 1966, Pat. No. 3,471,952, and a continuation of Ser. No. 839,414, July 7, 1969, abandoned. This application Sept. 2, 1970, Ser. No. 69,091
Int. Cl. E02f *3/75*
U.S. Cl. 37—126 AB **1 Claim**

In a scraper having an apron which may be advanced and retracted relative to the bowl in addition to being raised and lowered to provide a hoeing action and having a bucket type of ejector which may be advanced and retracted in the bowl, highly efficient loading is realized by advancing the ejector to receive the material which is loaded by the apron in the initial portion of the cycle and then retracting the ejector to move such material to the rear of the bowl thereby facilitating subsequent loading at the front of the bowl. During ejection, the apron may be scraped down along the forward surface of the ejector to dislodge material.



3,707,049
PRICE TAG HOLDER AND MOUNTING ADAPTER THEREFOR

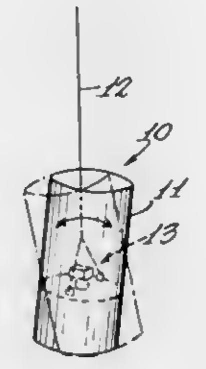
David R. Thalenfeld, 162-41 Powell's Cove Boulevard, Beachurst, N.Y.
Filed Aug. 10, 1970, Ser. No. 62,275
Int. Cl. G09f *3/18*
U.S. Cl. 40—10 **6 Claims**



The invention relates to a price tag holder for use in connection with displayed merchandise, particularly in conjunction with the display of carded or pre-packaged types of merchandise on so called peg board display hooks and the like. The price tag holder is adapted to be mounted directly on a peg board display hook, so as to have immediate association with the merchandise suspended on the hook. Alternatively, the holder may be mounted at any convenient location on an apertured display board, by means of a novel adapter device, forming a part of the invention. The price tag holder of the invention is capable of highly economical manufacture and incorporates a number of unique and advantageous features of construction which enable it to be utilized in a highly efficient manner in conjunction with modern merchandising and inventory control programs. The price tag holder is a single piece unit which is cut and shaped to provide, on the front side thereof, a facility for the removable reception of a tag carrying pricing and other information for the consumer. The holder also has provisions on its back side for the slidable reception of a re-order tag intended primarily for the use of the store personnel and mounted to be just slightly visible over the back of the price tag holder. Further, the new price tag holder includes a novel facility for the visible retention of a stub of the re-order tag, providing a clear indication to store personnel that merchandise associated with the tag holder has been re-ordered. The tag holder of the invention is intended for use in extraordinarily large numbers, and therefore its unique features of construction are calculated to provide for a plurality of desirable merchandising functions while at the same time accommodating mass production manufacture at an extremely low price.

3,707,050
ROCKING DISPLAY DEVICE

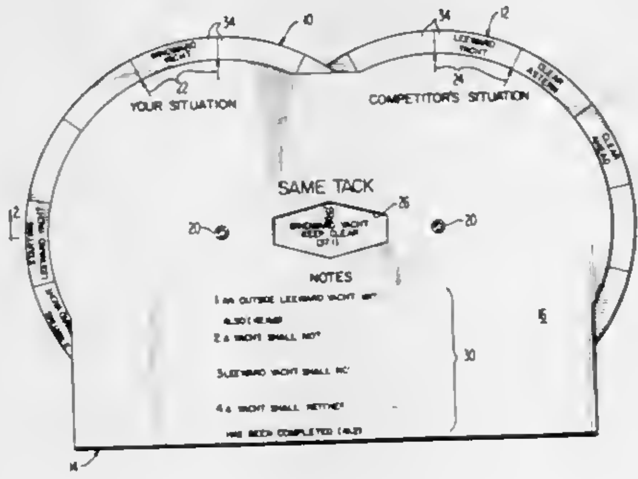
Alois F. Schoenung, Naperville, Ill., assignor to Rapid Mountain and Finishing Company
Filed Nov. 27, 1970, Ser. No. 93,263
Int. Cl. G09f *11/00*
U.S. Cl. 40—30 **13 Claims**



A device such as for use in an advertising display intended to be hung and rocked to attract the attention of a viewer. The device includes a self-contained power supply permitting the device to be installed independently of electrical outlet means.

3,707,051
RACING RULES CORRELATOR

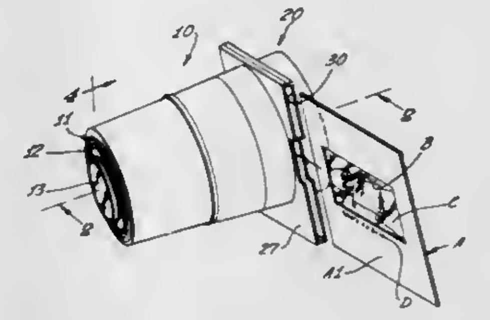
Greg A. Field, Annapolis, Md., assignor to S and R Associates, Inc., Annapolis, Md.
Filed Feb. 22, 1971, Ser. No. 117,611
Int. Cl. G09f *11/04*; G09b *23/00*
U.S. Cl. 40—70 **8 Claims**



A pair of rotatable overlapping discs carrying data relative to two racing yachts are rotated relative to each other to a position indicative of the relative situation between the yachts to expose the appropriate racing rule governing their subsequent behavior.

3,707,052
SLIDE VIEWER

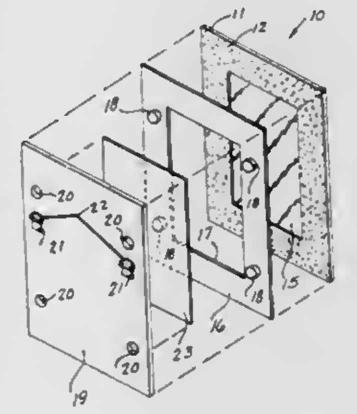
Thomas C. Clark, 8410 Gulana Avenue, Apt. 2, Playa del Rey, Calif.
Filed Oct. 1, 1968, Ser. No. 764,165
Int. Cl. G09f *11/30*
U.S. Cl. 40—63 A **6 Claims**



A slide viewer with a translucent rear window as principal illuminating source and having a translucent lateral front window for diffusely illuminating the front side of a slide binder when inserted in the slide viewer.

3,707,053
PICTURE SUPPORT WITH CONCEALED CONNECTORS

Takeo Itano, 6459 North Wayne Avenue, Chicago, Ill.
Filed March 12, 1971, Ser. No. 123,738
Int. Cl. G09f *1/10*
U.S. Cl. 40—158 **6 Claims**

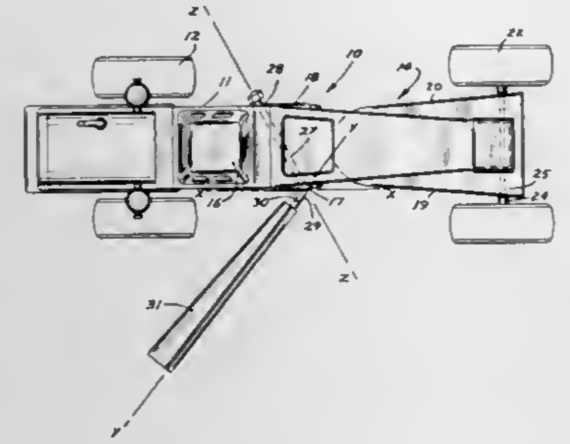


A picture support for displaying a picture with the transparent front panel secured to a supporting back panel by concealed connectors with the picture lying therebetween. The transparent front panel has an opaque coating on its inner surface surrounding a transparent central portion with the opaque coating being either formed as a peelable panel or as an applied coating.

3,707,054
TOY GRADER BLADE

Lee J. Pfeilsticker, Long Lake, Minn., assignor to Tonka Corporation, Minneapolis, Minn.
Filed Feb. 25, 1972, Ser. No. 229,297
Int. Cl. A63b *33/30*
U.S. Cl. 46—40 **3 Claims**

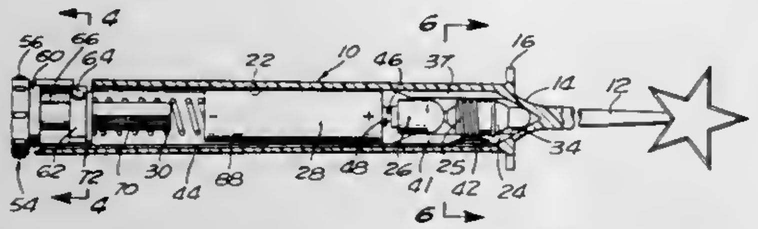
A miniature toy road grader having an elongated body supported on front and rear ground wheels for moving the body longitudinally along a line of travel, a grader blade mounted on the body intermediate the front and rear wheels to extend laterally at a trailing angle from one side of the body to engage the ground surface, the blade being pivoted to the body on an axis substantially bisecting the angle between the blade in its lateral extension and the line of travel of the body whereby the



blade may be swung upwardly and forwardly about the axis to a transport position beside the body and parallel to said line of travel.

3,707,055
ILLUMINATED MAGIC WAND

Woodrow W. Pearce, 1200 Riverside Drive, Burbank, Calif.
Filed Feb. 25, 1971, Ser. No. 118,895
Int. Cl. A63h *33/26*
U.S. Cl. 46—228 **6 Claims**



A toy in the form of a wand having a handle part and an extending translucent stem part. Within the handle part is a battery, a mercury switch and a bulb positioned so that the bulb can be energized by tilting the wand with the light being transmitted through the translucent stem to its end. A contact member extends from the bulb inwardly within the handle. At the base of the handle is a rotatable knob which can actuate a contact disc to engage or disengage from the contact member so that the bulb circuit can be cut off when desired, so that the bulb does not go on unless it is intended that it should come on.

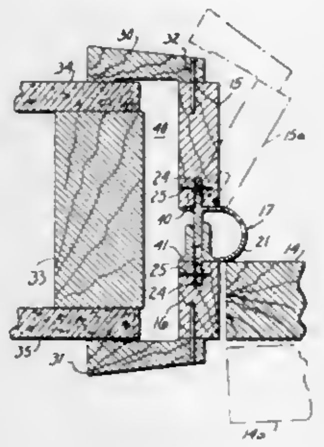
3,707,056
DECOMPOSABLE POLYOLEFIN AGRICULTURAL MULCH

Edward L. Cole, Fishkill; Howard V. Hess, Glenham, and Renato C. Pomatti, Beacon, all of N.Y., assignors to Texaco Inc., New York, N.Y.
Continuation-in-part of Ser. Nos. 833,138, June 13, 1969, abandoned, and Ser. No. 883,339, Dec. 8, 1969, and Ser. No. 23,501, March 27, 1970, which is a continuation-in-part of Ser. No. 611,233, Jan. 24, 1967, abandoned. This application May 10, 1971, Ser. No. 142,028
Int. Cl. A01g *7/00*
U.S. Cl. 47—9 **10 Claims**

The decomposition rate of polyolefin film used as an agricultural mulch is controlled by the incorporation therein of 3 to 20 percent of a cation exchanged sulfonated petroleum coke or cation exchanged wet air oxidized petroleum coke. The film also contributes ion exchange capacity to the soil, furnishes nutrients and improves the tilth of the soil. Other additives such as nematocides or fungicides can be incorporated in the film mulch.

3,707,057
DOOR FRAME CONSTRUCTION

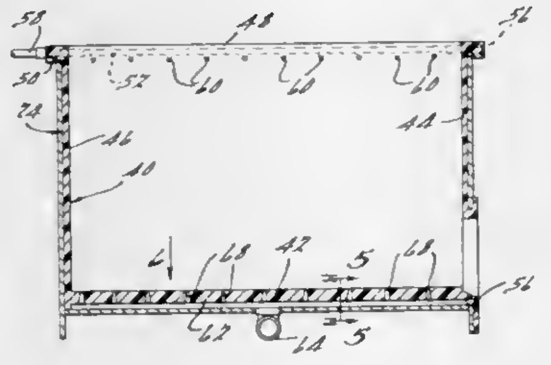
Donald V. Frydenberg, Arlington, Tex., assignor to Clary Corporation, San Gabriel, Calif.
Filed May 3, 1971, Ser. No. 139,772
Int. Cl. E06b *1/04*
U.S. Cl. 49—505 **1 Claim**



A preformed door jamb assembly wherein the door jambs are formed of two spaced jamb members having casing members attached thereto and a door stop of elastomeric material extending between the door jamb members. The flexible door stop member is U-shaped in cross section and is attached between the jamb members, permitting the jamb members to be moved relative to each other to facilitate installation in a rough wall opening and to accomodate walls of different thicknesses.

3,707,058
VIBRATORY FINISHING APPARATUS

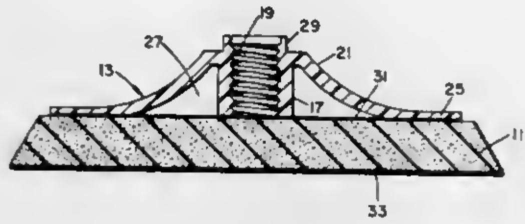
Gordon H. Anderson; Albert Lea, and Raymond C. Ahlstrom, Geneva, Minn., assignors to King-Seeley Thermos Co., Ann Arbor, Mich.
Filed Feb. 3, 1971, Ser. No. 112,257
Int. Cl. B24b *31/06*
U.S. Cl. 51—163 **16 Claims**



A molded liner for the tub of a vibratory finishing machine, the liner having fluid passage means formed interiorly thereof for spraying or discharging fluid into the tub during a finishing operation, and for subsequently draining the fluid therefrom.

3,707,059
PAD FOR DISC SANDERS

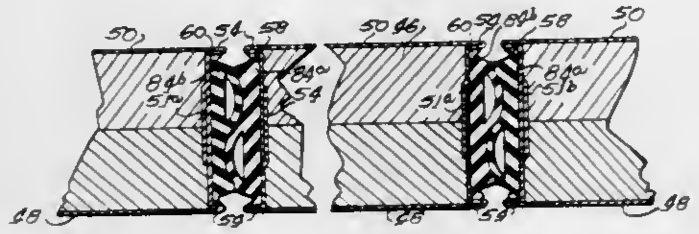
Alfred H. Burtch, Sanborn, and Halsey W. Buell, Niagara Falls, both of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.
Filed March 2, 1970, Ser. No. 15,707
Int. Cl. B24d *17/00*
U.S. Cl. 51—358 **10 Claims**



A sanding pad is made by adhesively joining a flexible, resilient disc and a relatively rigid backup member formed of a polycarbonate resin having mounting threads molded in the hub thereof.

3,707,060
BUILDING ASSEMBLY AND COMPONENTS

Charles L. Jansen, Jr., Bellevue, Wash., assignor to United States Gypsum Company, Chicago, Ill.
Filed Aug. 19, 1970, Ser. No. 65,067
Int. Cl. E04b *2/74*
U.S. Cl. 52—241 **18 Claims**

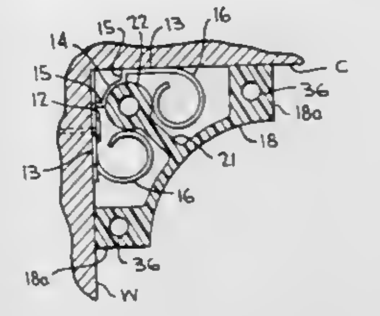


A plurality of erect panel units having complementary interfitting resilient gaskets along their vertical edges form a portable partition, a fixed retainer engages the upper ends of the panel units and permits movement of these upper ends transversely of the partition while permitting vertical movement of the individual panel units, and means on the lower ends of the panel units support these units on a carpeted floor surface and engage the carpeting to restrain the lower ends of the units against movement transversely of the partition. The interfitting resilient edge gaskets provide resistance to relative transverse movement between assembled panel units and permit relative vertical movement between adjacent panel units for disengaging any selected unit from the floor surface, while being sufficiently resilient to permit removal and replacement of an individual unit in an assembled partition without antecedent movement of the adjacent units.

3,707,061
SNAP TRIM MOLDING

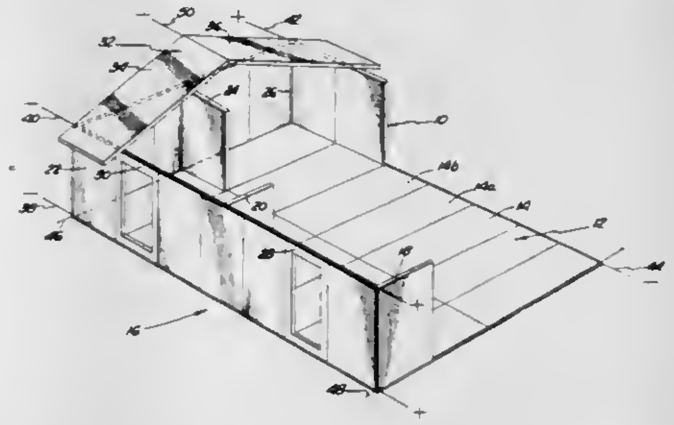
Harold J. Collette, 15 Chadwick Street, and Harry W. Grosser, 1309 Forrest Avenue, Est, both of Jamestown, N.Y.
Filed April 23, 1971, Ser. No. 136,785
Int. Cl. E04c *2/38;* **E04f** *19/02*
U.S. Cl. 52—288 **11 Claims**

A snap trim molding or facing held in place by means of a resilient spring clip having inwardly turned coils and an inner saddle portion for engaging a beaded end of a retainer rib on the molding or facing. Also, corner molding elements for inside and outside corners are held in place by means of dowel pins engaging respective bores in the adjacent molding.



3,707,062
FIELD APPLICATION OF THERMOSETTING RESIN

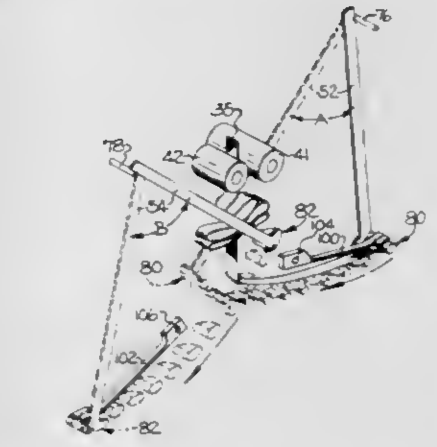
Fleetwood B. Joiner, Jr., 703 North Bayfront, Balboa Island, Calif.
Filed Feb. 2, 1970, Ser. No. 7,954
Int. Cl. E04b *1/58, 1/60*
U.S. Cl. 52—741 **2 Claims**



A method for on-site building construction using thermosetting resin and means for electrically setting the resin substantially instantaneously to provide structurally sound joints is disclosed. The method permits the use of thermosetting resins under adverse conditions of temperature and environment.

3,707,063
APPARATUS FOR PACKAGING RIBBON-LIKE MATERIAL

Newman McIntyre, Shelby, N.C., assignor to Christie Manufacturing Company, Shelby, N.C.
Filed March 17, 1971, Ser. No. 125,134
Int. Cl. B65b *3/04*
U.S. Cl. 53—116 **16 Claims**



An apparatus for packaging a ribbon-like material, such as elastic webbing, in a rectangular open top container. The apparatus includes means for feeding the material along a downward path of travel, means for alternately engaging opposite faces of the material to impart a zig-zag movement thereto and to guidingly position the same in overlapping runs in the container, and means for reciprocating the container to form overlying layers each comprising overlapping zig-zag runs. A pair of hold down arms are positioned adjacent the sides of the container to apply a holding force on the material and thereby preclude voids along the container sides caused by movement of the material toward the center of the container.

ERRATUM

For Class 53—40 see:
Patent No. 3,707,274

3,707,064

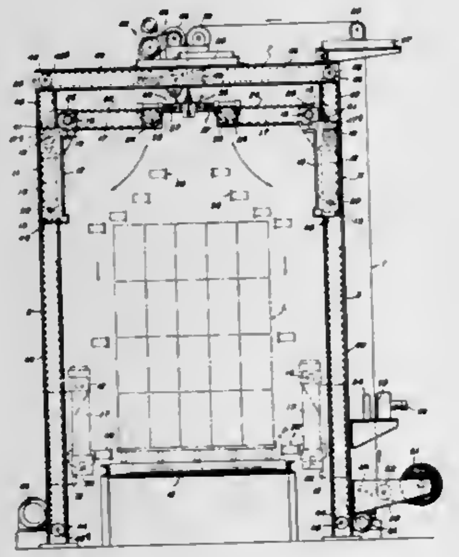
APPARATUS FOR SHRINK-WRAPPING

John R. Mucka, and William H. Dickinson, both of McCandless Township, Allegheny County, Pa., assignors to Auburn Engineering Inc., Clairton, Pa.

Filed Feb. 2, 1970, Ser. No. 7,741

Int. Cl. B65b *1/02, 43/30*

U.S. Cl. 53—183 **18 Claims**



There is disclosed apparatus for pulling a tubular shrinkable polyethylene envelope down over a palletized load wherein opposed gripping devices pinch the opposite faces of the leading edge portion of a flat tubular wrapping that is fed down in a vertical plane to a predetermined level. These gripping devices then move apart, pulling the tubular sheet open to a four-sided envelope. The gripping devices are carried on vertically movable side frames, one of which is at each side of the machine, and when the gripping devices have spread the leading end of the tube open, the side frames move down in unison, pulling the envelope down around the load to be wrapped. When the edge of the envelope is below the pallet, the gripping devices release it, the side frames are raised to the starting position, and the opposed gripping devices are moved back into opposed sheet-gripping position for the next operation. Each required length of tubular wrapper may be transversely heat-sealed, and each length is severed by a cut-off just rearwardly of the heat seal so that the sealed end of the plastic envelope is centered over the top of the load.

3,707,065

PROCESS FOR THE PURIFICATION OF PYROLYTIC GAS MIXTURES

Hans Joachim Muller, Leverkusen, and Horst Bruckner, Dormagen, both of Germany, assignors to Erdolchemie Gesellschaft mit beschrankter Haftung, Cologne, Germany

Filed Aug. 17, 1971, Ser. No. 172,575

Claims priority, application Germany, Aug. 21, 1970, P 20 41 549.0

Int. Cl. B01d *53/14*

U.S. Cl. 55—32 **4 Claims**

Steam, diene hydrocarbons, styrene and methylstyrenes are removed from crude gas by scrubbing the gas with a regeneratable glycol extractant and thereafter removing polymerizable hydrocarbons and/or polymers dissolved in the glycol by a liquid-liquid extraction.

3,707,066

GAS PURIFICATION

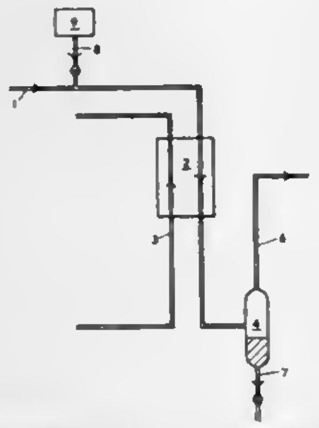
Michael Carne, London; Kenneth Cecil Smith, Roydon, and David Arthur Webber, Bishop's Stortford, all of England, assignors to The British Oxygen Company Limited, London, England

Filed July 16, 1970, Ser. No. 55,400

Claims priority, application Great Britain, July 16, 1969, 35894

Int. Cl. B01d *5/00*

U.S. Cl. 55—88 **6 Claims**



A method for reducing the level of impurities in a gaseous feedstock by mixing a solvent gas with the feedstock, cooling to a temperature at which a portion of the gas mixture condenses to give an impurity-rich liquid and separating the liquid from the uncondensed portion.

3,707,067

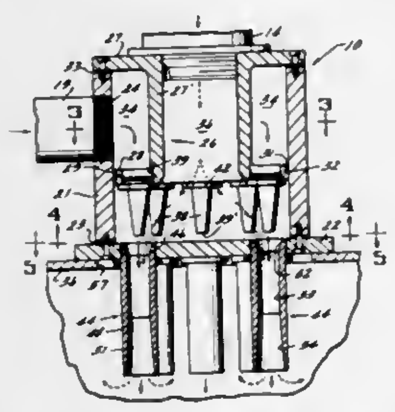
GAS SCRUBBING DEVICE

Gerald P. Dietrick, 523 Ridgeview Drive, Florence, Ky.

Filed July 13, 1970, Ser. No. 54,323

Int. Cl. B01d *47/06*

U.S. Cl. 55—228 **9 Claims**



A gas scrubber including a plurality of jet pumps arranged around a central conduit through which particle carrying gas is directed. The gas is drawn through tubular mixing chambers which receive liquid from the jet pumps. From the mixing

chambers, a mixture of gas and liquid is projected into a tank where the scrubbed gas is separated from the liquid. An appropriate filter or the like separates the particles from the liquid.

3,707,068

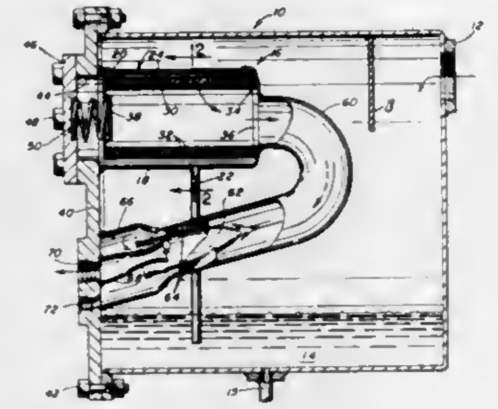
MULTISTAGE LIQUID AND GAS SEPARATOR

Carl Bloom, Springfied, Mass., assignor to Worthington Corporation, Holyoke, Mass.

Filed Feb. 25, 1970, Ser. No. 13,872

Int. Cl. B01d *45/12*

U.S. Cl. 55—337 **9 Claims**



A liquid and gas separator having a primary stage including an agglomerator cartridge and a secondary stage providing the discharge path for the gas and liquid mixture passing from the primary state. The secondary stage includes a centrifugal separator with a flow reversing path and a combined minimum pressure discharge nozzle and collector chamber through which the separated gas and liquid are individually removed from the separator.

3,707,069

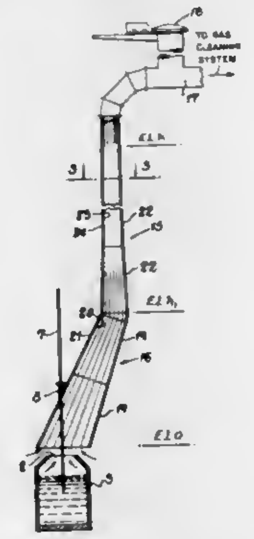
GAS COLLECTOR FOR STEEL FURNACE

Daniel E. Pike, Harrington Park, N.J., assignor to Air Pollution Industries, Inc., Englewood, N.J.

Filed Oct. 13, 1970, Ser. No. 80,332

Int. Cl. B01d *51/00*

U.S. Cl. 55—418 **5 Claims**



Water-cooled, panel-constructed tapered hood over mouth of steel furnace leads to water-cooled, panel-constructed stack having approximately parabolic vertical cross-section to increase velocity and velocity pressure of off-gas and to reduce static pressure of off-gas and maintain such static pressure at a negative value throughout stack. Off-gas will not lead out between panel joints. Same effect may be achieved by inserting orifice plate in bottom of conventional stack. Inner wall of hood and stack lined with ceramic to reduce cooling water requirement, only enough cooling water being required to prevent ceramic from melting, cooling of off-gases more economically being handled in gas cleaning system.

ERRATUM

For Class 55—483 see:
Patent No. 3,707,046

3,707,070

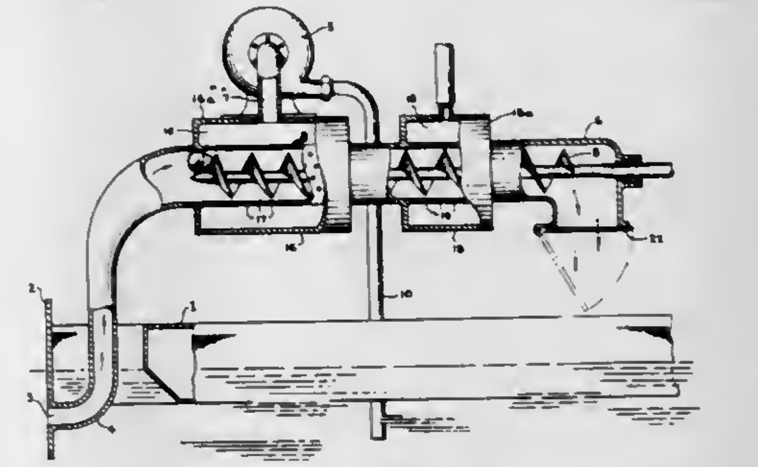
METHOD OF PROCESSING WEEDS

Merle P. Chaplin, 609 Driver Avenue, Winter Park, Fla.

Division of Ser. No. 875,297, Nov. 10, 1969. This application Nov. 5, 1971, Ser. No. 196,242

Int. Cl. A01d

U.S. Cl. 56—1 **7 Claims**



A new and improved device suitable for employment adjacent the front end of a barge or other vessel concerned with removing weeds or other marine growths from lakes, rivers or other bodies of water. Screw conveyor means are used in concert with suction means, the latter enabling the weeds to be removed from an underwater location to the location at which the screw conveyor completes the removal operation. Other facets of this invention include cutoff means disposed at an underwater location ahead of the inlet to the screw conveyor, means for controlling the rotational speed of the screw conveyor, and a novel piping arrangement whereby suction or pressure may be selectively applied to certain chambers disposed along the length of the tubular structure associated with the screw conveyor. These piping arrangements also make it possible for certain cleaning operations to be carried out on occasion, so as to backwash the weeds from certain of the chambers, and for other purposes later described.

3,707,071

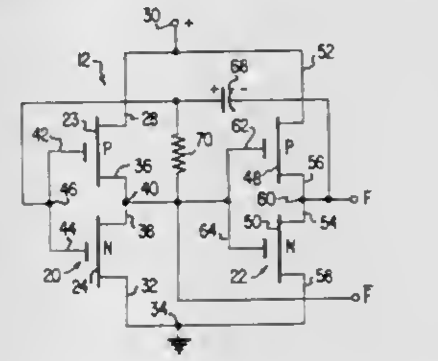
SOLID STATE TIMEPIECE

Richard S. Walton, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Continuation-in-part of Ser. No. 70,787, Sept. 9, 1970, Pat. No. 3,664,118, which is a continuation-in-part of Ser. No. 768,076, Oct. 16, 1968, Pat. No. 3,560,998, and a continuation-in-part of Ser. No. 818,228, April 22, 1969, Pat. No. 3,576,099. This application March 12, 1971, Ser. No. 123,550

Int. Cl. G04c *3/00*

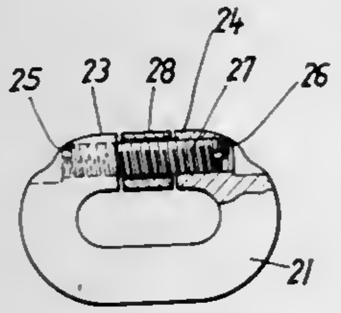
U.S. Cl. 58—50 R **15 Claims**



Disclosed is a wristwatch comprising a crystal oscillator, a frequency divider formed of complementary MOS transistors, a display actuator, and a time display. The watch may be all solid state with integrated circuit construction and include a digital time display of light-emitting diodes. It includes display interrogation on demand and display scanning or strobing as well as time setting.

3,707,072
CHAIN LOCK

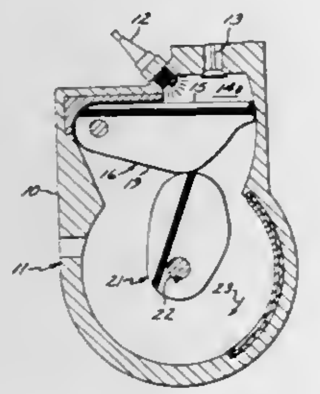
Horst Elsasser, Hauffstrasse 15, 7084 Unterkochen/Wurttemberg, Germany
Filed April 27, 1970, Ser. No. 32,196
Claims priority, application Germany, April 25, 1969, P 19 22 149.9
Int. Cl. F16g *15/04*
U.S. Cl. 59—35 **8 Claims**



A chain lock including a lock element consisting of an open chain link, wherein the opening thereof defines an entry slot whereby adjacent lengths of chain may be joined together. The portions adjacent the entry slot are provided with two axially aligned bores for receiving a rod-like connecting element which closes the entry slot.

3,707,073
ROTARY PISTON ENGINE

Robert J. Bernstein, 11881 Steele Drive, Garden Grove, Calif.
Filed Sept. 4, 1970, Ser. No. 69,533
Int. Cl. F02b *75/32, 23/04*
U.S. Cl. 60—15 **1 Claim**

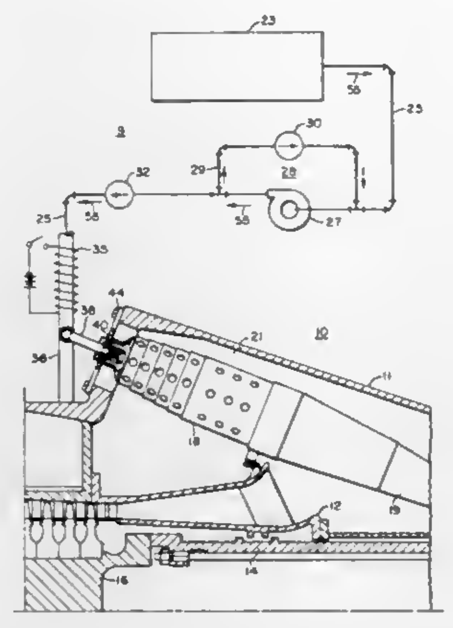


This disclosure relates to an internal combustion engine that uses a rotary piston for overcoming the disadvantages of currently available engines. The disclosed engine is simple, and may be used in a multi-cylinder arrangement for increased power production.

3,707,074
SPONTANEOUS IGNITION OF FUEL IN A COMBUSTION CHAMBER

Mitchell I. Meyer, Merrick, N.Y., and Michael J. Ambrose, Woodbury, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 30, 1970, Ser. No. 77,116
Int. Cl. F02c *3/24*
U.S. Cl. 60—39.14 **1 Claim**

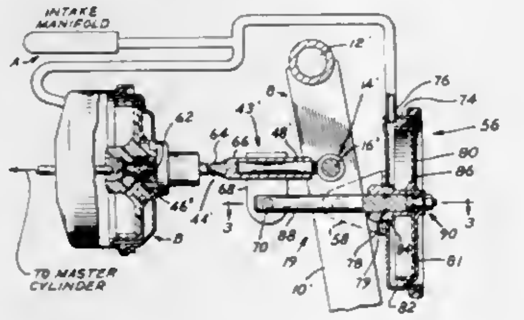
An arrangement and method to heat fuel under constant volume to a temperature at which it will flash at the ambient pressure in the combustion chamber and then admit the fuel



through a valve to the combustion chamber where the fuel mixes with air and spontaneously flashes into flame.

3,707,075
DUAL LEVER RATIO BRAKE ACTIVATING APPARATUS

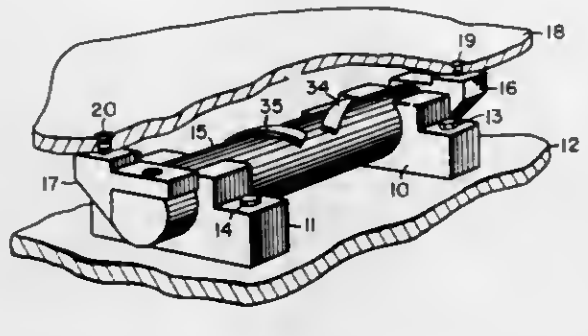
Maxwell L. Cripe, South Bend, Ind., assignor to The Bendix Corporation
Division of Ser. No. 23,533, March 30, 1970, Pat. No. 3,633,366. This application May 17, 1971, Ser. No. 144,034
Int. Cl. F15b *7/00, 13/10;* **G05g** *1/04*
U.S. Cl. 60—54.6 P **4 Claims**



A brake activating apparatus, allowing a dual lever ratio for applying a force from the brake pedal to a valve operating rod of a power booster which communicates with the master cylinder. A brake activating lever arm is pivotally secured to a vehicle. A pivot pin carrying a first force transmitting member is located at a fixed distance from the end of the lever arm. A yoke member, attached to the lever arm at a different fixed distance from the end, is connected to a vacuum chamber housing. A diaphragm contained within the vacuum chamber is secured to a second force transmitting member. The valve operating rod for a power booster communicating with the master cylinder has a bored chamber to receive the first transmitting member and a U-shaped member surrounding the chamber to secure the second transmitting member. When the brake lever is moved, the applied force is transmitted through the yoke and second transmitting member as long as the pressure differential retains the diaphragm member in a fixed position. If the diaphragm member is free to move, the first transmitting member contacts the end of the bored chamber and transfers the applied force from the lever arm, at a different ratio, to the valve operating rod communicating with the master cylinder. In another embodiment, the second force transmitting member carries the applied force until the force required to move the valve operating rod is greater than a resilient member whereupon the resilient member collapses permitting the applied force to be transmitted through the first force transmitting member.

3,707,076
LOAD-REGISTRY DEVICE

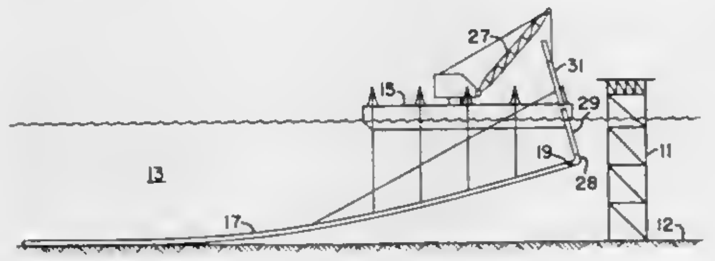
Keith W. Jones, Houghton, Mich., assignor to Northern Technical Services, Inc., Laurium, Mich.
Filed May 4, 1970, Ser. No. 34,260
Int. Cl. G01l *1/00, 3/10*
U.S. Cl. 73—141 A **2 Claims**



A pair of preferably parallel spaced plates are provided with bearing supports for a torsion bar, and with oppositely-extending crank arms at axially spaced points on the bar. Preferably, the bearings are mounted on one of the plates, and the crank arms engage the other plate. The load is transferred from one plate to the other in such a manner as to generate torsion in the bar, the amount of which is read out by a conventional strain gauge system.

3,707,077
METHOD FOR INSTALLATION OF A RISER ON AN OFFSHORE STRUCTURE

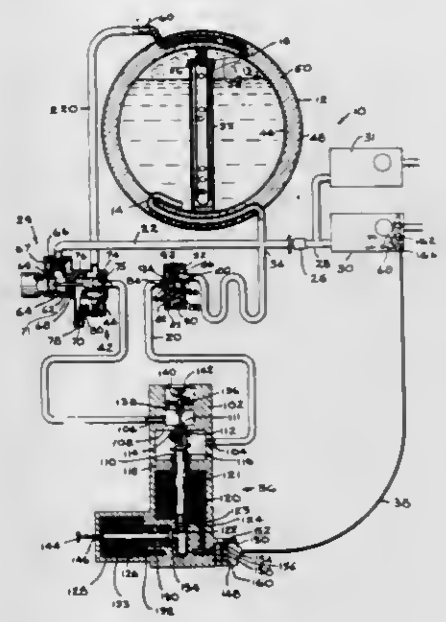
Norman E. Garner, Houston, Tex., assignor to Esso Production Research Company
Filed Nov. 1, 1971, Ser. No. 194,147
Int. Cl. F16l *1/00;* **E21b** *15/02*
U.S. Cl. 61—72.3 **11 Claims**



A method is disclosed for installing a pipeline riser on an offshore structure situated in a body of water. The technique includes laying a pipeline on bottom having a free end adjacent the base of the structure, positioning a floating vessel over the pipeline, and connecting at least one tension member between the vessel and the pipeline. The free end of the pipeline is raised to a point adjacent the water surface by applying force to the pipeline through each said tension member having a magnitude and direction such that the sum of the vertical force components is sufficient to lift the free end of the pipeline and the sum of the axial components is sufficient to prevent bending stress in the unsupported suspended section from exceeding the allowable stress. A riser bend section is attached to the free end of the pipeline and the pipeline lowered to the bottom as additional sections of the riser are attached. Simultaneously, sufficient axial tension is maintained on the pipeline to prevent the suspended section from being overstressed.

3,707,078
FAIL-SAFE LIQUID OXYGEN TO GASEOUS OXYGEN CONVERSION SYSTEM

Robert L. Cramer, Davenport, Iowa, assignor to The Bendix Corporation
Filed Feb. 10, 1971, Ser. No. 114,313
Int. Cl. F17c *7/02*
U.S. Cl. 62—50 **9 Claims**

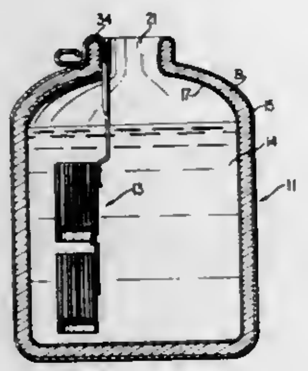


A fail-safe system for supplying oxygen to a breathing regulator operated upon demand by a recipient. A liquid oxygen storage vessel has an outlet port connected to its inlet port through a build-up circuit. As the liquid oxygen flows through the build-up circuit it is converted from a liquid to a gas through the effect of thermal energy. As a result of the liquid to gas conversion, a high internal pressure is created in the build-up circuit. A pressure responsive member placed in the build-up circuit will interrupt the flow when the pressure reaches a predetermined value during the active operation of the system. A supply circuit connected to the build-up circuit transmits the oxygen as a gas to operate the breathing regulator. A first solenoid in response to an electrical signal controls a flow control valve connected in the build-up circuit. An operational switch on the panel regulator supplies the electrical signal to the first solenoid, opening the control valve. As the valve opens, a latching shaft controlled by a second solenoid engages a notch on the plunger of the flow control valve to hold the valve open. The flow control valve will remain open until an operational closing signal is communicated to the second solenoid. Upon receiving the signal, the second solenoid moves the latching shaft away from the notch permitting a resilient member to close the fluid flow outlet port to the build-up circuit. To prevent excessive pressure in the build-up circuit when the first solenoid closes the flow control valve, a by-pass valve is utilized to provide an escape to the atmosphere.

3,707,079
DOUBLE CANISTER ASSEMBLY FOR STORING SAMPLES IN A VACUUM INSULATED STORAGE CONTAINER

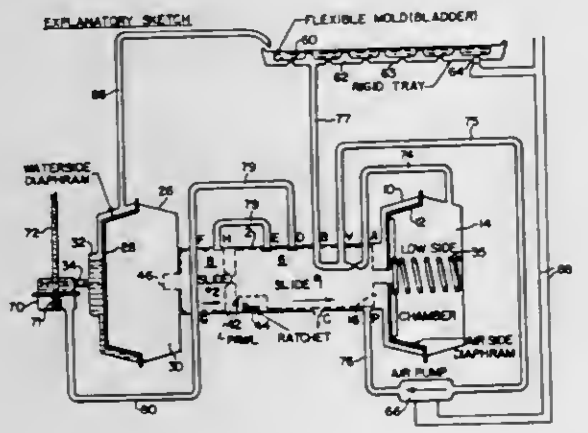
Herbert W. Hawker, Golden, Colo., assignor to Cryogenic Engineering Company, Denver, Colo.
Filed Dec. 26, 1972, Ser. No. 120,181
Int. Cl. F25d *17/00*
U.S. Cl. 62—189 **7 Claims**

A vacuum insulated storage container including a canister assembly suitable for storing semen containing ampules therein is disclosed. The canister assembly comprises a rigid elongated handle having a low thermal conductive section that separates upper and lower portions. The upper portion is designed to fit over the neck of a vacuum insulated storage container. The lower section supports two canisters in vertical alignment. The upper canister is removably attached to the handle and the lower canister is fixedly attached thereto. Each of the canisters includes a valve mechanism located at its bottom. The valve mechanisms allow a liquid refrigerant to flow into the canisters but prevents the refrigerant from flowing out of the canisters.



3,707,080
SELF-ADVANCING PROGRAMMER AND PRESSURE ACTUATED DEVICES CONTROL ARRANGEMENT

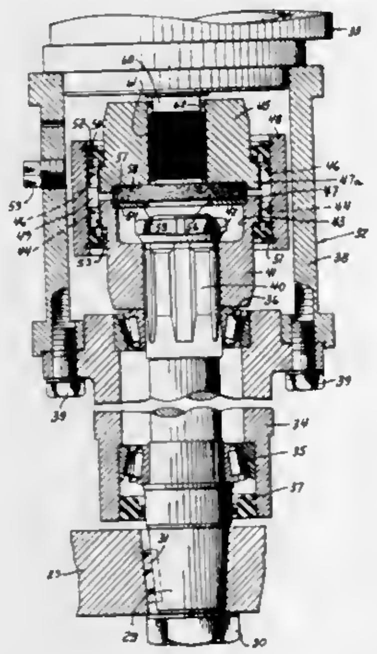
William C. Moreland, II, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Division of Ser. No. 874,598, Nov. 6, 1969, Pat. No. 3,648,732. This application Aug. 18, 1971, Ser. No. 172,852
Int. Cl. F25c *1/00*
U.S. Cl. 62—233 **4 Claims**



A control arrangement in which pressure actuated devices are selectively actuated from a self-advancing programmer provided with higher pressure areas (typically pressure) and lower pressure areas (typically suction) selectively placed in registry with ports in communication with the pressure actuated devices. The pressure and suction areas are positionable in accordance with the position of a displaceable member separating a low pressure side space and a high pressure side space which are in normal communication with the suction areas and pressure areas, respectively. Provision is made for selectively venting, and preventing venting, of the pressure areas and suction areas in accordance with the character of the pressure condition (e.g., pressure or alternatively vacuum) to be applied to a particular device. With this arrangement shifting of the character of the pressure condition on the displaceable member takes place to correspond to the pressure condition to be applied to the particular device and the advance of the programmer occurs in accordance with the attainment of the pressure condition applied to the device. The arrangement of the invention is particularly adapted in one embodiment to control a flexible mold or bladder type ice maker and the supply of water thereto.

3,707,081
GEAR TYPE COUPLING

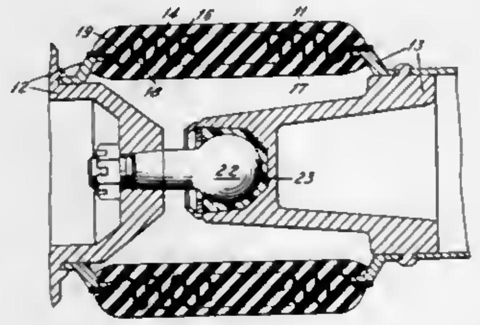
James W. Brazell, Atlanta, Ga., assignor to Heath International, Inc., Richmond, Mich.
Filed Feb. 16, 1971, Ser. No. 115,410
Int. Cl. F16d *3/18*
U.S. Cl. 64—9 R **1 Claim**



A gear type flexible coupling which includes a pair of coupling members connected by a splined sleeve and wherein the coupling members are retained in a spaced apart arrangement by a cushion member.

3,707,082
BELLOWS FLEXIBLE JOINT

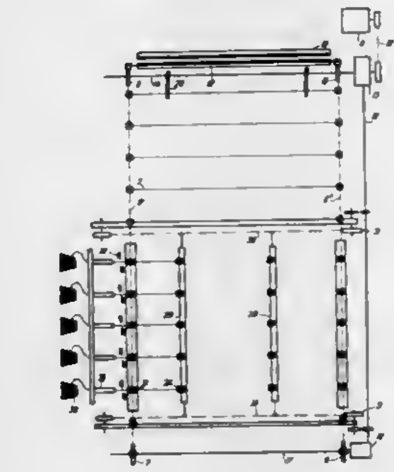
George Ulics, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Sept. 22, 1970, Ser. No. 74,431
Int. Cl. F16d *3/28*
U.S. Cl. 64—11 B **3 Claims**



A flexible joint for transferring torque including a metal bellows member interconnecting a pair of rotatable end members. The radii of curvature of the axially extreme convolutions adjacent each of the end members are enlarged in magnitude relative to the radii of the middle convolution or convolutions.

3,707,083
APPARATUS FOR SUPPLYING WEFT THREADS TO A WARP KNITTING MACHINE

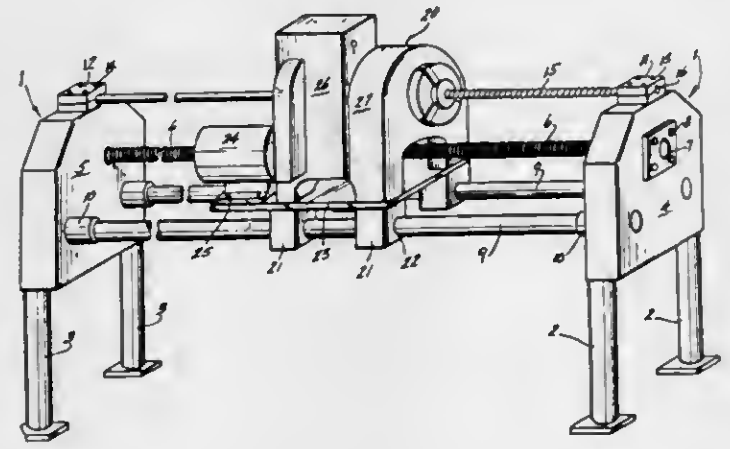
Vladimir Svoboda, and Andrej Vajda, both of Brno, Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi, Generalni Reditelstv, Liberec, Czechoslovakia
Division of Ser. No. 818,205, April 21, 1969, Pat. No. 3,603,117. This application Oct. 1, 1970, Ser. No. 77,265
Claims priority, application Czechoslovakia, April 22, 1968, 2951/68
Int. Cl. D04b *27/10*
U.S. Cl. 66—125 **7 Claims**



A plurality of weft threads is simultaneously supplied to a conveyor which continuously and successively transports the weft threads to a warp knitting machine which forms chain stitches of first warps for holding the weft threads.

3,707,084
APPARATUS FOR FORMING CORRUGATED TUBING

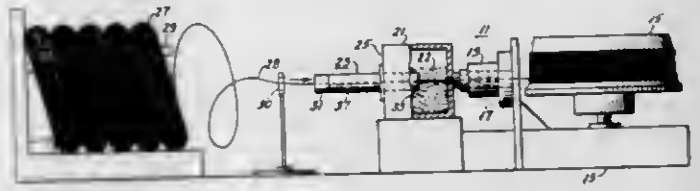
Joseph Winter, New Haven, Conn., assignor to Olin Corporation
Division of Ser. No. 840,564, March 25, 1969, Pat. No. 3,614,884, which is a division of Ser. No. 679,459, Oct. 31, 1967, abandoned. This application July 17, 1970, Ser. No. 62,768
Int. Cl. B21d *13/04*
U.S. Cl. 72—77 **7 Claims**



The disclosure teaches an improved apparatus for corrugating tubes and an improved corrugated tube produced thereby. The apparatus is characterized by having an inner frame moveably mounted on an outer frame, with a die rotatably mounted on the inner frame. The die has an annular opening through which passes the tube to be corrugated and shaped die members projecting into the annular opening.

3,707,085
GUIDE FOR WIRE DRAWING

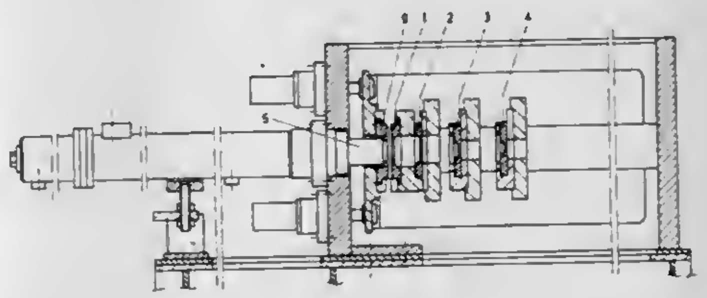
John D. Copenhaver, Baltimore, Md., assignor to Bethlehem Steel Corporation
Filed Oct. 15, 1970, Ser. No. 80,847
Int. Cl. B21c *1/30*; **B21d** *43/16*
U.S. Cl. 72—291 **9 Claims**



A wire drawing guide which prevents the production of out of round and inconstant gage wire is formed from a tubular member having an inside diameter only slightly larger than the diameter of the wire to be drawn and nonfunctioning reducing dies positioned at each end of said tubular member and substantially the same diameter as the wire to be drawn. The guide is positioned in line with the drawing die to direct the wire to be drawn straight into the drawing die and must be at least 15 to 16 inches in length to provide adequate straightening of the wire prior to its entrance into the die.

3,707,086
DEEP-DRAWING PRESS

Gunter Rudolf Berg, Hopfengarten 2, 33 Braunschweig, Germany
Filed Dec. 10, 1970, Ser. No. 96,922
Claims priority, application Germany, Dec. 10, 1970, P 19 61 892.9
Int. Cl. B21d *22/28*
U.S. Cl. 72—349 **3 Claims**

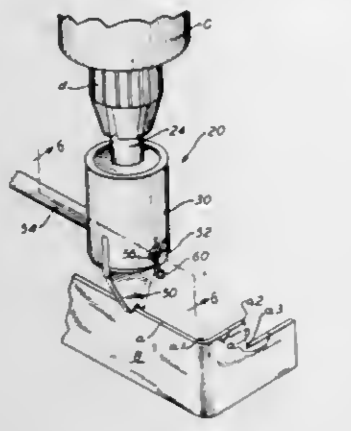


The invention relates to a deep-drawing press with a multistage die set comprising a plurality of dies arranged in sequence and punches moving telescopically inside each other, each of which, after a given length of travel, remains at an associated die which serves as a hold-down ring; the punches are powered by a plurality of coaxial annular pistons.

3,707,087
DEBURRING DEVICES

Hildaar L. Neilsen, 2 Juniper Street, Metuchen, N.J.
Filed June 16, 1971, Ser. No. 153,768
Int. Cl. B21j *7/02*
U.S. Cl. 72—429 **16 Claims**

Angularly disposed jaws of a forcefully vibrated peening tool peen a metal edge or edges to be deburred, thereby smoothing said edges. The peening tool is vibrated by motion derived from teeth, or indentations, or equivalent irregular surfaces of a rapidly rotated hammer.



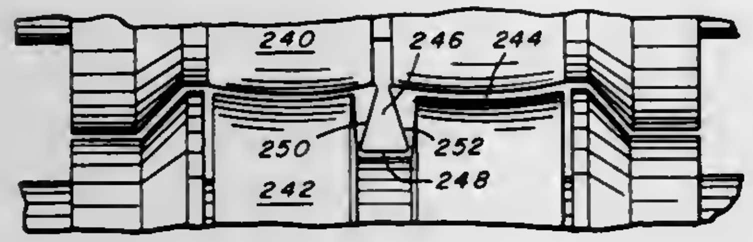
3,707,088
FORMING HOLLOW RIBS IN METAL SHEET

Richard E. King, Pittsburgh, and Richard C. Pfaff, Murrysville, both of Pa., assignors to Epic Metals Corporation, Rankin, Pa.

Filed May 3, 1971, Ser. No. 139,404

Int. Cl. B21d *5/08*

U.S. Cl. 72—178 **18 Claims**



Apparatus for forming generally triangular hollow ribs in a metal sheet including first roller die means having complementary roll surfaces defining an opening provided with a base forming section, a generally flat sheet receiving section disposed in a plane parallel to the base section and a pair of diverging sidewalls extending from opposite sides of the base section to the sheet section. Second roller die forming means having complementary roll surfaces defining an opening having a generally flat base forming section, a generally flat sheet receiving section disposed in a plane parallel to the base section and a pair of diverging sidewall sections having an included angle of less than the first die means diverging sidewall sections but greater than zero. Third roller die means having a pair of work surfaces adapted to engage the outer surfaces of the upper portions of the sidewalls of the sheet and urge the same transversely inwardly to establish a gap between the upper surfaces which is less than the transverse width of the base. Non-rotating fourth die means disposed generally transversely inwardly with respect to the third roller die means and adapted to be in supporting contact with the lower inner surfaces of the rib sidewalls and the rib base as the sheet passes through the third roller die means.

A sheet forming die for supporting the interior of a generally triangular hollow rib during formation thereof having a pair of sheet engaging feet. Each sheet engaging foot having a lower surface for engaging the inner surface of the rib base and a side surface for engaging the inner lower surface of one rib sidewall. The base and sidewall engaging surface of each foot at an angle of less than 90°.

A method of forming generally triangular hollow ribs in a metal sheet. Forming the sheet by horizontally disposed roller die means to establish a generally flat rib base sector disposed in a plane generally parallel to the plane of the sheet. Simultaneously forming a pair of angularly directed rib sidewalls disposed on opposite sides of the rib base sector and connecting the base sector with the remainder of the sheet. The sidewalls diverging outwardly from the base to the sheet. Subsequently, progressively roller die forming the sheet without materially altering the width of the base sector or the sidewalls by reducing the included angle between the sidewalls and increasing the distance between the plane of the sheet and plane of the rib base sector. Subsequently transversely reducing the distance between the upper portions of the sidewalls until the distance between them is less than the width of the base, while providing supporting die means in contact with the interior surface of the base sector and the interior surface of the lower portions of the sidewalls.

ERRATUM

For Class 73—141 see:
Patent No. 3,707,076

3,707,089
CONSTANT RATIO CALIBRATION AND TRANSMISSION DEVICE FOR MOVEMENTS OF BOURDON TYPE PRESSURE GAGES AND THE LIKE

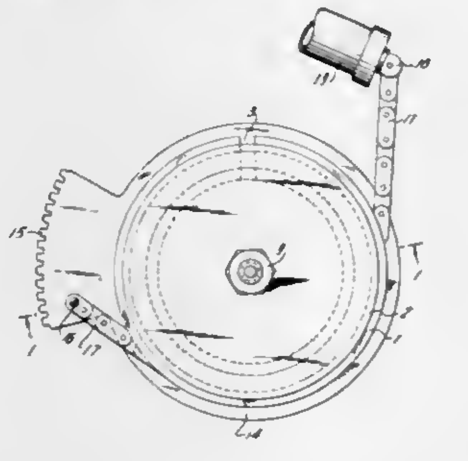
Giuseppe Stradella; Umberto Stradella, both of Via Roma 13; Giuliano Daniele, Via Roma 144D, and Fernando Gatti, Via Cavour 37, all of Recco, Italy

Filed Dec. 3, 1970, Ser. No. 94,932

Claims priority, application Italy, Dec. 6, 1970, 7497 A/70

Int. Cl. G01l *7/04*

U.S. Cl. 73—418 **5 Claims**



A calibration and transmission device for the construction of high-precision movements for Bourdon type pressure gages and the like, comprising a variable-diameter and constantly centered pulley means working together with a flexible and constant-length transmission chain or cable acting as a connection means to the indicating device of the instrument.

3,707,090
FLUIDIC ACCELEROMETER

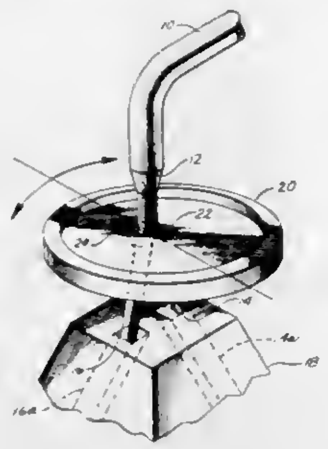
Robert K. Van Ausdal, La Cresenta, and Donald R. Cooper, North Hollywood, both of Calif., assignors to The Bendix Corporation

Filed June 30, 1970, Ser. No. 51,084

Int. Cl. G01p *15/02*

U.S. Cl. 73—515 **8 Claims**

Angular and linear acceleration sensing and signal producing means are disclosed, both utilizing an inertial weight member suspended in a frame or housing on flexural pivots such that acceleration forces around the pivot axis cause a movement of the inertial member relative to the housing. A nozzle which is fixed with respect to the housing directs a control stream toward a pair of receiver ports which normally receive equal flows to result in equal pressure recovery. A deflecting orifice is movable with the inertial weight member such that its edges deflect the greater part of the control stream flow into one or the other of the receiver ports to produce a pressure differential proportional to the magnitude of the acceleration sensed. One embodiment includes mechanical feedback means operating through additional flexural pivots to provide position feedback from a controlled device.



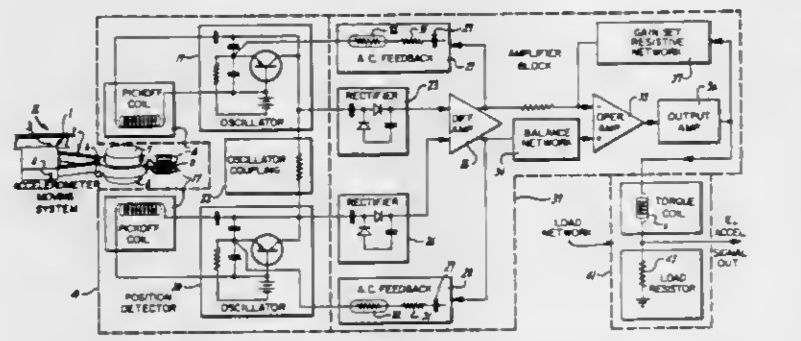
3,707,091
DUAL PICK-OFF ELECTRONIC CIRCUITRY FOR LINEAR SERVO ACCELEROMETER

Harold D. Morris, Orinda, and Andrew B. Barlak, Jr., Berkeley, both of Calif., assignors to Systron Donner Corporation, Concard, Calif.

Filed June 18, 1970, Ser. No. 47,270

Int. Cl. G01p *15/08*

U.S. Cl. 73—517 **13 Claims**



Dual pick-off electronic circuitry for linear servo accelerometer of the type having an unbalanced mass in the form of a conducting element. First and second pick-off coils disposed on opposite sides of the conducting element. First and second oscillators are connected to the first and second pick-off coils in such a manner that the first pick-off coil forms a part of the tank circuit of the first oscillator and the second pick-off coil forms a part of the tank circuit of the second oscillator. Means is provided for interconnecting the first and second oscillators so that the first and second oscillators operate in synchronism at substantially identical frequencies. Means is provided for rectifying the outputs of the first and second oscillators and a differential amplifier having dual input and dual output is utilized for receiving the rectified signals. A.C. feedback means is provided for controlling the open loop gain and also for providing temperature stabilization. Means is provided for converting the double ended output of the differential amplifier to a single ended output for driving a torque coil which is connected to the conducting element to oppose the forces of acceleration on the conducting element.

ERRATUM

For Class 73—95 see:
Patent No. 3,707,119

3,707,092
DRIVE CHAIN FOR DRIVING SHAFTS ON WHEELS, ESPECIALLY FOR CAMSHAFT DRIVES OF INTERNAL COMBUSTION ENGINES

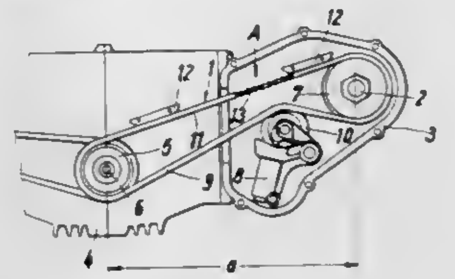
Ferdinand Piech, Stuttgart-Nord, Germany, assignor to Firma Dr. Ing., h.c. F. Porsche KG, Stuttgart-Zuffenhausen, Germany

Filed Feb. 9, 1971, Ser. No. 113,852

Claims priority, application Germany, Feb. 19, 1970, P 20 07 619.1

Int. Cl. F16g *13/02*; **F01l** *1/00*

U.S. Cl. 74—245 R **11 Claims**



Drive chain for driving shafts and wheels which are arranged with axes parallel to each other in a housing consisting of light alloy material such as magnesium alloy. The drive chain is especially useful for driving camshafts of internal combustion engines and consists of individual, movably assembled members such as side straps and rollers supported on bolts which are connected with each other by the side straps. The side straps consist of a material which has a temperature-expansion coefficient at least nearly equal to that of the housing material.

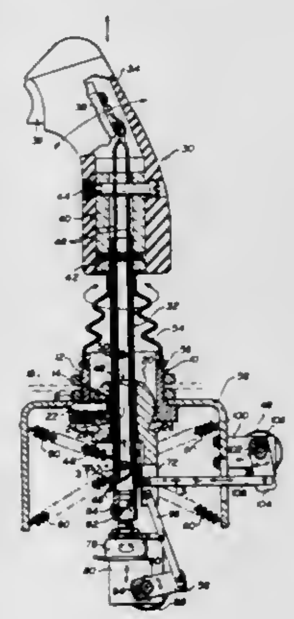
3,707,093
MULTI-POWER CONTROL SYSTEM WITH SINGLE CONTROL STICK

Donald A. Worden, Pompton Plains, N.J., assignor to Marotta Scientific Controls, Inc., Boonton, N.J.

Filed Sept. 10, 1970, Ser. No. 71,072

Int. Cl. G05g *9/04*

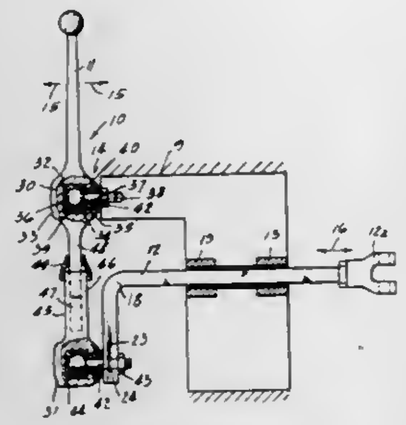
U.S. Cl. 74—471 XY **14 Claims**



This multi-power control system has a group of three controllers for determining the supply of energy to different motor means, and all of the controllers are operated from a single center stick which has different motions for actuating different controllers; for example: sliding motion, rotary motion and rocking motion. Each motion operates a different potentiometer and does not affect the other potentiometers. A spring system restores the control stick to a neutral position. Movement from the neutral position in different directions reverses the effect of the control, and the intensity of the power supply is proportional to the force applied to the stick.

3,707,094
REMOTE SHIFT LEVER MECHANISM

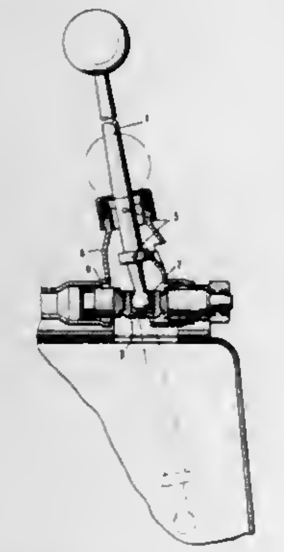
Edward J. Herbenar, Detroit, and Sam Jenio, Sterling Hts., both of Mich., assignors to TRW Inc., Cleveland, Ohio
Filed Jan. 22, 1971, Ser. No. 108,849
Int. Cl. G05g *9/00*
U.S. Cl. 74—473 R **5 Claims**



A shift lever having a first pivot point defined around a ball-ended stud joint with the stud fixed and the joint forming a portion of the lever, and a second pivot point at one end of the lever having a ball-ended stud joint with the stud affixed to an angled motion-transmitting arm and the joint socket formed in the end of the lever arm. Alternative constructions are illustrated to accommodate the differing radii between the movement of the lever arm around the first joint and the movement of the lever arm and motion-transmitting arm around the second joint.

3,707,095
SHIFTING LEVER FOR THE TRANSMISSION OF MOTOR VEHICLES

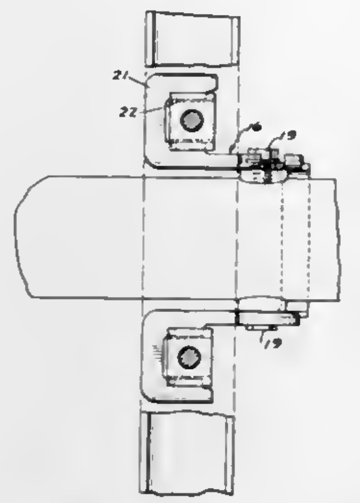
Rudolf Uhlenhaut, Stuttgart-Riedenberg; Egon Wieland, Stuttgart-Euerbach, and Uwe-Bernd Dittrich, Langmeil-Upper Palatiate, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Jan. 27, 1971, Ser. No. 110,033
Claims priority, application Germany, Jan. 29, 1970, P 20 03 874.8
Int. Cl. G05g *9/12*
U.S. Cl. 74—473 R **12 Claims**



A shifting lever, particularly a center shifting lever, for transmissions of motor vehicles, which is so connected with the shifting linkages leading to the transmission and/or a relatively fixed vehicle part, that the connection releases under the influence of essentially axial pressure forces that are larger than the forces necessary for the shifting of the transmission, whereby the shifting lever, after release of this connection, is displaceable in the axial direction by slight pressure forces or by its own weight.

3,707,096
STEERING COLUMN CONSTRUCTION

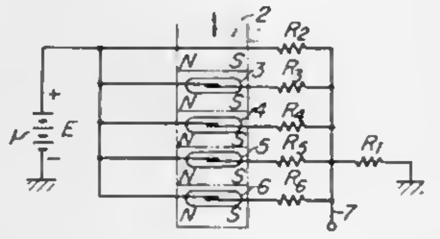
Harry B. Bennett, 17225 Sherwood, Detroit, Mich.
Filed March 5, 1971, Ser. No. 121,293
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **7 Claims**



A steering column construction comprising a steering column having a column support bracket fixed thereto which has one or more open ended slots into which retainer brackets are slidably received. The retainer brackets are fixed on the vehicle. Portions of the retainer brackets are deformed into the column support bracket to provide a connection between the column support bracket and the retainer brackets which is releasable upon predetermined force on the steering column.

3,707,097
CONTROL FOR AUTOMATIC TRANSMISSION

Hiroshi Arai, and Takakazu Mori, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan
Filed Oct. 12, 1970, Ser. No. 80,116
Claims priority, application Japan, Oct. 20, 1969, 44/83759
Int. Cl. B60k *21/00;* **H01h** *36/02*
U.S. Cl. 74—866 **9 Claims**



In an electrical control for an automatic transmission, including a throttle position signal generator and having vehicle speed as well as throttle position as input signals and an optimum selection of gear range as an output, the improvement wherein the throttle position signal generator comprises a magnet operatively connected to a throttle valve, a plurality of magnetically energized switches connected with a circuit including resistors and a source of electric energy for generating a stepped throttle position signal voltage.

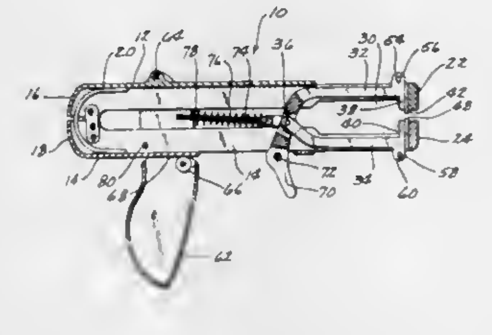
3,707,098
TRANSFER TOOL

Charles R. Kern, Harvard, Mass.
Filed June 7, 1971, Ser. No. 150,471
Int. Cl. B41b *1/00;* **B41c** *1/06*
U.S. Cl. 81—9.2 **3 Claims**

A hand tool for use in presenting a smooth, self-lubricating, relatively friction-free surface to a workpiece to effect transfer of material without damaging either the workpiece or the transfer medium. The tool comprises an elongated handle having connected at one end thereof an operating tip formed of polytetrafluoroethylene.

3,707,099
HEAD-ON WIRE STRIPPING TOOL

Edmund Petz, 3353 X Street, Omaha, Nebr.
Filed Oct. 15, 1970, Ser. No. 80,960
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 A **3 Claims**

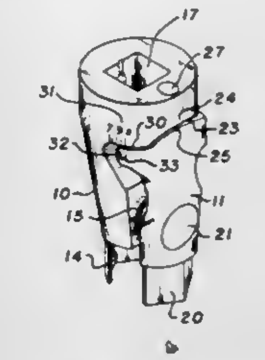


A head-on wire stripping tool comprising upper and lower jaw members pivotally connected together at one end thereof and having a wire engaging clamp means at the other ends thereof which are normally spaced apart to define a wire receiving area therebetween. First and second stripping knives are longitudinally slidably mounted on the upper and lower jaw members respectively and are controlled by a trigger connected thereto which extends downwardly therefrom. A pistol grip type handle is pivotally secured to the upper jaw member and extends downwardly therefrom below the lower jaw member. Rearward actuation of the trigger to a first position, while grasping the handle, causes the clamp means to securely clamp the wire therebetween. Continued rearward actuation of the trigger to a second position causes the stripping knives to longitudinally move rearwardly with respect to the jaw members and clamp means to strip the insulation from the wire which is being held by the clamp means.

3,707,100
WRENCH

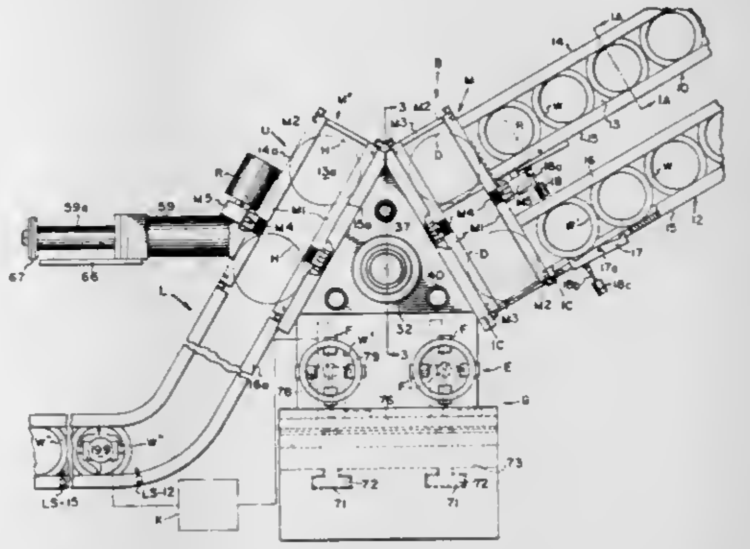
Victor N. Roberts, 649 Minoru Boulevard, Richmond, British Columbia, Canada
Filed March 16, 1970, Ser. No. 19,695
Int. Cl. B25b *13/16*
U.S. Cl. 81—175 **2 Claims**

An adjustable socket wrench comprising opposed jaws for gripping nuts and bolts, one jaw having a threaded male member fixed against axial and rotary movement and the other having a screw-threaded hole within which the male member is received so that rotation of one jaw about the axis of the male member causes the spacing of the jaws to be changed to accommodate nuts and bolts of different sizes.



3,707,101
MACHINING SYSTEM

Carl H. Werth, 818 Thurman St., Saginaw, Mich.
Filed July 30, 1970, Ser. No. 59,443
Int. Cl. B23b *15/00*
U.S. Cl. 82—2.7 **30 Claims**

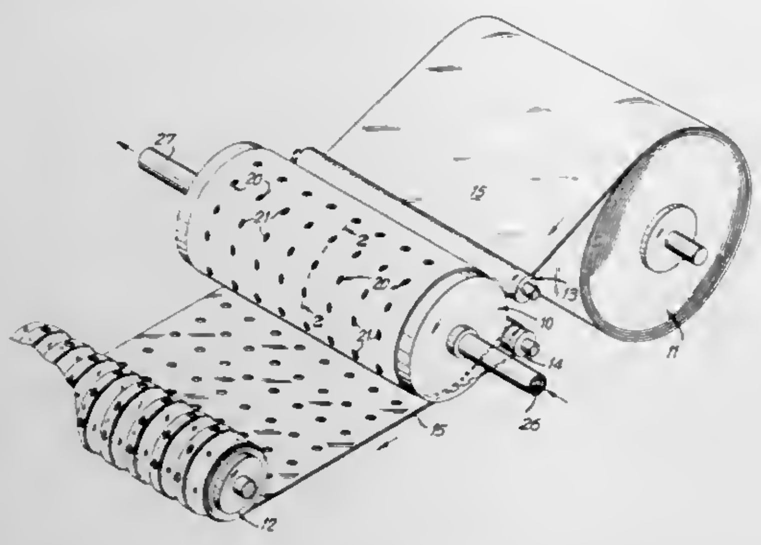


A system for machining ring-shaped workpieces including workpiece supply chute mechanism for consecutively supplying unmachined workpieces to a load station, an indexible carrier having chucks for delivering the unmachined workpieces from the load station to a work station, where the bores of the unmachined workpieces are machined by a controlled radially movable tool and for delivering the machined workpieces from the work station to a discharge station where the machined pieces are released. Measuring apparatus is provided for measuring the diameters of the newly machined bores and apparatus, responsive to the measuring apparatus, is provided for radially adjusting the tool if the diameters measured are not within a predetermined tolerance range.

3,707,102
FILM PERFORATING APPARATUS

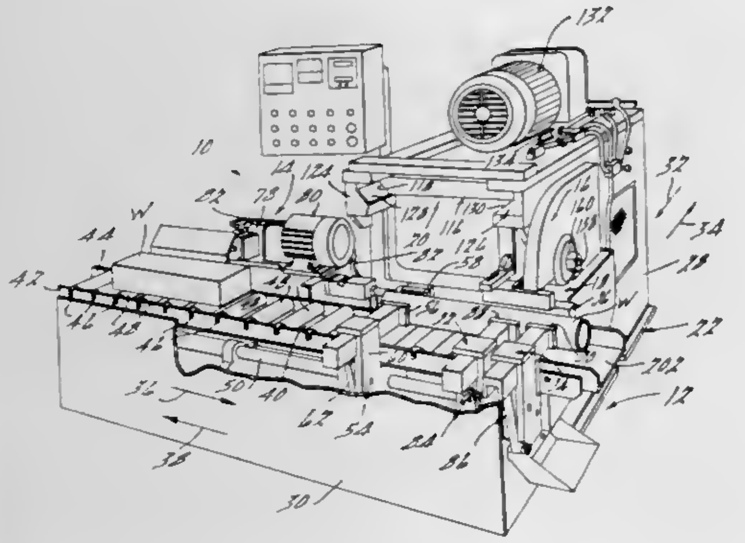
George Alfred Huppenthal, Neenah, Wis., and Shlomo Peeri, Holon, Israel, assignors to American Can Company, New York, N.Y.
Filed July 21, 1970, Ser. No. 56,837
Int. Cl. B26f *3/08*
U.S. Cl. 83—171 **8 Claims**

The perforating apparatus disclosed includes a perforating roll which has a plurality of apertures in the shape of the perforations to be made in the film. Heated needles are positioned in each of the apertures and the surface surrounding the apertures is cooled below the melting point of the film. A pair of supplementary rolls position the film over the perforating roll so that the film is wrapped almost a full 360° as it is passed over the roll in the perforating process.



3,707,103
WORKSTOCK CUTTING APPARATUS

Paul Tisbken, Birmingham, Mich., assignor to Tishken Products Co., Detroit, Mich.
Filed Oct. 21, 1970, Ser. No. 82,702
Int. Cl. B26d *7/02, 7/06*
U.S. Cl. 83—113 **25 Claims**

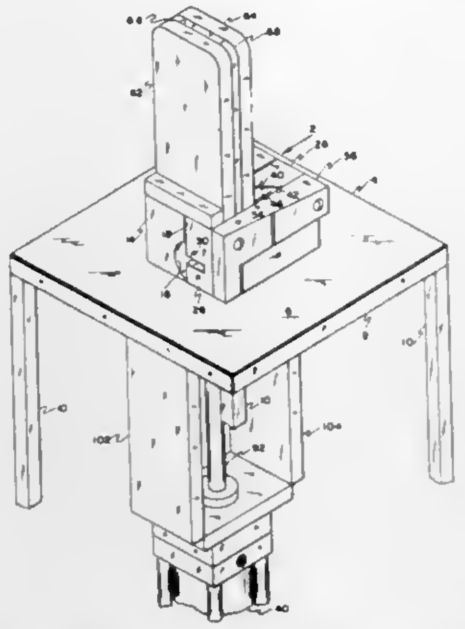


A workstock cutting apparatus for cutting relatively large metal workpieces and comprising a base structure, means for supporting workstock on the base structure and for selectively transferring the workstock toward a rotary cutting element, a carriage assembly for reciprocating the rotary cutting element toward and away from the workstock, and means for clampingly securing the workstock in a preselected position in confronting relationship with respect to the cutting element during a cutting operation.

3,707,104
T-EDGE CUTTER

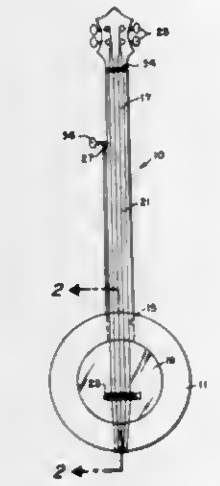
Ronald L. Congrove, Phoenix, Ariz., assignor to Royal Industries, Inc., Pasadena, Calif.
Filed Sept. 30, 1971, Ser. No. 185,031
Int. Cl. B26d *9/00, 5/12*
U.S. Cl. 83—513 **6 Claims**

Apparatus for cutting and notching T-edging comprising male and female notching die members, pneumatic means for moving the male die member with respect to the female die members, an axially movable cutting blade for severing the T-edging, an air cylinder for actuating the cutting blade, and guard means enclosing the cutting blade.



3,707,105
BANJO STRUCTURE

Patrick A. Teel, 410 Cedar Avenue, Minneapolis, Minn., and Lendrum A. MacEachron, 1963 West County Road E-2, Arden Hill, Minn.
Filed July 20, 1971, Ser. No. 164,265
Int. Cl. G10d *1/10*
U.S. Cl. 84—269 **3 Claims**



A banjo in which the drum head is stretched on and secured to a ring that can be separated from the remainder of the banjo with the drum head still secured to the ring.

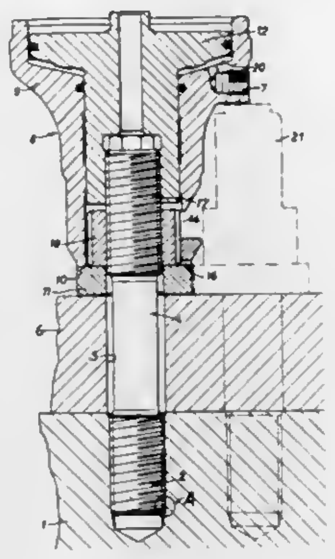
3,707,106

Patent Not Issued For This Number

3,707,107
SCREW CONNECTION FOR HIGH LOADING

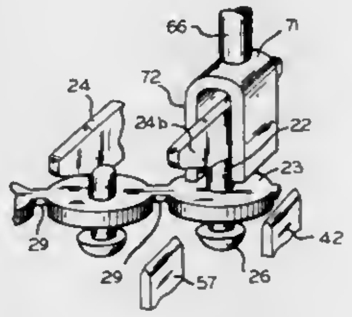
Hans Bieri, Todistrasse 9, 8330 Pfaffikon, Switzerland
Filed Jan. 25, 1971, Ser. No. 109,417
Claims priority, application Switzerland, Jan. 26, 1970, 1021
Int. Cl. F16b *33/04, 35/00*
U.S. Cl. 85—1 T **10 Claims**

To interconnect structural units with a screw connection, for example with a bolt and nut, the threads of the bolt and nut are so selected that the pitch of the outer thread is smaller than the pitch of the inner thread and, additionally, the axial play (a) between the inner thread (1) and the outer thread (2) is greater than the difference in pitch arising within the length of the interengaging threads; to fasten the bolt and nut together, a pre-tensioning apparatus (8) is provided, which can be screwed on an extension of the bolt thread to axially pre-stress the bolt so that relative rotation of the holding nut and the bolt, under loading, can be avoided.



3,707,108
NAIL-LESS WING HEADED FASTENER

Richard W. Pabich, 4904 W. Fullerton Avenue, Chicago, Ill.
Filed May 18, 1970, Ser. No. 38,375
Int. Cl. F16b *19/00;* **H01r** *43/00*
U.S. Cl. 85—5 P **7 Claims**

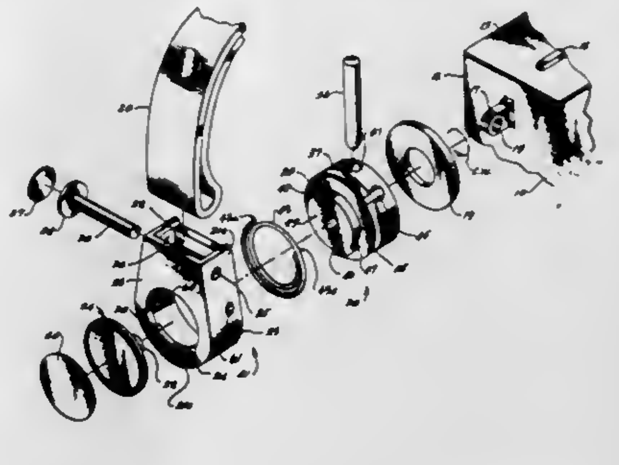


Wing headed fasteners that require no nails to anchor them to a base. The fasteners are equipped to selectively retain a first article attached to a base. Tool attachments are provided which make it feasible to use automatic tools, such as air tools to removably anchor the fastener to bases.

3,707,109
CAMERA STRAP RETRACTOR

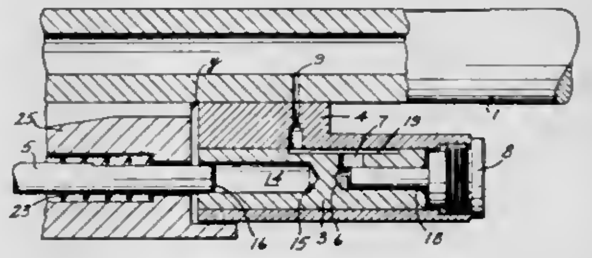
August Bohanec, 44 N. Mantor Avenue, Pasadena, Calif. Division of Ser. No. 171,265, Aug. 12, 1971. This application Feb. 14, 1972, Ser. No. 225,774
Int. Cl. G03b *17/56*
U.S. Cl. 95—86 **12 Claims**

An accessory for a camera includes a rigid strap connector having a collar portion and an end portion adapted to connect to an end of a flexible carrying strap. An adapter is rotatably disposed in the collar and held in substantially fixed axial relationship with it. An axial bore in the adapter mounts over an eye connector on the camera body. A transverse bore intersects the axial bore. A retaining pin fits through the transverse bore and the hole of the eye connector to secure the adapter to the camera. A spring bias mechanism urges the strap connector to rotate relative to the adapter. Stop means prevents such relative rotation beyond a prefixed angular position. Preferably, an entry hole is provided in the strap connector so that the retaining pin can be pushed into the transverse bore. In this arrangement, the accessory can be pre-assembled and installed on a camera with a minimum effort.



3,707,110
ACCELERATING GAS SYSTEM FOR GAS-OPERATED FIREARMS

James M. Alday, Williamson, N.Y., assignor to Remington Arms Company, Inc., Bridgeport, Conn.
Filed March 10, 1970, Ser. No. 18,159
Int. Cl. F41d *5/08*
U.S. Cl. 89—193 **3 Claims**

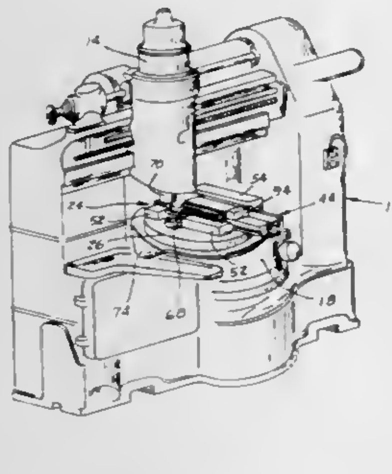


The invention pertains to a gas system for firearms which has a delayed accelerating feature controlling the action bar assembly. In gas operated extraction-ejection systems, considerable stress and shock is normally transmitted to the action bar assembly and its associated extraction-ejection apparatus. The stress is reduced in the present system by providing a gradual acceleration to the action bar assembly. The accelerating effect is accomplished by means of a novel piston-cylinder arrangement that provides an increase in velocity towards the end of the functioning cycle.

3,707,111
GEAR GENERATING FIXTURE FOR GEAR SHAPER

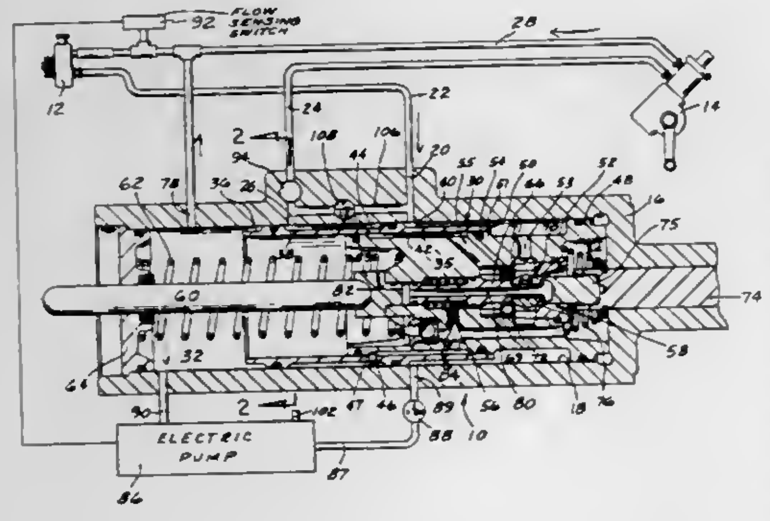
Edward J. Goscenski, Jr., Marshall, Mich., assignor to The Bendix Corporation
Filed June 16, 1971, Ser. No. 153,716
Int. Cl. B23f *9/06*
U.S. Cl. 90—8 **10 Claims**

A fixture for cutting gears mountable on a gear shaper comprising a housing formed with a longitudinal opening therein over which a gear cutting member slides in timed relationship to the shaper spindle on which the gear blank to be cut is carried for cutting engagement with said cutting member. The housing is secured to the gear shaper apron which is connected to the relieving mechanism to thereby obtain synchronization of movement between the reciprocating action of the spindle and the to-and-fro action of the housing on which the cutting member is drivably connected to the gear shaper mandrel through the longitudinal opening by a cam and follower assembly. The cam and spindle are interconnected through the shaper gear box to establish a preselected ratio of rotation therebetween so that the cutting member slides linearly and tangentially in timed relationship to the rotation of the gear blank to be cut.



3,707,112
TELESCOPING PISTON MEANS FOR HYDRAULIC BRAKE BOOSTER

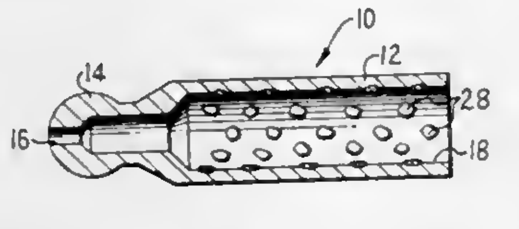
Jerome T. Ewald, South Bend, Ind., assignor to The Bendix Corporation
Filed Jan. 28, 1971, Ser. No. 110,568
Int. Cl. F15b *9/10, 13/04*
U.S. Cl. 91—376 **5 Claims**



A vehicle fluid actuated brake booster device having a housing with a bore formed therein to reciprocally receive piston means, the movement of which is controlled by operator-operated valve means. The brake booster piston means is connected through a force transmitting rod to the piston of a conventional brake master cylinder assembly for applying the vehicle brakes. The brake booster piston is telescopically received in a sleeve, the latter of which is slidably arranged in the bore for movement together with said booster piston and relative thereto within said bore. The sleeve and piston are formed with circumferential, axially extending grooves or recesses which are in selective fluid communication with their associated inlet, outlet and working ports as determined by manipulation of said valve means.

3,707,113
PISTON FOR HYDRAULIC TRANSLATING UNIT

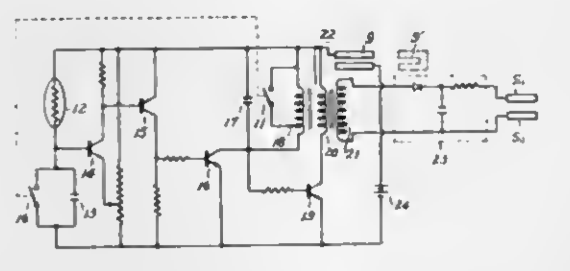
Allyn J. Hein, and Gilbert Tribley, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 16, 1971, Ser. No. 115,639
Int. Cl. F16j *1/00*
U.S. Cl. 92—248 **3 Claims**



A piston for use in an axial and/or radial piston hydraulic translating unit, comprising a hollow skirt portion having inner surfaces defining a cavity and filled with a lightweight material, the material retained in place by discontinuous irregularities in the surface of the hollow skirt which mechanically interlock the filler material within the piston.

3,707,114
AUTOMATIC EXPOSURE CONTROLS FOR ELECTROSTATIC IMAGE CAMERAS

Mamoru Ogihara, Suwa-gun, Japan, assignor to Kabushiki Kaisha Yashika, Tokyo-to, Japan
Filed June 24, 1970, Ser. No. 49,423
Claims priority, application Japan, June 30, 1969, 44/62292
Int. Cl. G03b *7/08*
U.S. Cl. 95—10 CT **5 Claims**

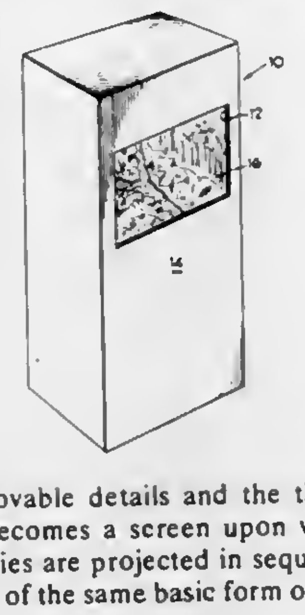


A camera for electrostatically imaging an object on film. A shutter is provided to start the exposure of the film only when the shutter is placed in its open position. The light intensity is automatically sensed and through a timing circuit an oscillating circuit is triggered to its off state after an elapse of time determined by the intensity of the light. Electrically conductive layers between which the film for receiving the electrostatic image is located are electrically connected with a transformer which becomes operative when the shutter opens and which is deenergized when the oscillating circuit is triggered by the timing circuit. This transformer has a portion which acts to release the shutter for return to its closed position when the transformer is deenergized.

3,707,115
METHOD FOR PRODUCING A THREE-DIMENSIONAL DIORAMA

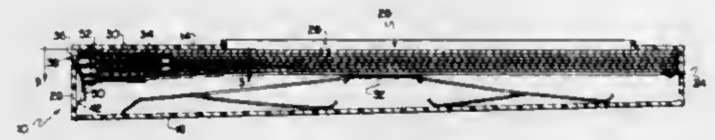
Richard B. Rush, 170 Grandview, Glen Ellyn, Ill.
Filed Feb. 18, 1971, Ser. No. 116,474
Int. Cl. G03b *29/00*
U.S. Cl. 95—12 **2 Claims**

A changeable exhibitor utilizing a three-dimensional reflective screen surface upon which is projected a series of photographic transparencies, each illustrating the same basic exhibit in full color but differing in details. The method employed in achieving the changeable exhibit includes utilizing the three-dimensional screen as the base for a number of full color, three-dimensional models, each differing in detail, wherein each model is photographed from an indexed position. After all of the desired models are photographed, the base is stripped of all removable details and the three-dimensional reflective surface becomes a screen upon which the photographic transparencies are projected in sequence to illustrate changes in full color of the same basic form or model.



3,707,116
FILM CARTRIDGE FOR PHOTOGRAPHIC CAMERAS AND METHOD OF ASSEMBLY

Nicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed April 21, 1971, Ser. No. 136,030
Int. Cl. G03b *19/10*
U.S. Cl. 95—19 **7 Claims**

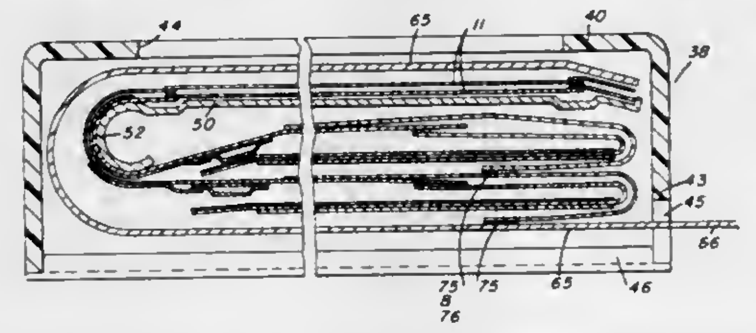


Afilmcartridge intended for use in certain photographic cameras of the "self-developing" type comprises a relatively flat, box-like casing containing in stacked relationship a spring platen, a stack of film units and a dark slide having an opaque curtain at one end which is folded down over an end of the stack of film units.

The casing has an end wall which is welded during assembly on an open end of the casing body after insertion of the casing contents. The end wall has a pair of projections adjacent the side edges thereof for displacing the side margins of the dark slide curtain away from the end wall joint to preclude attachment of the curtain to the casing during the welding operation.

3,707,117
PHOTOGRAPHIC FILM ASSEMBLAGE

Richard D. Moulton, Rochester, N.Y., and Stanley R. Schleven, deceased, late of Webster, N.Y. (by Arline E. Schleven, executrix), assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 11, 1971, Ser. No. 114,446
Int. Cl. G03b *19/10*
U.S. Cl. 95—19 **9 Claims**



A film pack for use in an in-camera processing system comprising a container in which a plurality of individual film units, each including a light-sensitive film and an image-receiving sheet coupled by means including a leader, a pull tab connected to said leader, are arranged in stacked relation so that after the film of each unit is exposed it can be moved into superposed relation with its corresponding image-receiving sheet for processing when the pull tab extending from the container, and camera it is associated with, is pulled. The pull tabs of all of the film units are folded back upon themselves and interleaved with the film units so as to be confined wholly within the container until they are pulled successively therefrom by pulling on the pull tab of the preceding film unit. The pull tab on the first film unit is adhered to a safety cover sheet which is wrapped around the stack of film units to protect them against being fogged during handling of a pack outside of the camera, and is withdrawn from the pack and the camera after the pack is placed in the camera to ready the first film unit for exposure.

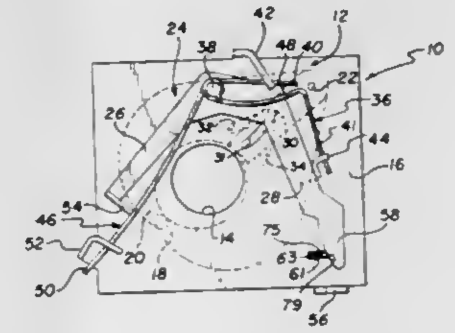
To permit ready assemblage of the film units, the pull tabs are provided with patches or stripes of a cohesive adhesive material so arranged that the pull tabs become adhesively connected together, and the pull tab of the first film unit becomes adhesively connected to the safety cover sheet, with bonds having the necessary shear and peel strengths by the mere application of pressure to the stack of film units after the pull tabs have been folded back into interleaved relation with the film units.

ERRATUM

For Class 95—86 see:
Patent No. 3,707,109

3,707,118
SHUTTER MECHANISM

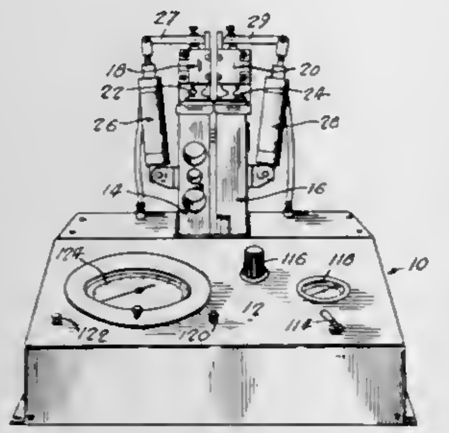
Jeffrey R. Stoneham, and Lawrence M. Wood, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 13, 1971, Ser. No. 179,708
Int. Cl. G03b *9/14*
U.S. Cl. 95—62 **4 Claims**



A shutter mechanism comprises a set of blades which are rotatable between open and closed positions relative to an exposure aperture wherein an actuating member is coupled to the shutter blades and actuatable by a driver means for moving the shutter blades to the open position. The actuating member is displaceable from a first to a second position wherein a first spring urges the actuating member towards the first position in response to displacement of the actuating to the second position. A second spring is disposed to be engaged by the actuating member as the actuating member moves to the second position. The second spring is displaced by the actuating member and acts in cooperation with the first spring to drive the shutter actuating member to the first position thereby closing the shutter blades at a preselected shutter speed.

3,707,119
APPARATUS FOR TESTING THE TENSILE STRENGTH OF SHEET MATERIAL

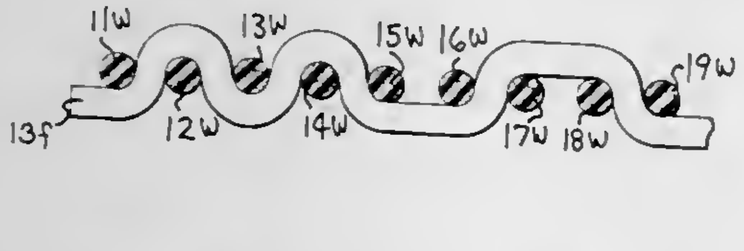
Wavell Frederick Cowan, 36 Parkside, Montreal, Quebec, Canada
Filed April 20, 1971, Ser. No. 135,733
Int. Cl. G01n *3/10*
U.S. Cl. 73—95 **8 Claims**



The apparatus includes a pair of upstanding support members, each mounting clamps adapted to be in a position juxtaposed to each other, and the support members are mounted in pivotal relation one to the other. Hydraulic devices are provided for adjusting the clamping pressure on the sheet material to be tested, and a pneumatic device is provided for forcing the clamps away from each other to break the sheet material.

3,707,120
REINFORCEMENT OF RUBBER

Charles F. Schroeder, Toledo, Ohio, assignor to Owens-Corning Fiberglas Corporation
Continuation of Ser. No. 777,817, Nov. 21, 1968, abandoned. This application June 1, 1971, Ser. No. 149,060
Int. Cl. D03d *11/00*
U.S. Cl. 161—90 **13 Claims**

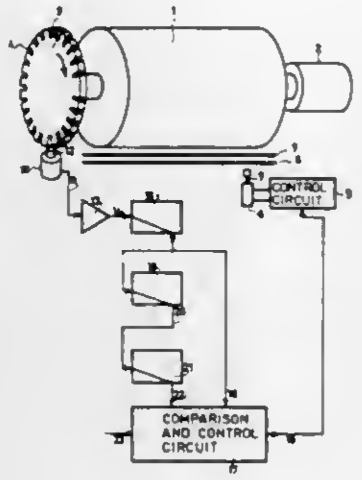


A fabric containing organic yarns and glass yarns so woven that the composite reinforcement is extensible, due to the inherent stretchability of the organic and due to the particular configuration in placement and orientation of the glass component, until the glass component is in line with the direction of tensile force, whereupon the glass yarns assume the load; the organic yarns having, in the meantime, become stretched to some point short of the elastic limit or to the ultimate elastic limit of the organic yarns.

3,707,121
TIMING APPARATUS FOR HIGH SPEED PRINTER

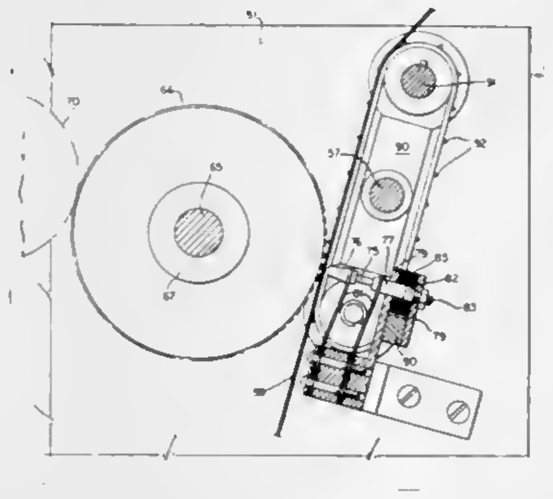
Fabrizio Castoldi, Milan, Italy, assignor to General Electric Information Systems, Italia S.p.A., Caluso (Turin), Italy
Filed June 1, 1970, Ser. No. 42,438
Int. Cl. B41j *1/34*
U.S. Cl. 101—93 C **7 Claims**

A high speed printer wherein print characters are disposed in rows about the periphery of a rotating drum, wherein the particular character opposite a print line along the direction of rotation of the drum is denoted by the state of a counter which is advanced as each character row passes the print line, and wherein the counter is reset when a predetermined point on the drum passes said print line.



3,707,122
PRINT HAMMER MECHANISM WITH MAGNETIC REINFORCEMENT TO CATH HAMMER

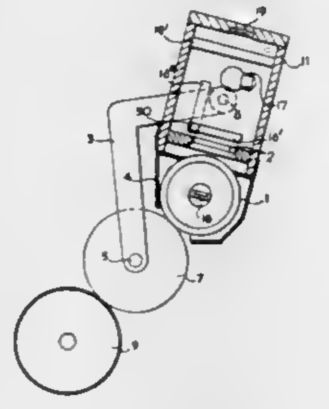
Norman Allen Cargill, Warminster, Pa., assignor to Peripheral Dynamics Inc., Norristown, Pa.
Filed July 13, 1970, Ser. No. 54,200
Int. Cl. B41j *9/36, 9/42*
U.S. Cl. 101—93 C **4 Claims**



In a helical line printer having a limited number of type wheels, the type wheels and corresponding hammers are held on a fixed frame while the paper carriage is moved laterally in a repetitive manner by a cam drive such that each type wheel and hammer combination prints out a plurality of characters per line, the paper carriage being returned laterally to its starting position after the printing of a complete line, while the paper is indexed to the next row. The print hammers, normally maintained in a spring loaded position by a permanent magnet, are actuated by energizing a coil to produce a bucking magnetic field which counteracts the field of the permanent magnet, and are caught and locked on rebound from the type wheel by the permanent magnet.

3,707,123
APPARATUS FOR DETECTING CHANGES IN THE THICKNESS OF AN INK FILM ON THE ROLLER SYSTEM OF A PRINTING PRESS

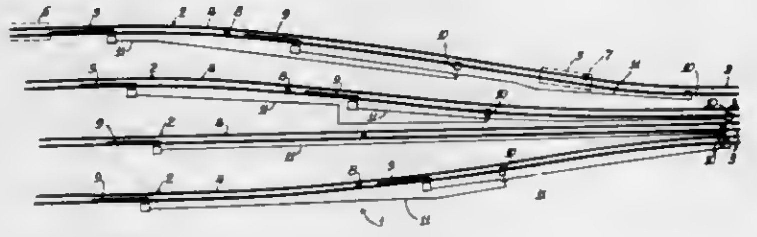
David Michael Heasman, Dorking Surrey, and Andrew Wallace Little, Whitton, both of England, assignors to The Research Association For the Paper and Board Printing and Packaging Industries, Surrey and Churchill Instrument Company Limited, Middlesex, England
Filed Nov. 5, 1970, Ser. No. 87,085
Claims priority, application Great Britain, Nov. 14, 1969, 55,892/69
Int. Cl. B41f *31/04;* **H01j** *39/12*
U.S. Cl. 101—207 **16 Claims**



Apparatus for detecting the thickness of an ink film on the roller of a printing press either to indicate the film thickness and/or to control one or more ink supplies to the roller. A monitoring head includes a housing for a transparent roller which, in use, contacts a printing press roller. The housing contains a light source positioned between two photoconductive cells, one in the transparent roller and one fixed in the housing. The photoconductive cells have a selective response. Either optical filters are positioned before the photoconductive cells or a monochromatic light source is employed. The photoconductive cells are included in a bridge circuit which has variable resistors for controlling its output and sensitivity. Accurate correlation is possible between ink film thickness and the output of the bridge circuit. Systems are disclosed using multiple monitoring heads and servo-controls for controlling ink supply to single color and multicolor presses.

3,707,124
VEHICLE SPEED CONTROL DEVICE ACTUATING MECHANISM

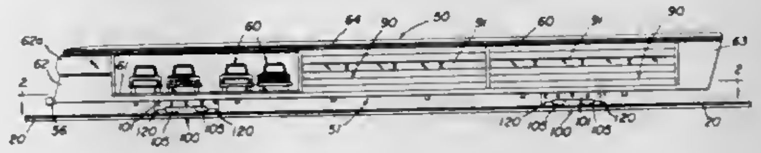
William H. Peterson, Homewood, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Filed Dec. 28, 1970, Ser. No. 101,927
Int. Cl. B61b *1/00;* **B61l** *3/12*
U.S. Cl. 104—26 R **20 Claims**



An actuating mechanism for initiating the operation of a speed control device which brakes a railroad vehicle should it exceed a predetermined speed. The actuating device consists of a flexible sensor hose containing a liquid subject to the weight of the railroad vehicle to operate and to close a pressure contact in an electrical circuit to energize a ground mounted or railside mounted tripping mechanism in the form of an electromagnet in the railroad classification yard which, in turn, trips the vehicle-mounted speed control device on a railroad car passing over the electromagnet for slowing down the speed of the railroad car. The electromagnet will not be energized to the "on" condition until sufficient time has elapsed as determined by a timer in the electrical circuit of the electromagnet and thereby only "standing" cars rather than "passing" cars turn on the electromagnet. A modified form of the device utilizes two such sensor hoses and pressure switches in a common circuit whereby both pressure switches must be closed in order to energize the electromagnet, the spacing distance between the sensor hoses being greater than the distance between the fore and aft railroad car trucks and the length of each of the hoses or sensing units being greater than the distance between the trucks.

3,707,125
RAILWAY TRUCKS

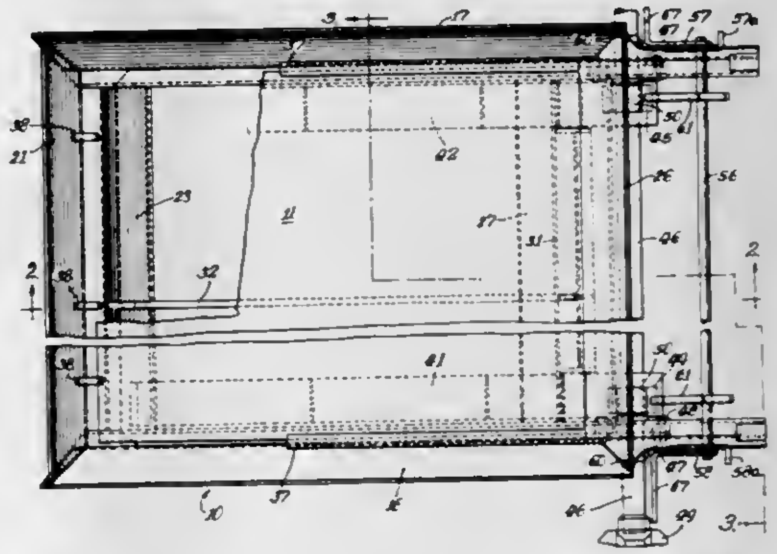
Veljko Milenkovic, Boulder, Colo., and Glen L. Neidhardt, Deerfield, Ill., assignors to General American Transportation Corporation, Chicago, Ill.
Filed May 8, 1968, Ser. No. 727,502
Int. Cl. B61d *15/00;* **B61f** *9/00, 13/00*
U.S. Cl. 105—179 **7 Claims**



There are disclosed several truck structures for supporting and guiding the body of a railway car on a wide gauge rail track formed of a pair of rails having a track gauge of at least about ten feet, each of the truck structures including a guide bogie carrying both a pair of tandem load wheels and front and rear sets of spring biased guide wheels, and a follower bogie carrying a pair of tandem load wheels, parallelogram linkages or the equivalent interconnecting the two bogies to coordinate the guiding movements thereof; springs are provided for urging the guide wheels into guiding relationship with the associated rail, and several systems are disclosed for providing spring connections between the bogies and the body of the associated railway car.

3,707,126
HOPPER GATE LATCHING MECHANISM

Francis M. Nester, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.
Filed July 13, 1970, Ser. No. 54,245
Int. Cl. B61d *7/20, 7/26;* **E05b** *65/14*
U.S. Cl. 105—282 P **4 Claims**



This disclosure deals with a lock mechanism for a discharge gate of a railway hopper car. The gate includes a frame secured to the lower end of a hopper of the car and extending around the hopper opening, a door plate movably supported by the frame, and means for horizontally moving the door plate between a closed position where it closes the hopper opening and an open position where it uncovers the opening. A lock mechanism is provided for holding the door plate in its closed position. The lock mechanism is both manually engageable and self engageable. In the event the trainmen neglect to manually engage the lock mechanism, shifting of the door plate when the car is moved results in automatic or self engagement of the mechanism.

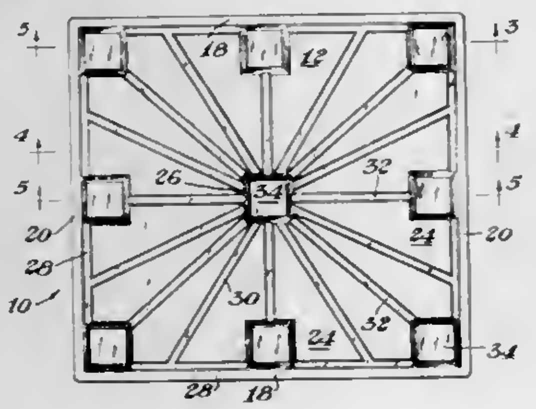
3,707,127
GOODS SUPPORTING PALLET

Albert J. Palfey, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed March 5, 1970, Ser. No. 16,726

Int. Cl. B65d *19/38*

U.S. Cl. 108—53 **1 Claim**



The present invention concerns novel goods-supporting pallets which possess good mechanical strength and can be easily transported. The pallets are also readily accessible on all sides to the tines of lifting devices. Additionally, the pallets nest easily into one another thereby saving storage space.

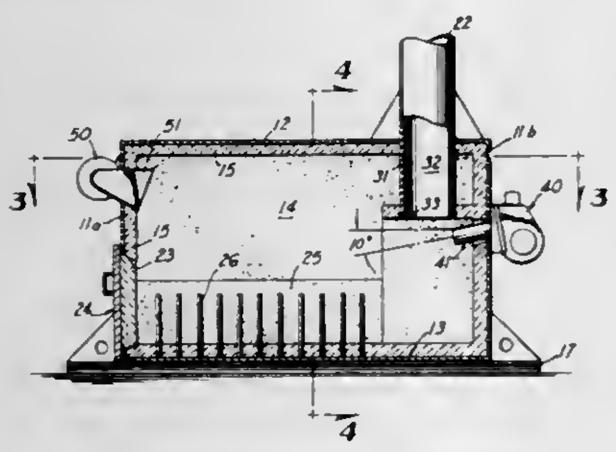
3,707,128
ANTI-POLLUTION SOLID WASTE BURNING INCINERATOR

Jerry M. Lang, Lindale, Tex., assignor to Care, Inc., Tyler, Tex.

Filed March 31, 1971, Ser. No. 129,911

Int. Cl. F23g *5/12*

U.S. Cl. 110—8 A **5 Claims**



An incinerator having a pressurized combustion chamber operable to effect a maximum combustion of material introduced therein with a minimum of by-products of combustion being exhausted therefrom. The incinerator includes a pressurized flame means directed across a flue entrance opening whereby the pressurized flame means produces a restrictive air block of the flue opening thereby increasing pressure within the combustion chamber.

3,707,129
METHOD AND APPARATUS FOR DISPOSING OF REFUSE

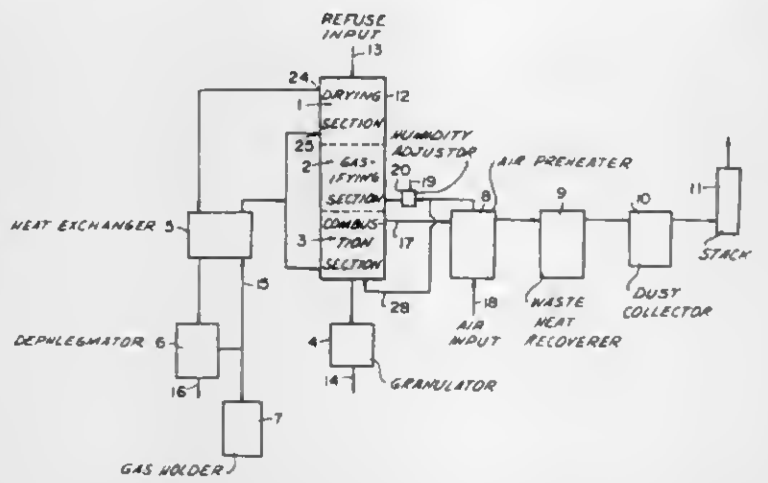
Kensuke Kawashimo; Kazuo Tsukagoshi, and Tokio Itasaka, all of Tokyo, Japan, assignors to Ebara Infilco Kabushiki Kaisha, Tokyo-to, Japan

Filed Aug. 16, 1971, Ser. No. 171,820

Claims priority, application Japan, Aug. 18, 1970, 45/72197; Oct. 21. 1970, 45/92583; Feb. 16, 1971, 46/7001

Int. Cl. F23g *5/04*

U.S. Cl. 110—15 **10 Claims**



An apparatus for disposal of refuse consists of three sections arranged in vertical sequence and communicating by means of ports which permit refuse to pass from the top chamber to the bottom chamber. The refuse is dried in the top chamber, gasified in the middle chamber and burned in the bottom chamber. Exhaust gases from the bottom chamber, in part, pass upwardly through downwardly moving refuse to effect gasification in the middle chamber and drying in the top chamber. Exhaust gases from the top chamber are treated to remove noxious and corrosive components prior to recycling to the apparatus and to venting. The method and apparatus are suitable for use with mixed refuse containing among other components, glass, metal and garbage.

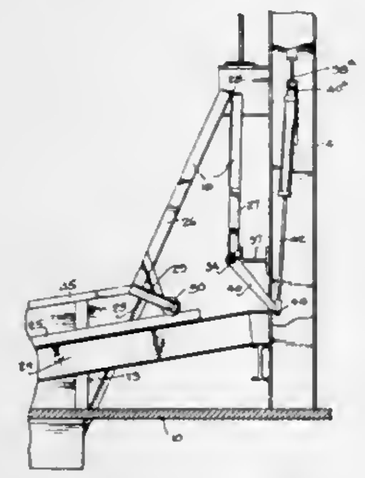
3,707,130
INCINERATOR CHARGING CUT-OFF GATE

Joel Russell Reiner, Philadelphia; William J. Preusch, Southampton, and William G. Davenport, Philadelphia, all of Pa., assignors to Beaumont Birch Company, Philadelphia, Pa.

Filed Oct. 8, 1970, Ser. No. 79,005

Int. Cl. E05f *11/00*

U.S. Cl. 110—173 R **8 Claims**



A wheeled closure gate for maintaining opened or closed as desired an aperture disposed in a substantially horizontal plane, the gate being shiftable along tracks embracing the aperture which are so relatively inclined with respect to the horizontal plane as to permit the same to be moved upwardly along said tracks by power means into aperture-closing position. The closure gate in this particular instance is of an articulated construction having a pair of hinged-together sections which are foldable upon themselves or "jack-knifed" as the gate is shifted into its open position by suitable power means and are unfolded into coplanar relation by gravity return of the gate into its closed position. When in its jack-knifed open position, the fore section of the gate is upwardly and rearwardly inclined as an extension of the back wall of an incinerator charging hopper with which the gate may be associated to deflect back into the hopper rubbish which would otherwise not be received by the hopper. The tracks for the wheeled gate are of a construction which largely prevents accumulation of debris thereon during charging of the hopper and thus are self-cleaning, the undesired accumulation of debris being further prevented by the aforesaid deflecting shields as well as by locating the tracks inboard of the top edges of the hopper side walls. The gate of the instant construction may be combined with the charging hopper as a unitary assembly thereof.

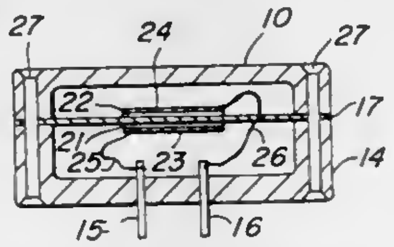
3,707,131
ELECTROACOUSTIC TRANSDUCERS OF THE BILAMINAR FLEXURAL VIBRATING TYPE

Frank Massa, Cohasset, Mass., assignor to Massa Division Dynamics Corporation of America, Hingham, Mass.

Filed Oct. 19, 1970, Ser. No. 81,842

Int. Cl. H04r *17/10*

U.S. Cl. 179—110 A **20 Claims**



A sound opaque mask, contained within a spider-like frame structure, is assembled in accurate alignment with a piezoelectric transducer element. The mask is positioned so that only those portions of the vibrating bilaminar elements, which vibrate in phase, are exposed to the medium. The piezoelectric elements and the mating plate portions of the frame structure cooperate to form a bilaminar flexural vibrating element having combined dimensions which determine the resonant frequencies.

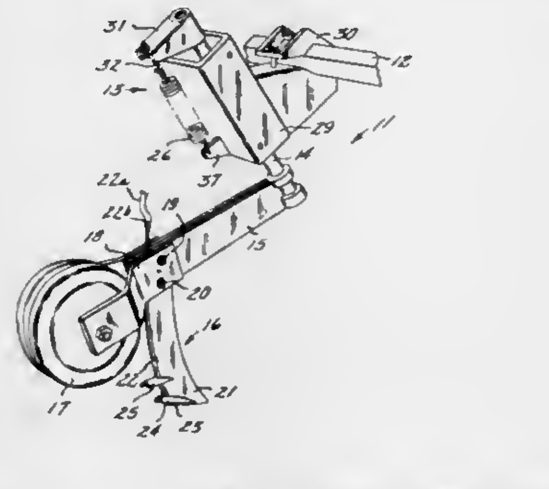
3,707,132
SOD KNIFE FOR ANHYDROUS AMMONIA

Clarence M. Hansen, East Lansing, Mich., assignor to Board of Trustees of Michigan State University, East Lansing, Mich.

Filed July 1, 1970, Ser. No. 51,644

Int. Cl. A01c *23/02*

U.S. Cl. 111—7 **4 Claims**



A constant attitude sod knife for injection of anhydrous ammonia to the soil which includes a ground opening blade structure, a gas injection tube disposed at the heel or trailing of the blade and covered by a diffusion director vane or wing and subsequently by a tamping or compaction vane or wing which serves to restrict emission of gaseous materials to the atmosphere and a spring biased carriage facilitating a constant running attitude whereby the blade may change elevation without changing attitude, and an impact disengaging connection and depth control wheel for the carriage.

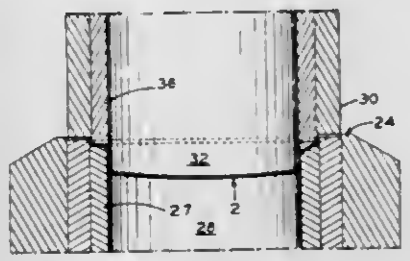
3,707,133
CROWN AND METHODS OF MAKING SAME

Caleb H. Myer, Columbia, Pa., assignor to Kerr Glass Manufacturing Corporation, Los Angels, Calif.

Division of Ser. No. 770,989, Oct. 28, 1968, Pat. No. 3,497,098. This application Dec. 10, 1969, Ser. No. 880,521

Int. Cl. B21d *51/00, 28/00*

U.S. Cl. 113—121 A **2 Claims**



A crown particularly adapted for use with a liquid refreshment container wherein the crown is adapted to be turned off the threads on the container or pried off the container with a bottle opener. The crown has a smooth edge configuration so that it can be readily grasped by the fingers for turning without the fingers being cut by the sharp edges which are normal with a conventional serrated crown. The smooth edge configuration for the crown is secured by forming a lip portion on the peripheral edge of the crown. The crown may be formed by a forming die which provides the lip configuration at the same time it crimps the skirt of the crown, or a conventional crown may be forced through a sizing die to provide the lip configuration.

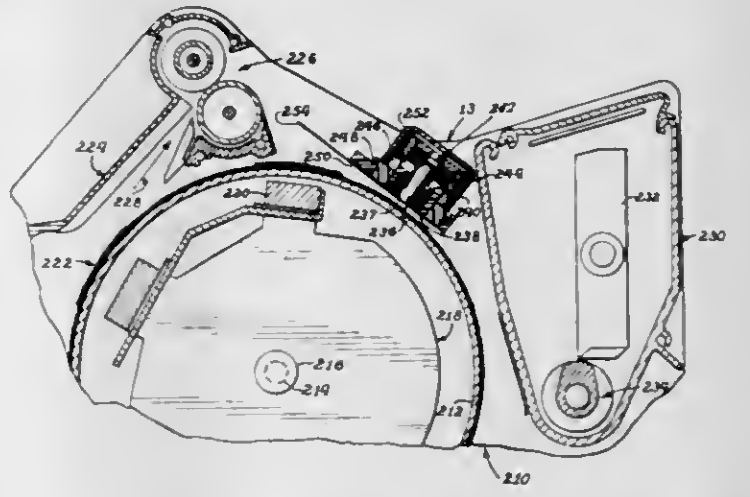
3,707,134
AUTOMATIC TONER CONCENTRATE DETECTOR AND CONTROL DEVICE

Stanley A. Gawron, Arlington Heights, Ill., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed Aug. 21, 1970, Ser. No. 65,902

Int. Cl. B05c *11/00*

U.S. Cl. 118—7 **9 Claims**



Apparatus for monitoring and controlling the ratio of toner to carrier particles of a dry developer mix includes an inductive sensing coil positioned in contact with the developer mix.

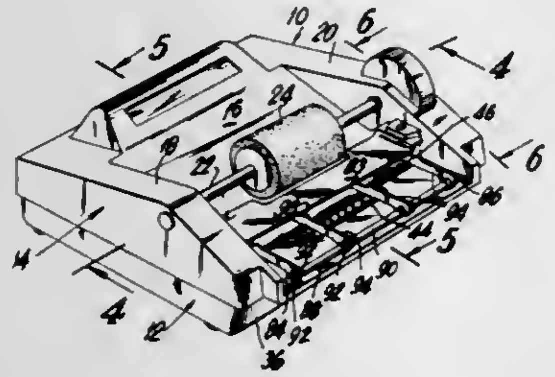
The voltage output of circuitry connected electrically to the sensing coil changes in response to a change in the inductive reactance of the sensing device due to changes in the ratio of toner to iron particles in the mix. A toner dispenser replenishes toner material to the mix in response to a predetermined change in the voltage output of the circuitry.

3,707,135

LIQUID APPLICATOR FOR STRIP MATERIAL

Everett E. Sharpe, Shelton, and Johnstone E. Hughes, Green Farms, both of Conn., assignors to Better Packages Inc., Shelton, Conn.

Filed Jan. 15, 1971, Ser. No. 106,745
Int. Cl. B05c *1/00, 1/04*
U.S. Cl. 118—244 **11 Claims**



A liquid applicator, particularly for applying a moistening agent or a glue to a label comprises, a housing made up of two parts, namely, a lower housing part forming a reservoir for the liquid material and an upper housing part having a sloping wall forming a label feeding channel and a mounting for a hand feed roll which is located over the channel. The lower housing part is characterized by a reservoir formation having end walls which are shaped in the form of a pouring spout to facilitate the outpouring of the liquid within the reservoir when the device is not to be used. The construction includes an open mounting for rotatably supporting each end of a grooved reservoir roller, an upper transfer roller which together with the lower reservoir roller forms the reservoir applicator means which are supported in open bearings formed by an end of the housing and by a hook-shaped closing element which is advantageously made up of a plastic material, such as Teflon. The construction permits the pressure engagement of the two rollers and the lower reservoir roller is advantageously provided with a spiral groove to provide a smooth application of the liquid from the reservoir to the upper roller. The two rollers are driven from a gear which is carried on a shaft for the main hand feed roller carried on the upper cover portion. This gear meshes with the upper roller gear and drives the two rollers at a speed which is slightly greater than the speed of feed of the label material in order to provide a wipening action of the liquid on the label as it is advanced between the applicator roller means and the feed roller. The cover also forms a mounting for open top receiving shells which are also advantageously made of a plastic material and which resiliently engage a rod member carrying spaced fingers which tangentially engage against the surface of the upper applicator roller to ensure that the label which is fed is lifted off its surface.

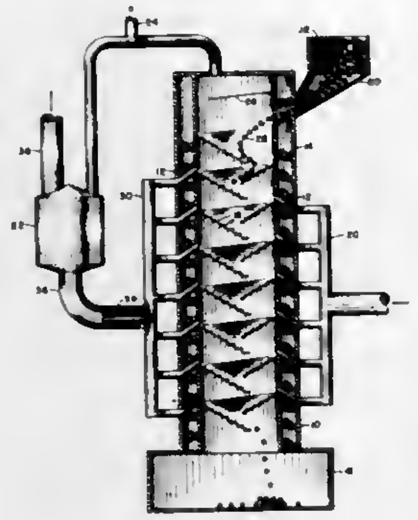
3,707,136

APPARATUS FOR PLATING HEAT-RESISTANT ARTICLES

George J. Kostas, Houston, Tex., assignor to Continental Oil Company, Ponca City, Okla.

Filed Dec. 2, 1970, Ser. No. 94,352
Int. Cl. B05c *5/00*
U.S. Cl. 118—303 **6 Claims**

Apparatus for plating heat-resistant articles which includes a hollow reaction chamber having a plurality of wire trays so positioned in the reaction chamber to control the fall of the articles through the chamber, a plurality of spray nozzles so positioned in the walls of the chamber to disperse plating solution throughout the reaction chamber, means for heating the reaction chamber located along the walls thereof, a supply of plating solution connected to the spray nozzles to transfer the solution to the reaction chamber for the plating of the falling articles in the chamber, and a means for continuously recovering the plated articles.

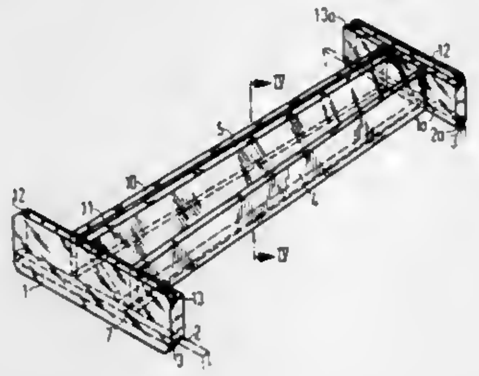


3,707,137

THIN LAYER CHROMATOGRAPHY COATING DEVICE

Dieter Jaworek, Beringweg 6, 8132 Tutzing, upper Bavaria, Germany

Filed April 20, 1970, Ser. No. 29,930
Claims priority, application Germany, May 2, 1969, P 19 22 528.6
Int. Cl. B05c *5/02*
U.S. Cl. 118—415 **3 Claims**



Coating device for applying thin layers of uniform and defined thickness of adsorption agent onto chromatography plates comprising two vertical side members, two connecting parts affixed thereto, the connecting parts being mounted at an angle to each other to form a trough with a slit at the bottom thereof to permit slow flow-through of coating material, the height difference between the lower edges of the connecting parts and side members, respectively, defining the thickness of the coating applied.

3,707,138

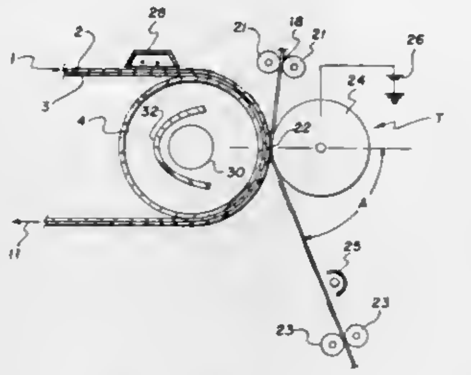
APPARATUS FOR TRANSFERRING A DEVELOPED IMAGE FROM A PHOTOSENSITIVE MEMBER TO A RECEIVER

Randle Velore Cartwright, Honeoye Falls, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,649
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **5 Claims**

Apparatus is provided for transferring a developed toner image from a photoconductor to a receiver by a method which

includes applying to the receiver a bias voltage opposite in polarity to the charge on the developed toner image. The toned photoconductor is precharged to the same polarity as the developed toner image to assure a maximum charge on the toner particles forming the image prior to their contact with the receiver and then flooded with light prior to and/or during the transfer to reduce the forces of attraction between the toner particles and the photoconductor.

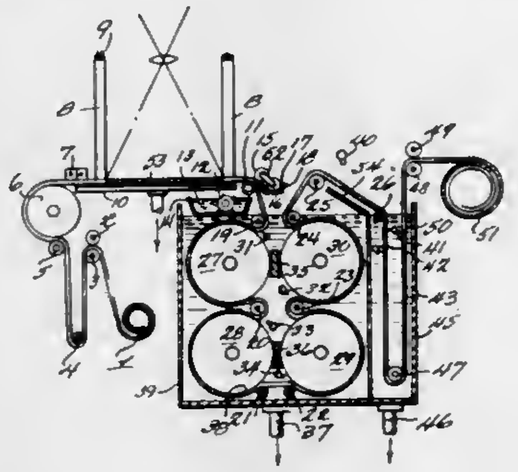


3,707,139

LIQUID TYPE ELECTROPHOTOGRAPHY DEVELOPING APPARATUS

Osamu Fukushima; Masamichi Sato, and Seiji Matsumoto, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sept. 25, 1970, Ser. No. 75,491
Claims priority, application Japan, Sept. 26, 1969, 44/76682
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **9 Claims**



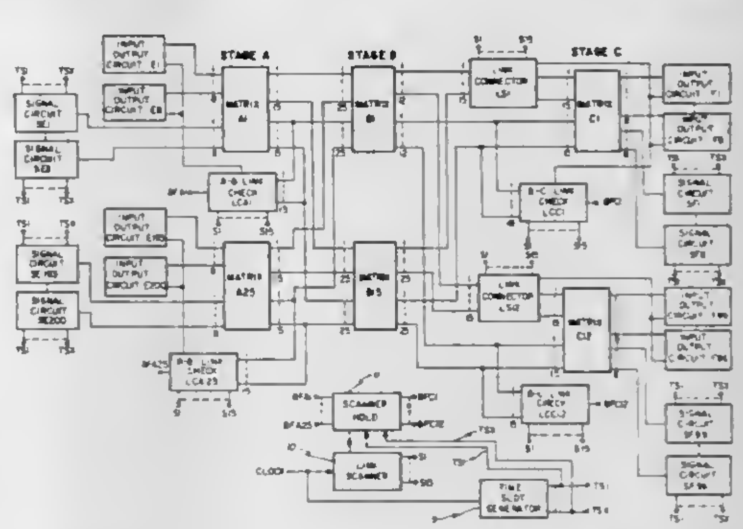
Liquid developing apparatus for use with an electrophotographic device wherein a plurality of images are sequentially exposed along the length of a web of electrophotographic sensitive material, the apparatus including (1) means for containing a liquid developer; (2) a plurality of developing electrodes, each of which is at least partially disposed within the liquid developer; (3) means for moving each of the developing electrodes along a closed path; (4) means for intermittently feeding the web of electrophotographic sensitive material through the developing liquid after each image exposure of the web to develop latent images on the sensitive material corresponding to the exposure images; (5) means for substantially maintaining a predetermined spacing between the sensitive material and the developing electrodes while the sensitive material is in the liquid developer; and the developing electrodes being so positioned that said images on the web are respectively in complete face-to-face relationship with respect to said developing electrodes whenever the web is stopped in the developer liquid during the intermittent feeding thereof so that the latent images are uniformly developed when the web is stopped.

3,707,140

TELEPHONE SWITCHING NETWORK SIGNALLING SYSTEM

Klaus Gueldenpfennig, Penfield; Uwe A. Pommerening, and Stanley L. Russell, both of Webster, all of N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Nov. 25, 1970, Ser. No. 92,588
Int. Cl. H04q *11/04*
U.S. Cl. 179—18 J **19 Claims**



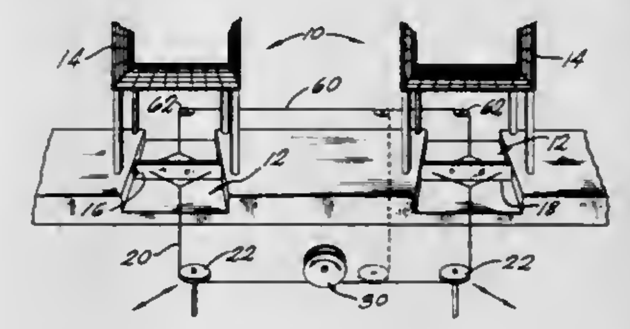
A signalling system is provided for signalling through a network of switching matrices. A time division circuit provides periodic signals to the switching matrices for path finding purposes and transmits other signals through completed paths during the periods between path finding signals.

3,707,141

CAPSTAN CABLE DRIVE

Elmer J. Boer, and Robert L. Van Huis, both of Zeeland, Mich., assignors to U.S. Industries, Inc., New York, N.Y.

Filed July 10, 1970, Ser. No. 53,837
Int. Cl. A01k *31/04*
U.S. Cl. 119—22 **5 Claims**



A pit cleaner for cages such as poultry cages and featuring a cable-pulled scraper and a cable drum on which the cable is wrapped and unwrapped to drive the cable, the drum being characterized as a capstan, the cable-engaging surface of which slopes away at the low point thereof from the axis of the capstan at an angle of between 5° and 25°.

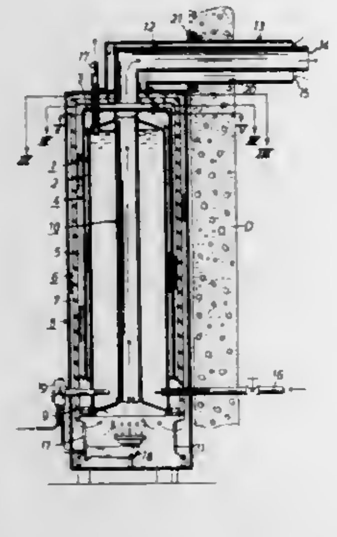
3,707,142

HEAT-PRESERVING BOILER

Shiro Kobayashi, Nagoya, Japan, assignor to Paloma Kogyo Kabushiki Kaisha, Nagoya-shi, Japan

Filed Sept. 24, 1971, Ser. No. 183,521
Claims priority, application Japan, Jan. 26, 1971, 46/2941
Int. Cl. F22b *9/02*
U.S. Cl. 122—17 **7 Claims**

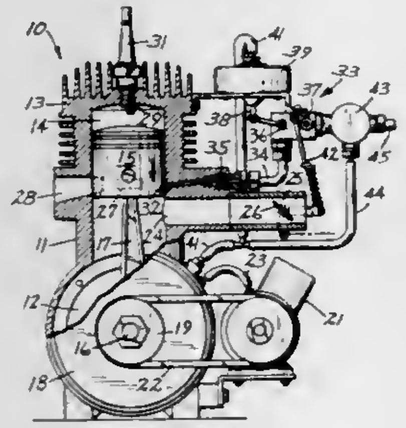
The invention adds to a heat preserving boiler of the type including a water tank, a flue pipe extending vertically therethrough, and a combustion chamber disposed under the water tank, apparatus for improving the efficiency including a drum spaced from and surrounding the water tank to form an annular downward outlet air passage between the outer surface of the water tank and the inner surface of the drum, a cover spaced about the drum to form an annular upward outlet air passage between the outer surface of the drum and the inner surface of the cover, a housing spaced about the cover to form an annular inlet air passage, and an outlet duct connected with the upward outlet air passage to lead exhaust gases to the atmosphere, the outlet duct being disposed within the inlet duct to form an extended inlet air passage.



3,707,143
FUEL INJECTION SYSTEM FOR TWO CYCLE ENGINE

Gerald D. Reese; Gerald G. Shank, both of Roseau, and Lowell D. Carlson, Pencer, all of Minn., assignors to Textron, Inc., Providence, R.I.

Filed July 27, 1970, Ser. No. 58,431
Int. Cl. F02b *33/04, 19/16, 33/00*
U.S. Cl. 123—65 A **14 Claims**

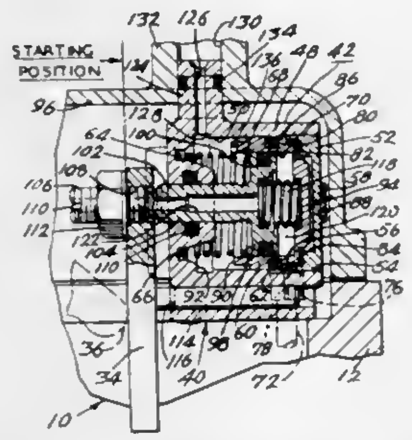


A low pressure fuel injection system for a two cycle internal combustion engine. Fuel is introduced into the combustion chamber during the intake cycle from a cavity in the wall of the combustion chamber supplied with fuel by metering apparatus that controls the flow of fuel in accordance with engine demand. The fuel is compressibly accumulated when the cavity is covered by the piston during the compression and combustion cycles. As the piston moves into the fuel intake cycle, the cavity is opened and the fuel charge is discharged therefrom and swept out by the flow of intake air for subsequent vaporization and combustion.

3,707,144
FUEL CONTROL DEVICE FOR FUEL INJECTION PUMP GOVERNORS

Leon A. Galis, Ludlow, Mass., and Donald E. Valentine, Brookfield, Wis., assignors to AMBAC Industries, Inc., Springfield, Mass.

Filed July 1, 1971, Ser. No. 158,894
Int. Cl. F02n *12/00;* **F02d** *1/04*
U.S. Cl. 123—179 L **11 Claims**

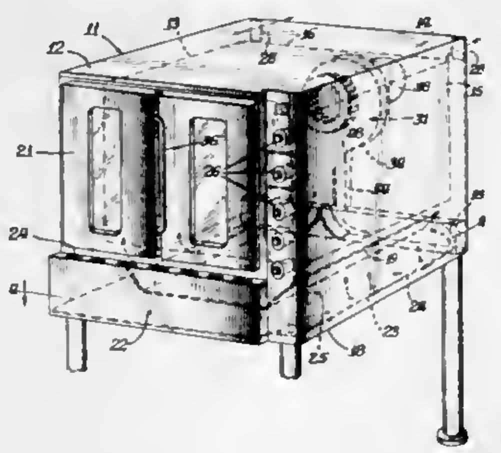


A control device for turbo charged diesel engines for varying the position of the fuel injection pump governor full load stop to provide excess fuel during engine cranking and to limit full load fuel delivery during acceleration and low speed operation. The device includes a cylinder, one end of which is connected to a source of engine lubricating oil and the other end of which is subjected to engine manifold pressure. An oil pressure responsive piston in the cylinder carries therewithin a smaller manifold pressure responsive piston which is connected directly to the governor full load stop to control the stop position. The pistons are each spring-loaded against the force of their respective actuating fluids whereupon an absence of oil pressure will produce an excess fuel position of the full load stop, and a drop in manifold pressure during engine operation will result in a fuel limiting position of the full load stop.

3,707,145
SELF-CLEANING OVEN

Richard J. Anetsberger, and John A. Anetsberger, both of Northbrook, Ill., assignors to Anetsberger Brothers, Inc., Northbrook, Ill.

Filed Dec. 16, 1970, Ser. No. 98,694
Int. Cl. F24c *15/32*
U.S. Cl. 126—21 A **9 Claims**



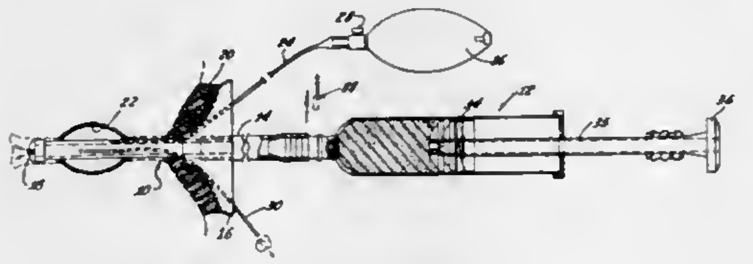
A self-cleaning oven with front door means and having inner and outer walls spaced in insulating relationship to each other and defining air passages at the rear, bottom and sides of the oven, with control means disposed in a side passage, air

ducts in the lower ends of the side passages with apertures in their top walls and terminating adjacent the bottom of the front door means, and blower means comprising an inner fan disposed interiorly of the oven for circulating heated air therein, an outer fan in the rear air passage, and a motor exteriorly of the oven mounted coaxially with the fans, with shroud means spaced from the motor to insure movement through and around the motor of outside air drawn inwardly by the outer fan and blow thereby over the control and front door means for cooling purposes, plate and spacer means interconnecting the two fans to prevent direct transfer of heat from the inner fan to the motor, improved front door operating mechanism, and temperature-responsive door locking means automatically operable during a cleaning cycle.

3,707,146
MEANS TO INJECT A PLASTIC INTO A CAVITY TO PRODUCE A REPLICA THEREOF

Ralph J. Cook, Torrance; Clifford C. Moline, Malibu, and Joseph M. Schumann, Inglewood, all of Calif., assignors to Products Research & Chemical Corporation, Burbank, Calif.

Filed March 7, 1967, Ser. No. 621,174
Int. Cl. A61b *05/10*
U.S. Cl. 128—2 R **24 Claims**

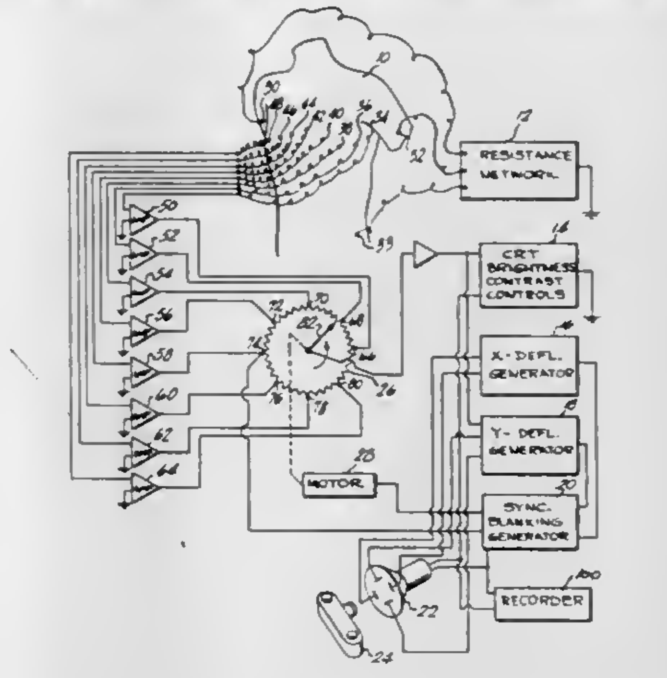


The particular embodiment of the invention disclosed herein is specifically designed to produce a soft resilient plastic impression of the interior configuration of a body cavity, the invention having special utility for the purpose of medical diagnosis for exploring the lower portion of the large intestine. For this purpose, the invention provides a catheter for insertion into the body cavity in combination with a disposable cartridge containing isolated ingredients of a fast curing polymer, the cartridge being adapted for rapid preparatory intermixture of the ingredients and immediate extrusion of the mixture to and through the catheter.

3,707,147
MEANS AND METHOD FOR PICTORIAL PRESENTATION OF PHYSIOLOGICAL SIGNALS WHICH VARY WITH TIME AND POSITION

Ernest E. Sellers, 2105 Copley Avenue, Ann Arbor, Mich.
Continuation-in-part of Ser. No. 634,960, May 1, 1967, abandoned. This application Aug. 13, 1970, Ser. No. 63,394
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 G **17 Claims**

A method and apparatus are disclosed for recording and displaying in a single picture the value of a signal, such as an electrocardial voltage, which varies as a function of time and position on a body. The display may be formed on an oscilloscope and is like a television picture in that an entire area is filled with information and each point in the area and the overall pattern are meaningful. The display shows signal value as a function of time along one axis and shows signal value as a function of position along another axis. The beam of the cathode ray tube is deflected through multiple sweeps along one axis while deflecting it through a single sweep along the other axis with traces which effectively fill the area bounded by the axes. The deflection along the respective axes are correlated with time and position on the body and the beam is continuously modulated in accordance with the amplitude of the signal. Preferably, the beam is deflected with multiple traces along the position axis and the signal is measured at discrete positions. The value of the signal at intermediate positions is derived by interpolation and the modulation is preferably accomplished by intensity modulation of the beam to achieve various shades of grayness.



3,707,148
IMPREGNATED DIAPER

Douglas Maxwell Bryce, Long Eaton, England, assignor to Boots Pure Drug Company Limited, Nottingham, England

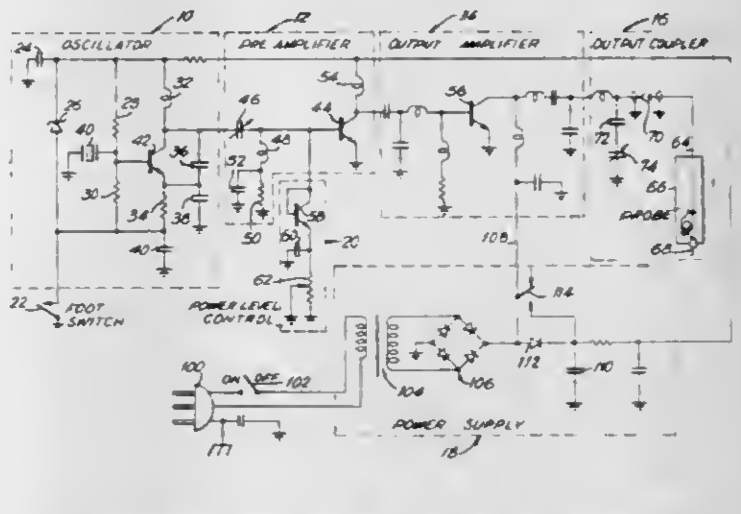
Filed June 1, 1970, Ser. No. 42,522
Claims priority, application Great Britain, June 5, 1969, 28,480/69
Int. Cl. A61f *13/16*
U.S. Cl. 128—284 **13 Claims**

Ammonia absorbing products are described which comprise a non-volatile ammonia absorbing agent having a pK value of between 1.8 and 4.5. The agent may be carried in or on a sheet carrier or it may be included in a water permeable sachet. The products are of use as, or as part of, infants' napkins.

3,707,149
ELECTROSURGERY UNIT AND INSTRUMENT

Shya Hao, Monsey; Alvin M. Chasen, and Alan M. Miller, both of Spring Valley, all of N.Y., assignors to Majesco, Inc., New York, N.Y.

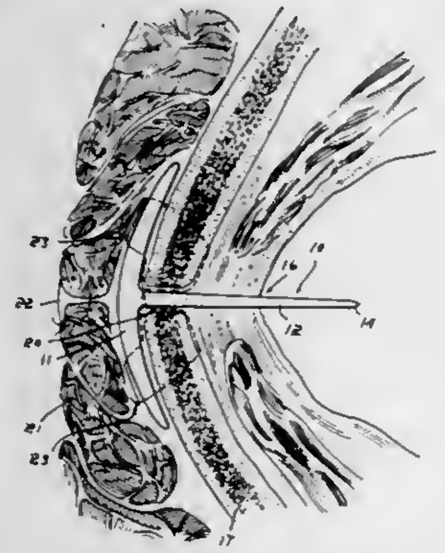
Filed Oct. 16, 1970, Ser. No. 81,431
Int. Cl. A61b *17/36*
U.S. Cl. 128—303.14 **10 Claims**



An electrosurgery unit for carrying out various medical or dental operations. An oscillator of the unit provides an output signal of a given high frequency, and this signal is received by a pre-amplifier which provides an amplified signal. An output amplifier receives the latter signal and provides a given output, while an output coupler connects the output of the output amplifier to a high-impedence load which in the case of dental surgery may be the gums which are treated. A power supply is provided for supplying voltage to the oscillator, pre-amplifier and output amplifier. For coagulating operations the unit provides a fully modulated high frequency signal. For cutting operations, the unit provides a ripple-free constant amplitude high frequency output. A selecting switch is provided for selecting between the operations.

3,707,150
LARYNGEAL KEEL

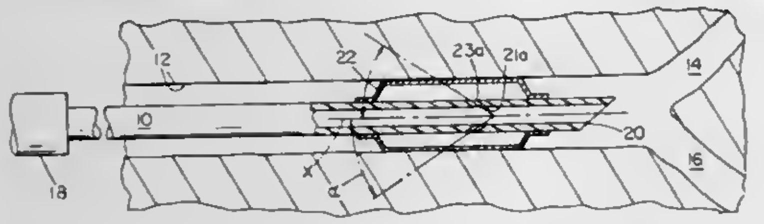
William W. Montgomery, 3 Wachusett Road, Wellesley, Mass., and Eugene B. Hood, 211 Vine Street, Duxbury, Mass.
Filed Nov. 5, 1970, Ser. No. 87,094
Int. Cl. A61b *17/04*
U.S. Cl. 128—334 R **6 Claims**



A laryngeal keel is disclosed that is effective in preventing the recurrence of anterior glottic stenosis after surgical correction thereof. The keel is molded from silicone rubber and includes a flexible extralaryngeal portion and a flexible keel portion dimensioned to extend through the anterior commisure and sufficiently thin to ensure that said commisure is sharp and that the thyroid laminae can be closely approximated. The extralaryngeal portion is dimensioned to umbrella the area of the anterior commisure to prevent the escape of laryngeal secretions by way of the thyrotomy and to be sutured securely to the thyroid laminae. The flexibility of the umbrella portion minimizes asynchronous motion between the keel and the vocal cords. These factors, together with the inertness of the silicone rubber ensure re-epithelialization of the incised tissue in engagement therewith.

3,707,151
SELF-INFLATING ENDOTRACHEAL TUBE

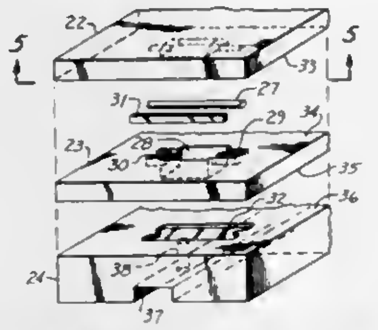
Richard Robert Jackson, 8 Trinity Road, Marblehead, Mass.
Continuation-in-part of Ser. Nos. 427,601, Jan. 25, 1965, abandoned, and Ser. No. 719,994, April 9, 1968, Pat. No. 3,565,079. This application Feb. 16, 1971, Ser. No. 115,249
Int. Cl. A61m *25/00*
U.S. Cl. 128—351 **2 Claims**



Endotracheal tubes with cuffs that self-inflate during inspiration and remain inflated during expiration, in which the Coanda effect is employed to lead air into the cuff for inflation. Shown is a tube having an opening through its wall into the cuff volume with a surface arranged to lead air into the cuff during inspiration, and a check valve to prevent outward flow of air. Also shown is a cuff having openings arranged to lead air into the cuff during expiration. The cuffs shown are substantially larger than the trachea and are of thin film material.

3,707,152
METHOD OF CASTING PARTS HAVING DIMENSIONALLY CRITICAL APERTURES

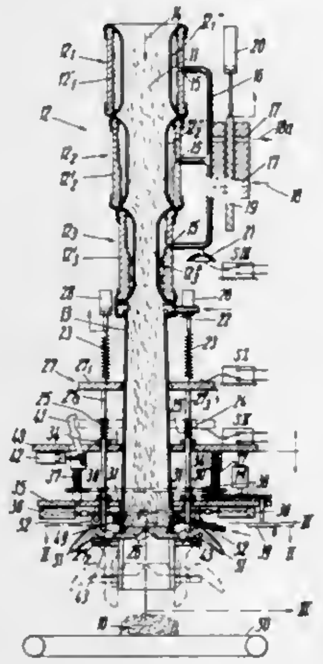
George R. Arnold, and Raymond S. Rosiello, both of Glendora, Calif., assignors to Ormco Corporation, Glendora, Calif.
Filed Jan. 18, 1971, Ser. No. 107,032
Int. Cl. B22c *7/02*
U.S. Cl. 164—45 **5 Claims**



A process for making a product having a dimensionally critical aperture extending therethrough comprises placing a sized elongated pin in a predetermined position through a mold cavity. A body is cast in the mold cavity for use in a lost-wax process. The body is then reproduced in metal by the lost-wax process. The pin is carried along with the cast body so that the body constructed in metal bears the pin at the location of the intended aperture. The pin is thereafter dissolved from the metal body.

3,707,153
METHOD AND APPARATUS FOR SEGREGATING STRANDS OF TOBACCO

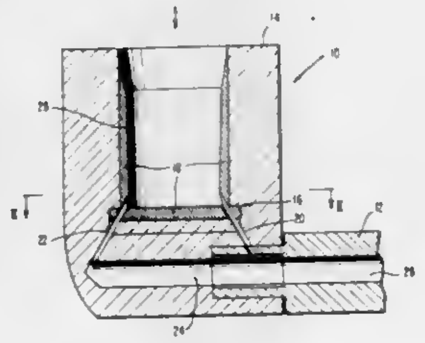
Konrad Brunhorn, and Heinz Groschel, both of Bremen, Germany, assignors to Martin Brinkmann Aktiengesellschaft, Bremen, Germany
Filed Dec. 4, 1970, Ser. No. 95,269
Claims priority, application Germany, Dec. 6, 1969, P 19 61 407.4
Int. Cl. A24b *07/14*; **A24c** *01/02*
U.S. Cl. 131—22 A **13 Claims**



The method and apparatus for segregating equally weighted portions of tobacco utilizes a feeder channel having a number of variable cross section portions. Pneumatic pressure varies the cross-sectional area of the channel in accordance with the desired degree of condensing of the tobacco strand. A lower channel member is fed compressed air to assist the movement and axial compressing of the tobacco into a final portioning chamber. Converging knife blades effectively remove the desired portion of tobacco to provide the equally weighted increments. Feed measuring springs are utilized to insure control of the weighted tobacco increments.

3,707,154
TOBACCO PIPE BOWL

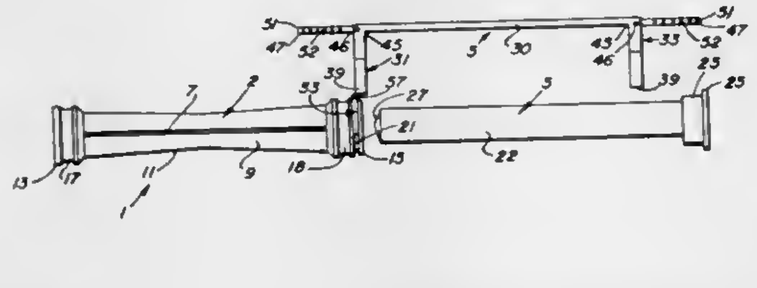
Friedel Recht, No. 7 Fassbenderkaul, Cologne, Arnoldshohe, Germany
Continuation-in-part of Ser. No. 841,839, July 15, 1969, abandoned. This application July 16, 1971, Ser. No. 163,307
Claims priority, application Germany, July 16, 1968, P 17 82 072.3
Int. Cl. A24f *01/18*
U.S. Cl. 131—216 **6 Claims**



A tobacco pipe bowl includes a tobacco receiving and smoking chamber and a smoke duct located in the bowl below the chamber. Two inclined bores connect the chamber with the ends of the smoke duct below the side wall portions of the chamber. A coating of cement which becomes fire proof and scratch resistant with the application of heat is applied to the side wall and bottom of the tobacco receiving chamber and is held into the chamber by an undercut shoulder below the chamber. The upper ends of the bores open into the chamber through the cement coat on the side wall portions adjacent to and above the bottom of the chamber.

3,707,155
EXPANDABLE HAIR CURLER

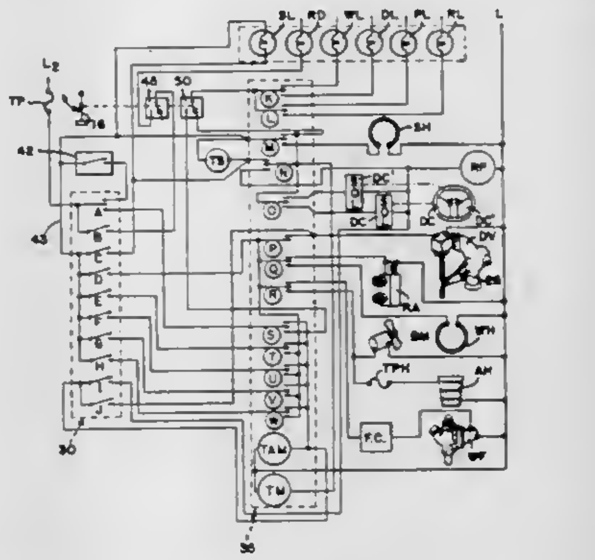
Alfred A. Lemberg, 9821 Lorelei Drive, Cincinnati, Ohio
Filed Jan. 24, 1972, Ser. No. 219,969
Int. Cl. A45d *2/00*
U.S. Cl. 132—40 **6 Claims**



Disclosed herein is an expandable and contractable hair curler.

3,707,156
DISHWASHING MACHINE WITH AUTOMATIC INDICATING SIGNALS

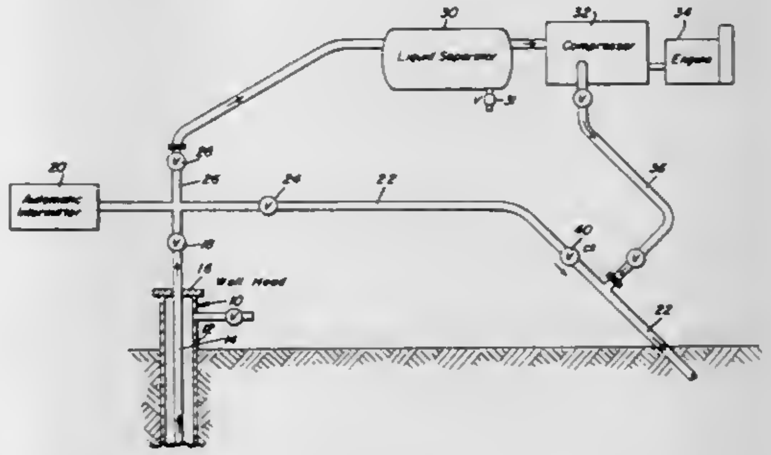
Stuart E. Athey, Troy, and Paul B. Giger, Piqua, both of Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio
Filed July 21, 1971, Ser. No. 164,586
Int. Cl. B08b *3/02*
U.S. Cl. 134—57 DL **7 Claims**



A dishwashing machine has a series of push button switches for selecting various program cycles which include a rinse-only cycle and a normal or full cycle having successive detergent wash, fresh water rinse and forced air drying periods. A light signal is energized if the rinse-only cycle is selected and the door latch is actuated during or after the completion of that cycle, to indicate to the operator that the rinse-only cycle was the last cycle to be run on the machine. The machine also includes a series of lights for successively indicating the corresponding operational periods of each cycle. When each light is energized, it remains energized when the machine is interrupted before the end of a cycle by actuating the door latch, to remind the operator that the cycle is not completed.

3,707,157
NATURAL GAS SAVER WITH SEPARATOR AND COMPRESSOR

Damon F. Tipton, P.O. Box 675, Aztec, N. Mex., and Lonnie R. Jeffers, 1900 Wagner, Farmington, N. Mex.
Filed Aug. 4, 1971, Ser. No. 168,841
Int. Cl. E21h *43/00*
U.S. Cl. 137—14 **5 Claims**



A gas pressure relieving system including a liquid separator and compressor provided to permit separation of liquid components from natural gas and return of the natural gas to a distribution system at an appropriate pressure. The system avoids the pollution normally effected by burn-off at a well head and at the same time provides for recovery of liquid gas for later processing.

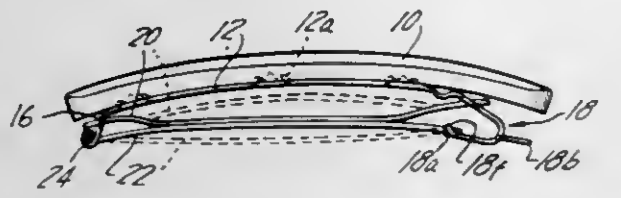
3,707,158
BARRETTES

Jacob Goodmao, New York, N.Y., assignor to H. Goodman & Sons, Inc., Kearny, N.J.

Continuation-in-part of Ser. No. 742,336, July 3, 1968, abandoned. This application Feb. 22, 1971, Ser. No. 117,460

Int. Cl. A45d *8/24*

U.S. Cl. 132—48 R **10 Claims**



A popular type of barrette is described having a rigid bar, a tongue generally parallel to the bar, and a resilient strip between the bar and the tongue for gripping a lock of hair. There is a latch in the form of a resilient member upstanding from the bar having a latching top over the end of the tongue when in use. A finger-piece extends from the latching tip lengthwise away from the tongue. Squeezing the finger-piece toward the bar swings the latching tip in an arc approximately at right angles to the squeezing force, releasing the latched end of the tongue.

ERRATUM

For Class 137—14 see:
Patent No. 3,707,157

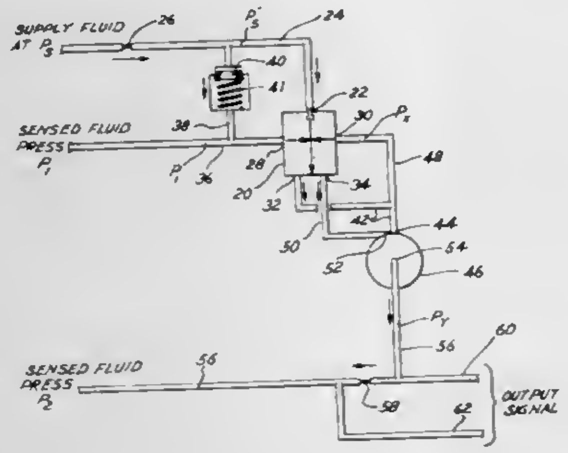
3,707,159
FLUID PRESSURE RATION SENSING DEVICE

James M. Eastman, South Bend, Ind., assignor to The Bendix Corporation

Filed March 24, 1971, Ser. No. 127,685

Int. Cl. F15c *1/12*

U.S. Cl. 137—81.5 **8 Claims**



A pressure ratio sensing device for generating an output fluid pressure differential signal in proportion to the ratio of two sensed fluid pressures. The output differential signal is derived from a pressurized supply fluid which flows subsonically through a first restriction, a second restriction defining a power jet for a dual output proportional acting fluidic amplifier having opposed control fluid ports, a vortex amplifier having a radial supply port and a tangential control port, and a third restriction to the lower of the two sensed fluid pressures. The fluid pressure intermediate the first and second restrictions is controlled to maintain the same in excess of the higher of the two sensed fluid pressures. The higher of the two sensed pressures is applied to one of the opposed control fluid ports of the proportional amplifier to bias the power jet thereof toward one of the dual outputs which, in turn, is vented to the tangential port of the vortex amplifier. The remaining of the dual outputs is vented to the radial supply port of the vortex amplifier as well as to the second of the control ports of the proportional amplifier. The pressure drop across the third restriction provides the output pressure differential signal which varies in proportion to the ratio of the sensed two fluid pressures. The effective flow area of the third restriction is such that the pressure differential thereacross does not exceed the expected minimum pressure of the lower of the two sensed fluid pressures.

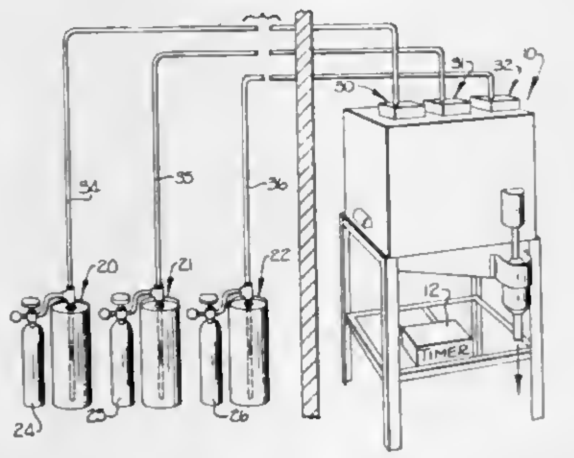
3,707,160
REMOTE STORAGE ARRANGEMENT FOR DISHWASHING TREATING AGENT

Grady W. Query, 1725 Mist Hill Road, Matthews, N.C.

Filed Feb. 1, 1971, Ser. No. 111,304

Int. Cl. B08b *3/00*

U.S. Cl. 137—209 **3 Claims**



Chemically active, liquid treatment agents are dispensed to a dishwashing apparatus which circulates liquid to cleanse soiled dishes from an intermediate reservoir at the dishwashing apparatus, with the intermediate reservoir being supplied with liquid treating agent by the combination of a remote storage reservoir, a flow motivating apparatus, and apparatus for controlling the flow of liquid treating agent between the reservoirs.

ERRATUM

For Class 137—81 see:
Patent No. 3,707,440

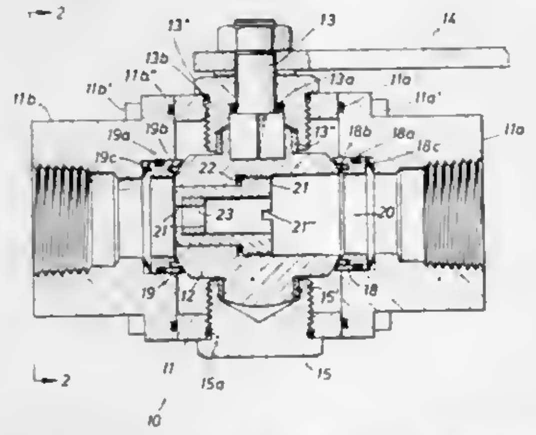
3,707,161
VARIABLE CHOKE VALVE

Douglas W. Crawford, P.O. Box 7471, Houston, Tex.

Filed Sept. 23, 1970, Ser. No. 74,621

Int. Cl. F16k *47/10*

U.S. Cl. 137—269 **7 Claims**



A valve of the type having a rotatable closure member with a flow passage which may be moved into and out of communication with flow passages in the valve housing to respectively permit and terminate flow through the housing is provided with removable housing segments whereby direct access to the passage in the closure member is possible through the housing wall when the closure member is rotated out of communication with the housing flow passage. The closure member passage is adapted to carry removable inserts to permit variation in flow passage or choke size. Exchange of inserts is made possible even while the valved fluid is under pressure.

In a modified form, a mechanism is provided for variation of choke size in the closure member without the need for removal of a portion of the housing wall to permit adjustment of choke size in the closure member while fluid is flowing through the valve. The mechanism is removable from the valve housing when the valve is in the off position.

3,707,162
LOGIC CONTROL VALVE

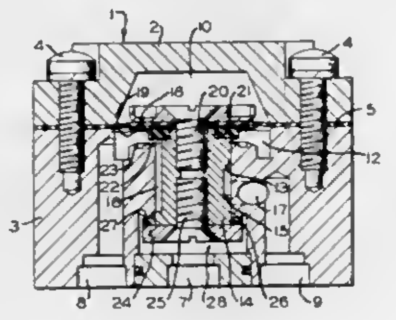
Wilhelm Bachmann, Godshorn, Germany, assignor to Westinghouse Bremsen-und Apparatebau, GmbH, Hannover, Germany

Filed April 8, 1971, Ser. No. 132,383

Claims priority, application Germany, April 23, 1970, P 20 19 650.3

Int. Cl. F16k *11/02*

U.S. Cl. 137—269 **9 Claims**



A fluid logic valve device of the type having a fluid pressure supply port, an exhaust port, and an operating diaphragm member selectively subjectable to a control pressure, whereby the valve device may be employed wither as an AND device or as a NOT device by interchanging the fluid pressure supply and exhaust connections relative to said ports, and wherein the improvement comprises a pair of coplanar, concentrically arranged annular valve seats of different diameters and with which respective interchangeable valve elements are used to provide a high ratio of control pressure area to supply pressure area, for both the AND and NOT functions, and therefore insure positive, quick action of the device.

3,707,163
CONTROL VALVE BLOCK FOR GASEOUS OR LIQUID FLUID MEDIA FOR UNIVERSAL APPLICATION

Klaus Hugler, Esslingen, Germany, assignor to Firma Robert Klinger Kunststoff-Spritzgusswerk, Aspergien Uber Schorndorf, Germany

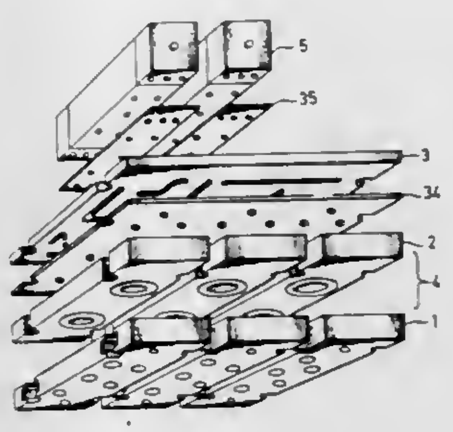
Filed June 30, 1971, Ser. No. 158,499

Claims priority, application Germany, July 8, 1970, P 20 33 736.4

Int. Cl. F15c *1/06*

U.S. Cl. 137—271 **16 Claims**

To provide for universal programming of the ducting in hydraulic or gaseous valves, particularly for servo application, a plurality of superimposed elements are secured together; one of the elements forms a distribution unit with fluid connections therein, which, itself, may be composed of a pair of plates, one having valve openings and cylinder spaces formed therein and the other having valve units matching the cylinder spaces; a selectively replaceable programming plate, having ducts formed therein in accordance with a hydraulic connection program is secured to the distribution unit; the programming plate can be connected to one or more control valves, the alignment of the ducts in the control plate with the piston and cylinder openings in the distribution unit and in the control valves, as well as with selected power output valves being readily determinable and changeable, so that a universally applicable hydraulic unit can be constructed utilizing basic distribution unit components in which the programming plate, only, need to be changed to change the fluid circuit.



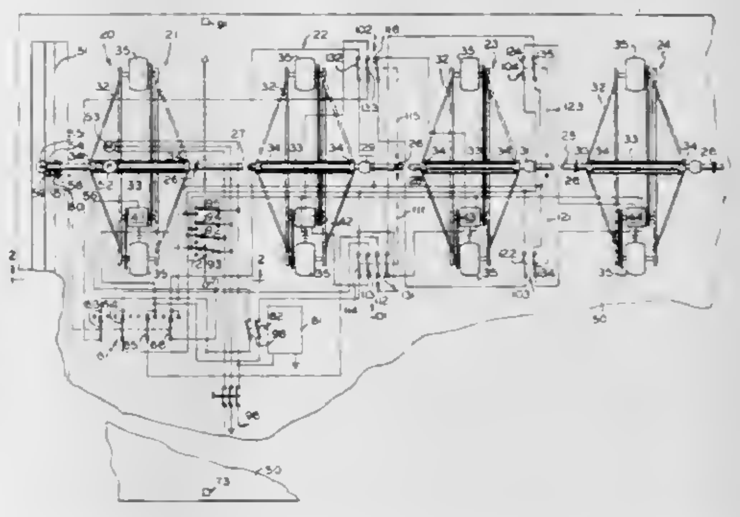
3,707,164
LINE MOVE

Victor G. Clemons, 10716 Cruser Drive, Boise, Idaho

Filed June 24, 1970, Ser. No. 49,464

Int. Cl. B05b *9/02;* **E01b** *3/02*

U.S. Cl. 137—344 **20 Claims**

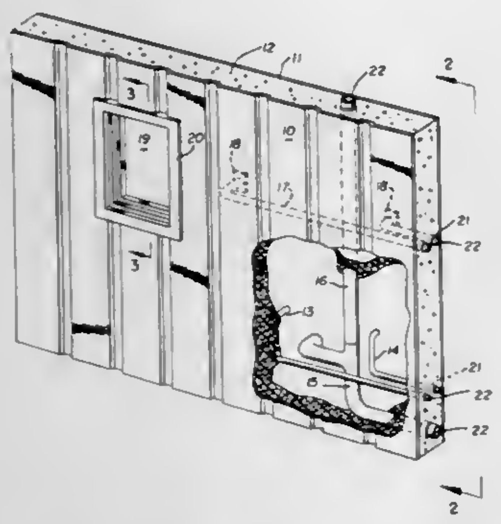


In one embodiment, individually powered tractors carrying a pipe are individually stopped to cause the other still traveling tractors to swing the line toward a baseline in case of excess tension on the pipe or to swing the line away from the baseline in case of excess compression on the pipe, thereby eliminating drift of the line. In another embodiment, a first tractor is guided along a baseline ditch and wheels of other tractors helping to carry a pipe are turned somewhat toward the baseline in case of tension and are turned outwardly from the baseline in case of compression, the line being swingable about the first tractor at each end of the baseline so as to travel along one side of a field, around an end portion of the field back along the other side of the field and around the other end portion of the field. Tension and compression of the pipe may be detected by feeler structure movable along a ditch forming the baseline or by feelers on loose ball-and-socket joints, mechanically connecting sections of the pipe together.

3,707,165

PLASTIC PLUMBING WALL

Joel S. Stahl, 746 Golfview, Youngstown, Ohio
Filed Aug. 10, 1970, Ser. No. 62,586
Int. Cl. E04f *17/08*
U.S. Cl. 137—594 3 Claims

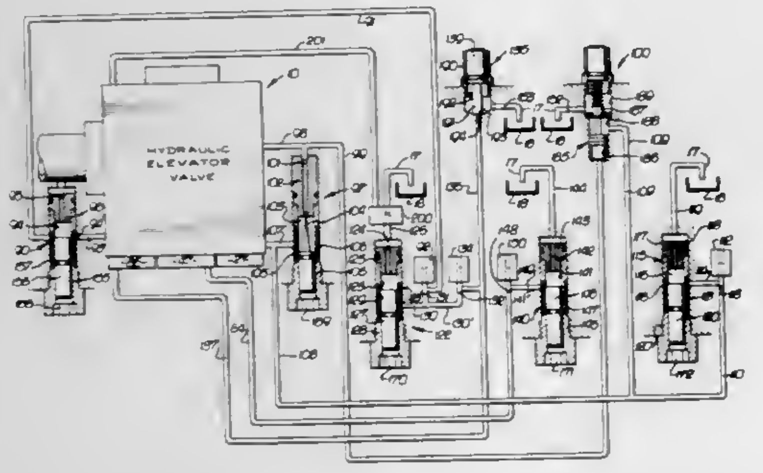


A wall unit having integrally formed surface panels and a foam core encloses supports and positions hot and cold water pipes and drain and vent piping along with electrical wiring. Window and door openings in said panel are defined by thin lightweight frames. The wall unit comprising a bearing wall dependent upon a rigid foam core with plastic facings.

3,707,166

UNIT VALVE FOR HYDRAULIC ELEVATOR CONTROL

William Anthony Perry Lawrence, Santa Susana, and James Arthur Mills, Sunland, both of Calif., assignors to Elevator Equipment Company, Los Angeles, Calif.
Filed May 12, 1971, Ser. No. 142,639
Int. Cl. F16k *11/10*
U.S. Cl. 137—596.16 21 Claims

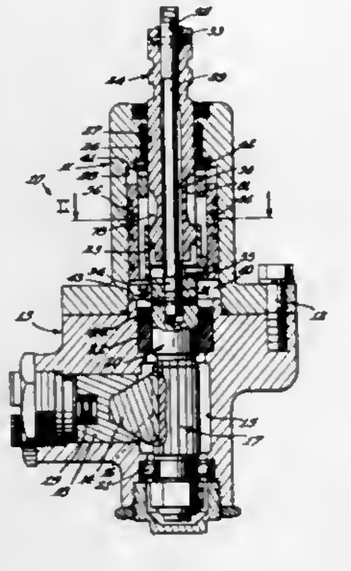


A unit valve assembly for operation of a hydraulic elevator including three separate valve devices for performing four valve functions, for controlling up bypassing, main down, down leveling and checking are all being made part of a single housing. Controls respectively for up acceleration, up transition, up level, down full speed, down leveling and stop are also mounted on the housing in position, such that adjustments for all said valve devices and controls are located for ready accessability on one side of the housing. A special up level valve having a progressively graduated orifice control is hydraulically actuated to improve the smoothness of up leveling of the elevator.

3,707,167

HYDRAULIC CONTROLLER INCLUDING ROTARY VALVE

John B. Colletti, Grosse Pointe Park, Mich., assignor to TRW Inc., Cleveland, Ohio
Filed June 25, 1970, Ser. No. 49,708
Int. Cl. F15b *9/10*; F16k *11/12*
U.S. Cl. 137—625.24 4 Claims

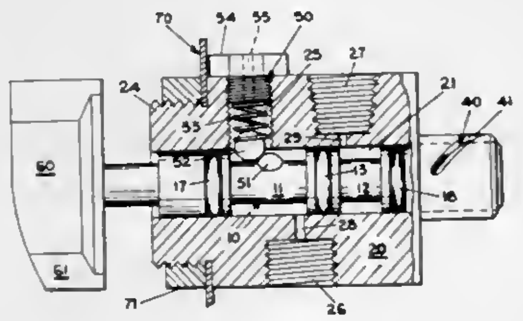


A hydraulic controller, for power assist steering or the like systems, which controls the flow of pressurized fluid between a main power fluid pump and a servomotor such as a hydraulic cylinder. The controller includes a rotary valve assembly which confines the fluid within the controller to a valve chamber, enabling the controller to be utilized in remote or integral power steering applications such as rack and pinion gear system without admixing the lighter servomotor operating oil from the heavier gear lubricating oil.

3,707,168

ROTARY SPOOL VALVE

Wallace G. Boelkins, Grand Rapids, Mich., assignor to Uni-Mist, Inc., Grand Rapids, Mich.
Filed Sept. 30, 1970, Ser. No. 76,695
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.48 6 Claims

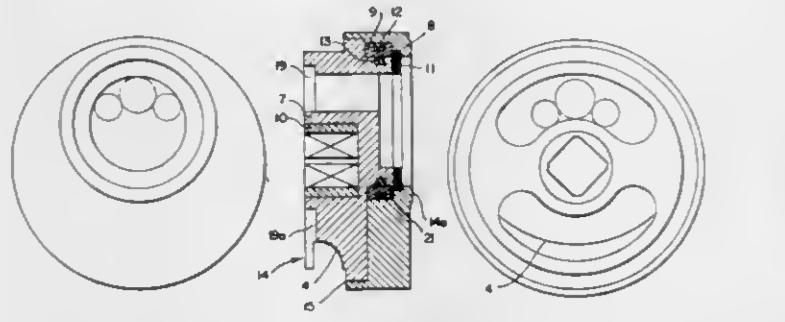


The specification discloses a spool valve including a spool mounted within a passage within a valve body. The spool can be rotated by means of a knob and includes a pin extending into a helical slot in the valve body such that rotation of the spool results in its axial movement to thereby control the flow of fluid between various lateral passages extending through the valve body and communicating with the passage therethrough. A spring-biased ball held by the valve body rides across a camming surface on the spool to provide a detent for spool movement and to bias the spool towards either one or the other of its possible positions.

3,707,169

HYDROSTATICALLY BALANCED PLATE VALVE WITH LOW FLOW RESISTANCE

Ingo Friedrichs, Bad Oeynhausen, Germany, assignor to Eisenwerk Wererhutte A.G., Bad Oeynhausen, Germany
Filed March 31, 1971, Ser. No. 90,180
Claims priority, application Germany, Oct. 6, 1969, P 19 50 253.5
Int. Cl. F01l *33/02*
U.S. Cl. 137—625.21 9 Claims

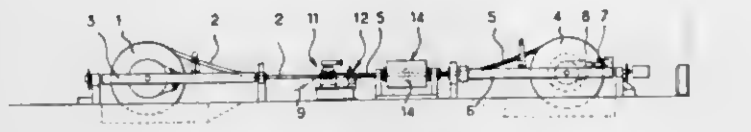


The invention relates to a valve having low flow resistance. The valve is hydrostatically balanced with a pressure field located eccentrically opposite a kidney-shaped control slot in a valve disc.

3,707,170

METHOD OF MAKING A TUBULAR MEMBER BY HELICALLY COILING A METALLIC STRIP, TUBULAR MEMBER PRODUCED BY THIS METHOD AND DEVICE FOR CARRYING OUT THIS METHOD

Rene A. Mazuir, and Daniel E. Hoffmann, both of Bourg-en-Bresse, France, assignors to Societe Anonyme Des Hauts Fourneaux De La Chiers, Longwy-Bas, France
Filed July 6, 1970, Ser. No. 52,295
Claims priority, application France, July 10, 1969, 6923531
Int. Cl. F16l *9/16*; B21c *37/12*
U.S. Cl. 138—154 13 Claims



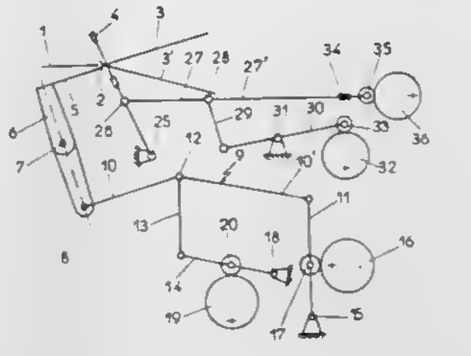
A strip having hooked edges is laterally curved and coiled into a spiral in which the hooked edges of adjacent coils overlap. Just before the coils are overlapped the strip is formed into a helix the turns of which slant in a direction opposite to that of the turns of the helix finally formed so that when adjacent turns are forced into engagement with each other adjacent turns are resiliently biassed toward each other. The invention includes apparatus adapted to carry out this method and the tubular member produced thereby.

3,707,171

NEEDLE LOOM FOR PILE FABRICS

Jakob Muller, 5262 Frick, Switzerland
Filed June 8, 1971, Ser. No. 151,092
Claims priority, application Austria, June 9, 1970, 5162/70
Int. Cl. D03d *39/22*
U.S. Cl. 139—25 10 Claims

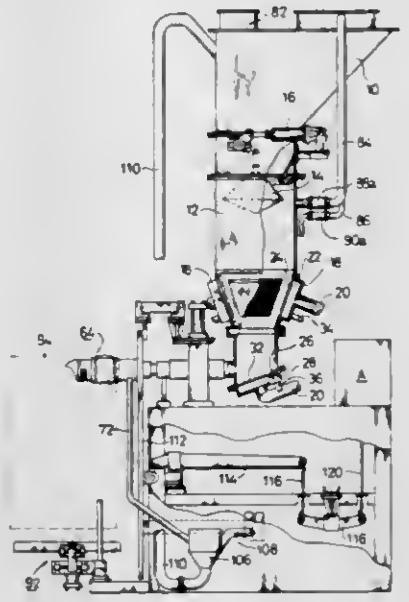
The tying needle of a needle loom producing a pile fabric by beating into the fell of the fabric groups of weft threads inserted into warp sheds including tight warp threads and loose pile warp threads, is reciprocated conforming to reciprocating movements of the reed. A stripper for the tying needle is operated in the same manner, and an arresting needle is provided for holding the first inserted weft thread of a group, releasing the same before the reed beats the group of weft threads into the fell of the fabric.



3,707,172

AUTOMATIC APPARATUS FOR PACKAGING POWDERED MATERIAL WITH UNIFORM BAG WEIGHT AND WITH DUST-FREE OPERATION

Kaisuji Obara, No. 2233-42, Minami Tsunashima-cho, Kohoku-ku, Yokohama, Japan
Filed Jan. 25, 1971, Ser. No. 109,299
Int. Cl. B65b *31/02*
U.S. Cl. 141—59 14 Claims



An automatic packaging apparatus for powdered material comprising a hopper for containing such material, a chamber disposed beneath said hopper and a housing arranged beneath the bottom of said chamber. Air inlet means are provided for admitting air into the chamber and the housing for fluidizing the material delivered thereto. The housing is provided with clog inhibiting means for urging the fluidized material through and out of said housing. Flow control means is connected to feed pipe means for controlling the rate of flow of the material through said feed pipe means, said filling means is associated with the flow control means for discharging the material into a bag, the filling means being provided with a flexible sleeve for assisting smooth flow of the material. Automatic weighing means is operatively connected to the flow control means to selectively regulate material flow according to bag weight whereby a plurality of bags may be filled to a uniform weight, and a bag seat means is arranged independent of the weighing means for urging the delivery of the bag from the apparatus. The dust in said chamber and at said filling means is recirculated back into the hopper.

3,707,173

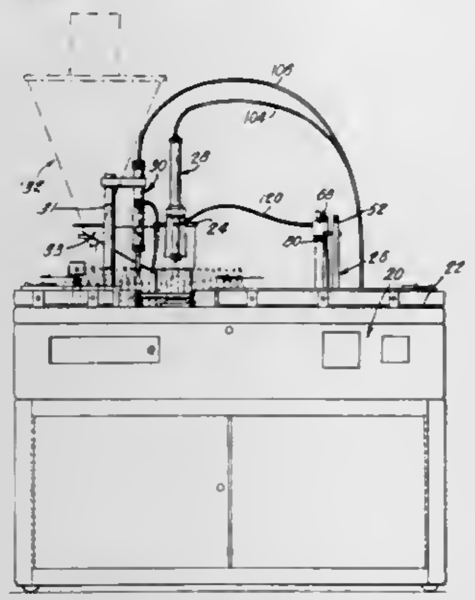
APPARATUS FOR FILLING CONTAINERS

Roy D. Lewis, Montreal, Quebec, Canada, assignor to G. Diehl Mateer Co., Strafford, Pa.

Division of Ser. No. 823,348, May 9, 1969, abandoned. This application Dec. 30, 1970, Ser. No. 102,856

Int. Cl. B65b *1/04, 3/04*

U.S. Cl. 141—104 **5 Claims**



A machine for automatically filling containers such an ampoules and the like having a circular indexing table for moving the containers through a filling station. A liquid filling device having a discharge nozzle, an adjustable volume metering chamber and a valve controlling the filling of the chamber and the discharging of the liquid to the container through the nozzle. A powder filling device having a reservoir and a nozzle, the powder filling device and the liquid filling nozzle being rotatably mounted for alternative use at the filling station.

3,707,174

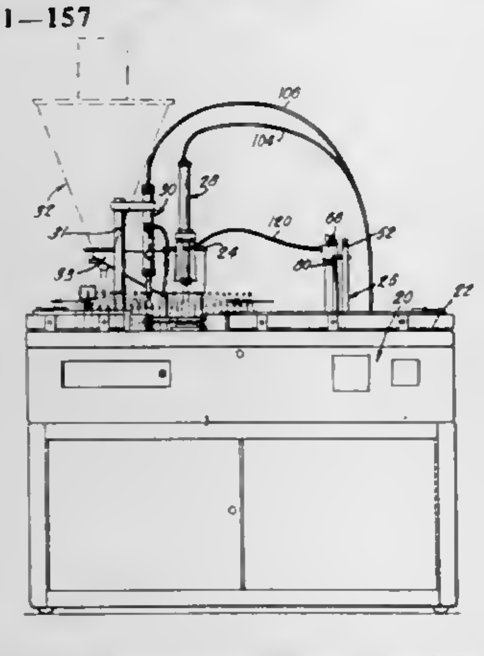
APPARATUS FOR FILLING CONTAINERS

Roy D. Lewis, Montreal, Quebec, Canada, assignor to G. Diehl Mateer Co., Strafford, Pa.

Division of Ser. No. 823,348, May 9, 1969, abandoned. This application Dec. 30, 1970, Ser. No. 102,858

Int. Cl. B65l *43/42*

U.S. Cl. 141—157 **7 Claims**



A machine for automatically filling containers such as ampoules and the like having a circular indexing table for moving the containers through a filling station. A liquid filling device having a discharge nozzle, an adjustable volume metering chamber and a valve controlling the filling of the chamber and the discharging of the liquid to the container through the nozzle. A powder filling device having a reservoir and a nozzle, the powder filling device and the liquid filling nozzle being rotatably mounted for alternative use at the filling station.

3,707,175

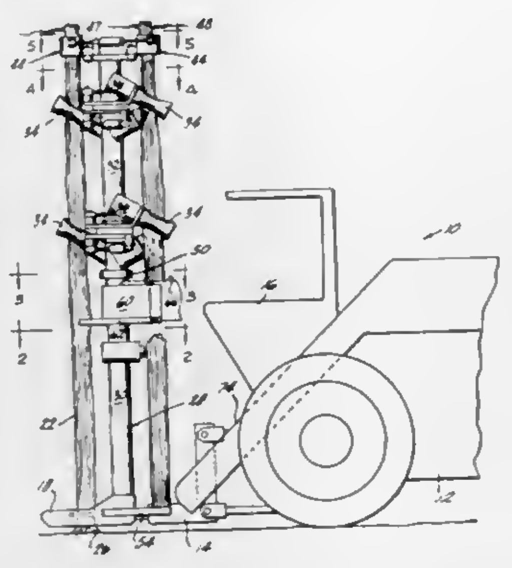
METHOD AND APPARATUS FOR HARVESTING TREES

Robert L. Propst, 2347 Londonderry Avenue, Ann Arbor, Mich.

Filed July 20, 1970, Ser. No. 56,583

Int. Cl. A01g *23/02*

U.S. Cl. 144—309 AC **10 Claims**



The method and apparatus for harvesting trees wherein a tree to be harvested is gripped, severed from its base, and then rotated about a substantially vertical axis spaced from the tree to a processing position. The vehicle on which the apparatus is mounted includes gripping and feeding rollers which feed the tree downwardly in the processing position of the tree while the vehicle is moving toward another tree to be harvested. During downward movement of the tree, it is cut into log lengths by cooperating rotatable blades and the log lengths are then moved to stored positions on the vehicle. By virtue of the location of the tree processing apparatus at a position spaced from the apparatus which initially grips and severs the tree, one tree can be processed while the vehicle is moving toward and severing another tree to be processed.

3,707,176

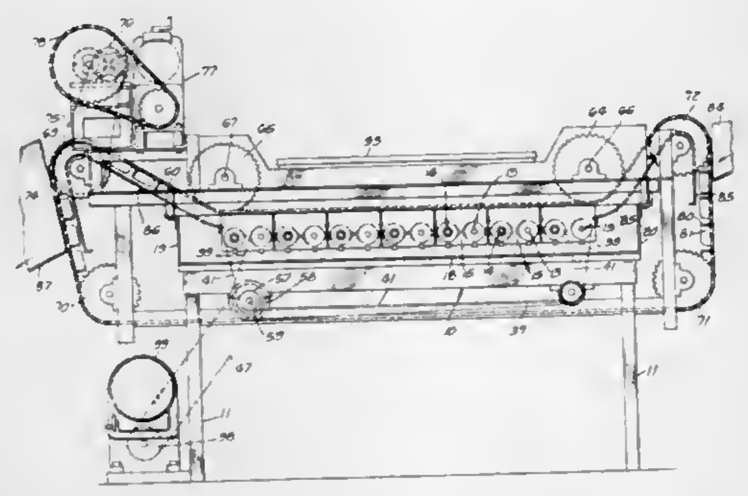
APPARATUS FOR EXTRACTING CITRUS PEEL OIL FROM WHOLE FRUIT

Ronald C. Bushman, Hacienda Heights, Calif., assignor to Brown International Corporation, Covina, Calif.

Filed Dec. 28, 1970, Ser. No. 101,590

Int. Cl. A23n *1/00, 15/02*

U.S. Cl. 83—2 **15 Claims**



A series of pairs of toothed roll assemblies form bights or troughs for reception of whole lemons, and all of the toothed roll assemblies turn in the same direction, every other one turning at higher speed. The higher speed rolls comprise a plurality of discs each having a toothed periphery, the discs being frictionally driven from a supporting shaft. The slower speed rolls comprise toothed discs of the same type but are clamped solidly to rotate with the slower speed shaft. Each of the slower speed rolls includes a plurality of bumper elements spaced along the length of the roll and each having a protuberance extending beyond the periphery of the toothed discs, the protuberances serving to shift the lemons about in the troughs between adjacent rolls and to insure that substantially the entire outer surface of the lemon is exposed to the oil cell puncturing action of the teeth of the discs. The toothed discs are submerged in a pool of water and the puncturing action takes place below the water level to minimize losses in recovery of the oil. A conveyor driven by a Geneva movement advances intermittently to move the lemons from one trough to the next.

3,707,177

TIRE TREAD WITH VARIABLE-WIDTH RECESSES

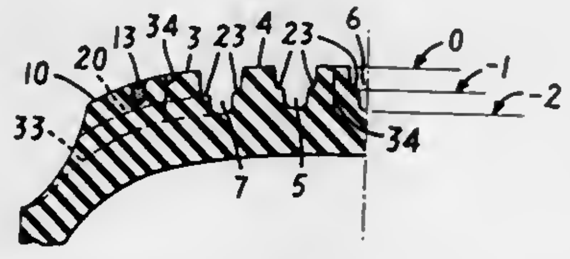
Jacques Boilean, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France

Filed Jan. 19, 1971, Ser. No. 107,650

Claims priority, application France, Jan. 21, 1970, 702204

Int. Cl. B60c *11/06*

U.S. Cl. 152—209 **4 Claims**



A pneumatic tire is provided with a tread whose recessed portions have a width that decreases from the surface of the tread towards the axis of the tire. The recessed portions have a greater variation of width as a function of depth at the edges than in the central part of the tread.

3,707,178

ADHESION OF RAYON TEXTILE TO RUBBER WITH AQUEOUS DISPERSION OF BLOCKED ISOCYANATE OR ISOCYANATE DIMER, RUBBER LATEX AND RESORCINOL-FORMALDEHYDE RESIN

Robert Miller, Wayne, N.J.; Jerry L. Witt, and Mabry L. Tidmore, both of Winnsboro, S.C., assignors to Uniroyal, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 874,961, Nov. 7, 1969, abandoned. This application Oct. 14, 1970, Ser. No. 80,746

Int. Cl. B32b *27/40;* **B60c** *9/10;* **C09j** *3/12*

U.S. Cl. 152—358 **16 Claims**

Rayon or nylon textile material (e.g., tire cord) which fails to develop adequate adhesion to rubber when pre-treated with the conventional aqueous RFL solutioning bath, is re-treated with an RFL solution to which an aqueous slurry of blocked isocyanate or isocyanate dimer has been added. The re-treated textile is dried and laminated to vulcanizable rubber stock. Upon vulcanization of the rubber, the re-treated textile develops satisfactory adhesion.

3,707,179

TIRE REMOVING DEVICE FOR BREAKING THE BEAD OF FARM TRACTOR TIRES TO FACILITATE REMOVAL FROM THE RIM

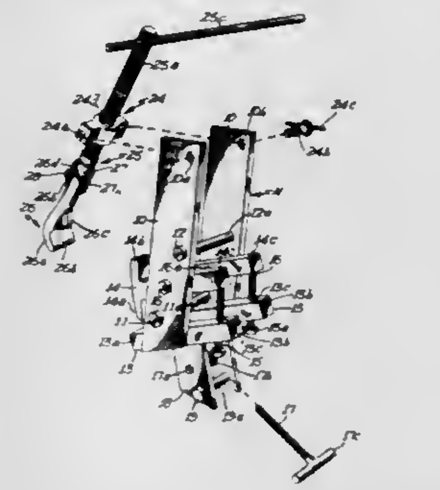
Arvid H. Le Pier, Fosston, Minn., assignor to Howard H. Le Pier, Fosston, Minn., a part interest

Continuation-in-part of Ser. No. 739,284, July 24, 1968, abandoned. This application July 8, 1970, Ser. No. 53,215

Int. Cl. B60c *25/06*

U.S. Cl. 157—1.17 **7 Claims**

A device or apparatus for "breaking" the beads of a farm tractor tire mounted on a conventional drop center rim employs a rigid rectangular mounting structure affixed and supported only from the bead-holding shoulder of one side of the rim. Rigid support is obtained by a novel structure of closely interfitting pairs of jaws spaced apart on the frame. With said mounting and pairs of clamping jaws a second function of the clamping action is obtained by interfitting of wedge-shaped claws to slightly displace the bead from the shoulder during clamping action. With said components an elongate, longitudinal bead-displacer is employed readily mounted on the outermost portions of the frame and centrally thereof for longitudinal projection under high pressure force and having a wedge-like head interposed between the upstanding flange of the bead-holding shoulder and the bead. The head of the displacer provided on its outer surface just above its extremity with a profile cam which in the preferred form of the invention rides upon two rigid cam-track surfaces, one being the peripheral edge of the upturned portion of the rim, is moved substantially laterally by the camming action to completely displace the adjacent bead from its shoulder into the drop center of the rim. Only one cycle of operation is necessary for each side of the tire to break the beads and prepare the entire casing for immediate removal.



ERRATUM

For Class 164—45 see:
Patent No. 3,707,152

3,707,180

METHOD FOR ADVANCING A CONTINUOUSLY CAST INGOT ALONG A CURVED WITHDRAWAL PATH

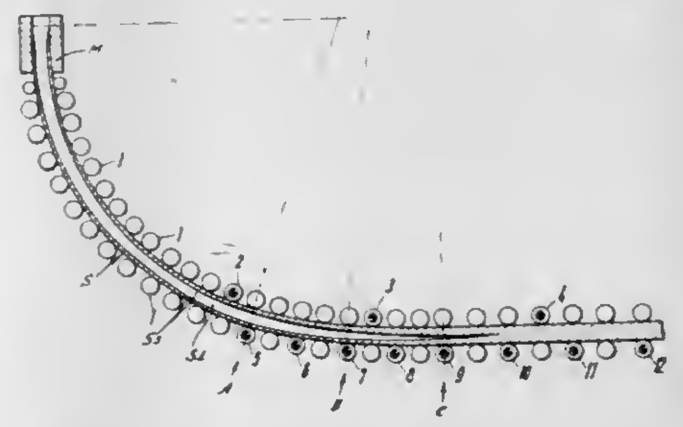
Gerd Vogt, Strump, Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed Jan. 20, 1971, Ser. No. 108,003

Claims priority, application Germany, Jan. 29, 1970, P 20 04 763.6

Int. Cl. P22d *11/12*

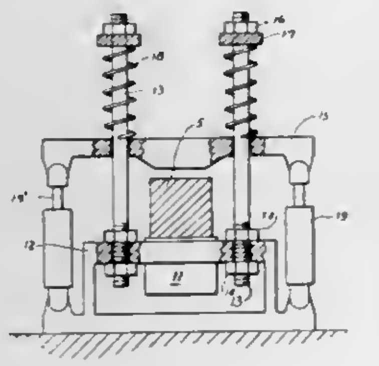
U.S. Cl. 164—82 **5 Claims**



A continuously cast curved ingot is withdrawn from the mold by forces distributed so that one-tenth to one half of the total forces act on the upper side along the inside of the curved withdrawal path, the remaining forces act from below along the outer path.

3,707,181
SAFETY SYSTEM FOR CONTINUOUS CASTING MACHINE

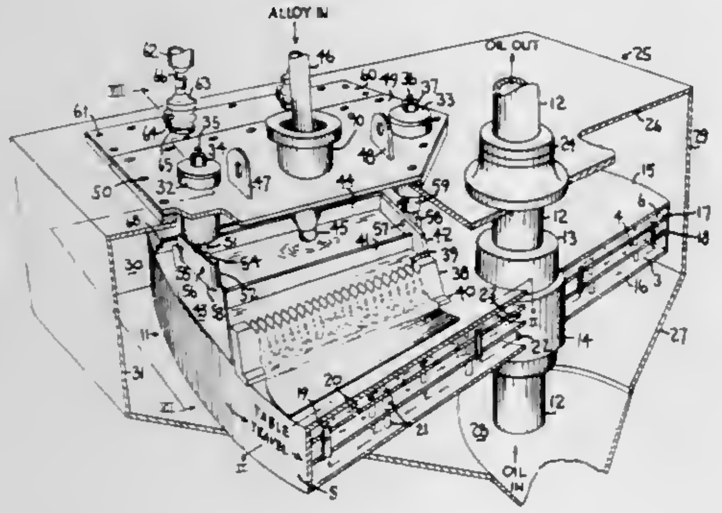
Hans-Dieter Schulz, Duesseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed Oct. 19, 1970, Ser. No. 81,886
Claims priority, application Germany, Oct. 22, 1969, P 19 53 094.0
Int. Cl. B22d *11/08, 11/12*
U.S. Cl. 164—152 **3 Claims**



In a continuous casting machine having a curved strand guide, a flexible dummy bar, at least one driven roll, and a fluid pressure system for causing said driven roll to grip and move the dummy bar, a stopping device is located along the path of the dummy bar which is activated by a pressure drop in the fluid pressure system of the driven roll to grip and stop motion of the dummy bar.

3,707,182
FLAKING APPARATUS

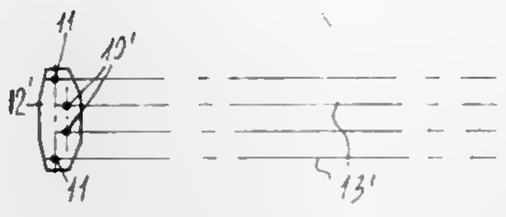
Daniel E. Wiley, Corpus Christi; Harmon A. McDougal, Beaumont, both of Tex., and Allan L. Turner, Denver, Colo., assignors to PPG Industries, Inc., Pittsburgh, Pa.
Division of Ser. No. 883,516, Dec. 9, 1969, Pat. No. 3,642,053. This application July 19, 1971, Ser. No. 163,900
Int. Cl. B22d *11/06*
U.S. Cl. 164—276 **10 Claims**



A rotary table is described for use in producing flakes of solid material from solutions or from molten metal baths. In particular the invention is described with reference to the preparation of sodium-lead alloys. In the specific embodiment molten sodium-lead alloy is deposited on the surface of a rotating flat table. Indirect heat exchange is established between the molten metal and a fluid circulating underneath the table surface. Discharge orifices are provided in a chamber below the table surface at a multiplicity of points across its width. Uniform discharge of heat exchange fluid at all points across the undersurface of the table is accomplished by an equal pressure drop being maintained across all of the orifices.

3,707,183
CONTINUOUS OFFSET LINE CASTING ARRANGEMENT

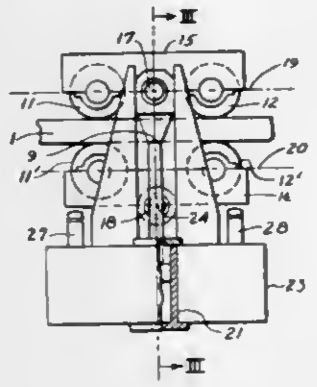
Luigi Danieli, Buttrio (Udine), Italy
Filed Sept. 23, 1970, Ser. No. 74,588
Int. Cl. B22d *11/10*
U.S. Cl. 164—281 **3 Claims**



An arrangement of the vertical casting lines for a continuous casting system, wherein said casting lines in the ingot moulds are arranged offset to one another with the side casting lines moved back to a larger extent than the inner casting lines. By this arrangement of the casting lines, the tundishes have the tundish nozzles arranged according to a substantially curved line with the tundish wall facing the operators being equally spaced apart from the tundish nozzle axes as a close as possible to said tundish nozzles.

3,707,184
WITHDRAWAL AND STRAIGHTENING APPARATUS FOR CONTINUOUS CASTING

Max Burkhardt, Zurich, Switzerland; Horst Huber, Roselle Park, N.J., and Christian Chateau, Saint-Chamond, France, assignors to Concast AG, Zurich, Switzerland and Concast Incorporated, New York, N.Y.
Filed May 20, 1970, Ser. No. 38,977
Claims priority, application Switzerland, May 20, 1969, 7645/69
Int. Cl. B22d *11/12*
U.S. Cl. 164—282 **8 Claims**

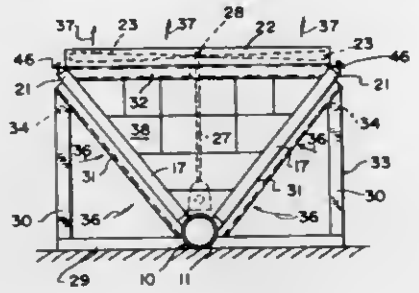


In a withdrawal and straightening apparatus for continuous casting machines, banks of withdrawal and straightening rolls are mounted above and below the casting, the rolls of each bank being mounted in tiltable yokes which adjust themselves to the curvature of the casting and distribute the loads on the rolls. The rolls of the upper bank are adjustable by hydraulic means connected to the yokes to accommodate castings of different thickness.

3,707,185
MODULAR AIR COOLED CONDENSER

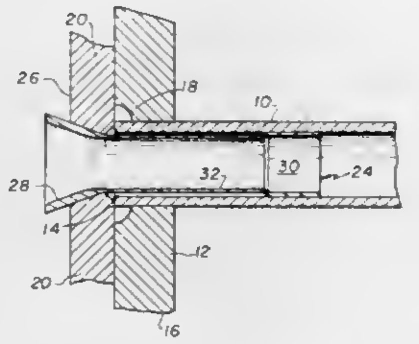
Arthur B. Modine; Homer D. Huggins, and Neal A. Cook, all of Racine, Wis., assignors to Modine Manufacturing Company
Filed March 25, 1971, Ser. No. 128,005
Int. Cl. F28b *3/00*
U.S. Cl. 165—111 **9 Claims**

A modular air cooled condenser apparatus having an elongated tubular manifold serving as a backbone principal support for other elements of the apparatus, a plurality of condenser cores supported on the manifold at an angle to the horizontal to provide gravity drainage back into the manifold, a fan shroud and fan supported between the cores, a motor drive structure mounted on the manifold and connected to the fan and a rigid frame interconnecting the manifold, cores and shroud in a self-supporting module unit joinable at the manifold to other such units to provide any desired condensing capacity. Each modular unit is preferably of a size that can be constructed in the factory and shipped as on a flatcar to its destination so as to require a minimum of erection in the field.



3,707,186
COOLING TUBE FERRULE

Eduardo P. Zorrilla, Houston, Tex., and William P. Long, Chester, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.
Filed Jan. 18, 1971, Ser. No. 107,020
Int. Cl. F28f *19/00*
U.S. Cl. 165—134 **4 Claims**



Erosion due to coke in a heat exchanger which cools hot hydrocarbon gas is reduced. A ferrule is mounted on the inlet end of a cooling tube, the ferrule having a flared inlet end to reduce turbulence and having over most of its length an annular space between the ferrule and the tube to prevent the ferrule from becoming cool enough to induce carbon formation.

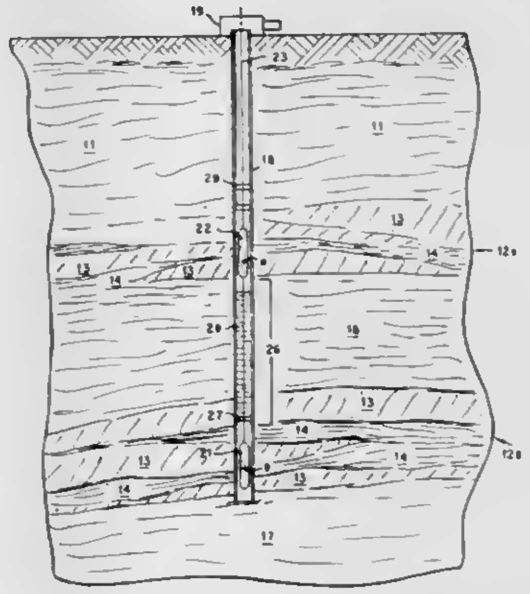
3,707,187
FLOODING METHOD USING SALT-INSENSITIVE POLYMERS FOR BETTER MOBILITY CONTROL

Bruce L. Knight, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio
Filed June 25, 1971, Ser. No. 156,937
Int. Cl. E21b *43/22*
U.S. Cl. 166—246 **10 Claims**

Improved flooding of an oil-bearing subterranean reservoir with an aqueous slug containing a salt-sensitive polymer (example of such a polymer is a partially hydrolyzed, high molecular weight polyacrylamide) and a subsequent drive water which, due to the salt content, tends to degrade the back portion of the aqueous polymer slug, is realized by following the aqueous, salt-sensitive polymer slug with a sufficient volume of an aqueous biopolymer slug to "insulate" the salt-sensitive polymer from the drive water. Drive water having salt concentrations above 1,000 ppm (parts per million) of TDS (total dissolved solids) and especially those waters containing above 50 ppm of polyvalent cations, tends to adversely affect the mobility reducing capabilities of a salt-sensitive polymer. More efficient mobility control is obtained by interjecting the biopolymer slug between the salt-sensitive polymer slug and the drive water. Optionally, a miscible or miscible-like slug can precede the salt-sensitive polymer slug.

3,707,188
NON COLLAPSE STEMMING OF CASING SUBJECTED TO EXPLOSIVE EFFECTS

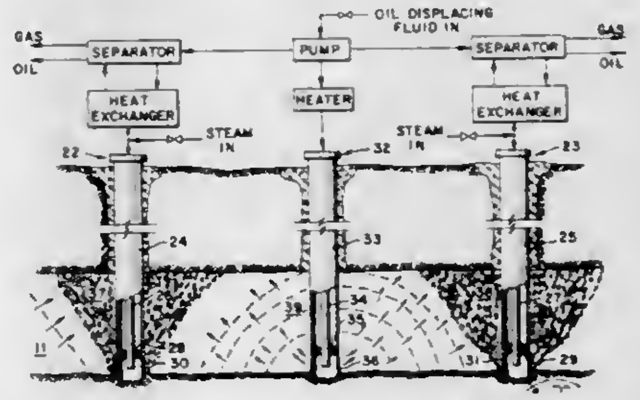
Richard A. Heckman, Castro Valley, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission
Filed April 27, 1971, Ser. No. 137,922
Int. Cl. E21b *43/26*
U.S. Cl. 166—247 **9 Claims**



Tubular casing is installed along a formation interval through which open communication is to be preserved or established in proximity to an explosive device, particularly, a nuclear explosive. The casing is then filled, i.e., is stemmed with a fluidic agent having dilatant properties. When subjected to the severe stresses product by detonation of the explosive the dilatant agent is transitorily transformed into a rigid incompressible form which prevents buckling and crushing of the casing. Upon dimination of the stress the agent returns to a fluidic form which may drain or otherwise fugitively depart from the casing providing open communication therethrough.

3,707,189
FLOOD-AIDED HOT FLUID SOAK METHOD FOR PRODUCING HYDROCARBONS

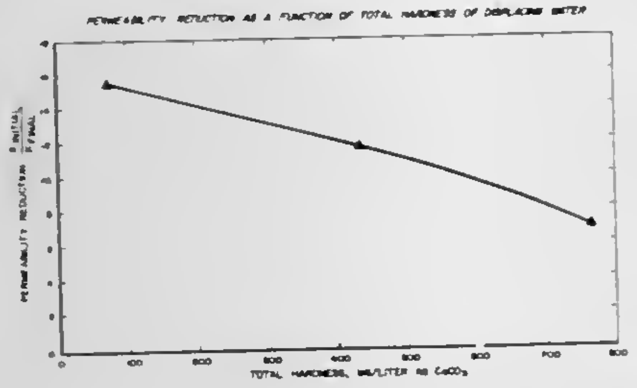
Michael Prats, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Continuation-in-part of Ser. No. 827,750, May 26, 1969, abandoned. This application Dec. 16, 1970, Ser. No. 98,938
Int. Cl. E21b *43/24*
U.S. Cl. 166—263 **11 Claims**



Relatively viscous liquid hydrocarbons are produced from a subterranean hydrocarbon reservoir by opening at least one well borehole into fluid communication with the reservoir at least at two spaced locations. A relatively mobile hot fluid, such as steam, is injected through the well borehole and into the earth formation around one of the locations for a period of time sufficient to form a hot zone and thermally mobilize liquid hydrocarbons present in the earth formation. Formation fluids are produced, by backflowing fluid from the hot zone, while a hydrocarbon-displacing fluid is being injected into the earth formation around another of the locations within the reservoir to displace hydrocarbons into the hot zone.

3,707,190
WATERFLOODING BY REGULATING THE TOTAL HARDNESS WITHIN THE DRIVE WATER

John A. Davis, Jr., Littleton, and John S. Rhudy, Denver, both of Colo., assignors to Marathon Oil Company, Findlay, Ohio
Filed Dec. 14, 1970, Ser. No. 97,690
Int. Cl. E21b *43/16*
U.S. Cl. 166—273 **15 Claims**



Improved mobility control in waterflooding is obtained by following an aqueous solution containing a mobility reducing agent with water containing a minimum total hardness and thereafter increasing the total hardness of the drive water, preferably to a total hardness characteristic of water conveniently located to be used for the majority of the drive water. The total hardness of the water can be reduced by methods known in the art. Also, the total hardness can be increased, if necessary, by adding salts of Ca^{++}, Mg^{++}, etc. This invention is particularly useful with a miscible or miscible-like flooding agent followed by an aqueous mobility reducing agent (e.g. partially hydrolyzed, high molecular weight polyacrylamide) and this, in turn, followed by a minimum total hardness water and thereafter the total hardness of the water increased.

3,707,191
GEL FLUID WATER FLOODING METHOD

Harry W. Parker, Lubbock, Tex., assignor to Phillips Petroleum Company
Filed May 27, 1970, Ser. No. 41,089
Int. Cl. E21b *43/22*
U.S. Cl. 166—275 **7 Claims**

A method of raising and lowering the injection rate of a gel flood water for controlling the flood front.

3,707,192
TWO-STAGE INJECTION OF ACID-PRODUCING CHEMICALS FOR STIMULATING WELLS

William C. Goins, Jr., and Bruce B. McGlothlin, both of Houston, Tex., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Dec. 28, 1970, Ser. No. 102,105
Int. Cl. E21b *43/26, 43/27*
U.S. Cl. 166—300 **13 Claims**

The flow capacity of a subsurface formation penetrated by a well is increased by fracturing the formation, extending the fracture from the well outward into the formation, depositing solid particles of a first reactant the faces of the fracture, and displacing a second reactant into the fracture to react with the first reactant. The reaction product of the two reactants is an acid that will attach the formation and thereby increase the width of the fracture. Reactants that can be used are ammonium salts and aldehydes that react to form acids. Preferred reactants for carbonate formations are ammonium chloride and formaldehyde. Preferred reactants for sandstone formations are formaldehyde and mixtures of ammonium chloride and ammonium fluoride.

3,707,193
GAS-STRENGTHENED STEAM FOAM WELL CLEANING

Terry K. Smith, Los Angeles, Calif.; Ying-Chech Chiu, and Jimmie B. Lawson, both of Houston, Tex., assignors to Shell Oil Company, Huston, Tex.
Filed Oct. 1, 1971, Ser. No. 185,815
Int. Cl. E21b *43/20, 43/24*
U.S. Cl. 166—303 **10 Claims**

In cleaning a contaminant-containing conduit, steam is circulated to heat the contaminating materials and a gas-strengthened steam foam is circulated into and out of the contaminant-containing portion of the conduit to entrain and remove heated contaminants.

3,707,194
USE OF DIVERTING AGENTS FOR INJECTION WELL STIMULATION

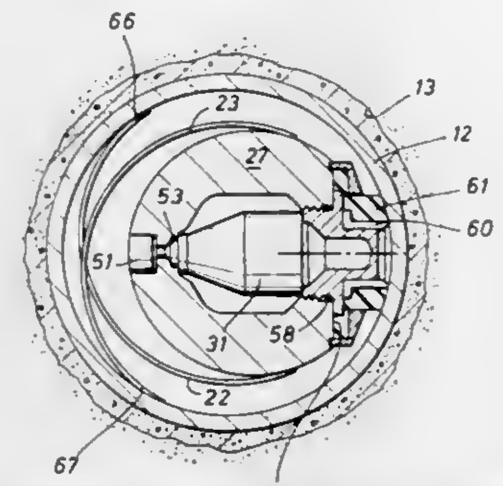
Marvin A. Svaldi, Morrison, Colo., assignor to Marathon Oil Company, Findlay, Ohio
Filed July 13, 1971, Ser. No. 162,288
Int. Cl. E21b *43/25*
U.S. Cl. 166—305 R **9 Claims**

The injectivity profile of an injection well in fluid communication with an oil-bearing, heterogeneous formation, is improved by incorporating a diverting agent into the front portion of a micellar solution or by intermittently injecting micellar solution followed by a diverting agent—the result is to stimulate the reservoir rock and to obtain a uniform injectivity profile. The total amount of micellar solution useful to stimulate the injection well is 1–500 gallons per vertical foot of oil-bearing formation. The amount of diverting agent necessary will depend upon the heterogeneity of the formation; where intermittent slugs of micellar dispersion and diverting agent are injected, the amount of diverting agent can be from about 0.1 to about 50 or more volumes per volume of injected micellar dispersion. Examples of diverting agents include aqueous and hydrocarbon solutions containing fibrous material, laminated material, glutinous material, or other like materials which tend to "block" the reservoir rock. Preferably, the diverting agent is one that is soluble in water. A third slug can be injected to solubilize the diverting agent and optionally acid can be injected after the micellar solution and diverting agent to increase the injectivity index.

3,707,195
APPARATUS FOR PERFORATING EARTH FORMATIONS

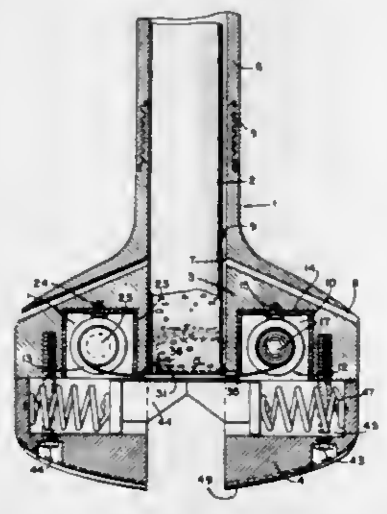
C. P. Lanmon, II, Friendswood, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Division of Ser. No. 38,953, May 20, 1970, Pat. No. 3,630,282. This application July 14, 1971, Ser. No. 162,469
Int. Cl. E21b *43/116*
U.S. Cl. 175—4.52 **15 Claims**

This application discloses new and improved apparatus for perforating earth formations and then cleaning debris and the like from such perforations. As disclosed herein, the new and improved perforator of the present invention is provided with one or more pairs of like or similar perforating devices operatively arranged for producing perforations in an earth formation which are selectively directed so that each pair of perforations will be in fluid communication with each other. An enclosed low-pressure chamber is coupled to one of the perforating devices in each set and a seal is arranged around the perforating axis of this perforating device for at least limiting the direct entrance of well bore fluids into the perforation produced thereby. In this manner, upon operation of each pair of the perforating devices, well bore fluids will be drawn into the perforation produced by the other perforating device and be swept through the intercommunicating perforations into the low-pressure chamber for cleaning debris and loose formation materials from the perforations.



3,707,196
SEDIMENT SAMPLE RETRIEVER

William P. Verville, Concord, N.H., assignor to The United States of America as represented by the Secretary of the Army
Filed July 13, 1971, Ser. No. 162,107
Int. Cl. E21b *7/12, 25/00*
U.S. Cl. 175—5 **10 Claims**

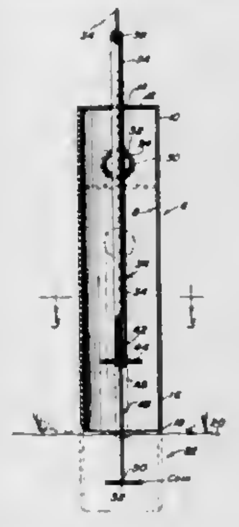


A subaqueous sediment sample retriever head is affixed to the lower end of a continuous casing, which is positioned about a drill rod string and lowered onto a sampler tube, contiguous with drill rod string. The retriever head houses in oppositely disposed cavities to a central bore, a pair of spools which store and actuate a flexible sealing slide respectively, and two pairs of spring actuated locking lugs which actuate simultaneously with the slide when the retriever head reaches the sampler tube bottom. A sleeve like follower device guides the retriever head onto the sampler tube and retains the sealing mechanism in an open position during mounting. The retriever head is advanced over the sampler by its own weight in conjunction with hydraulic jetting action.

3,707,197
GROUND CORE REMOVING TOOL

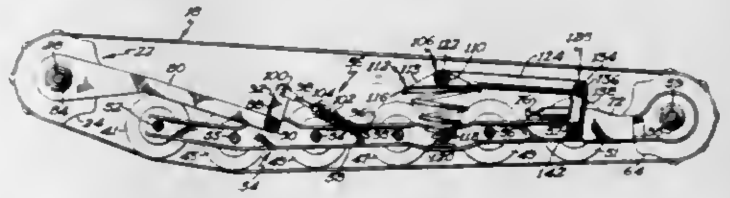
David J. Walesch, 1510 Sharon Drive, and Allan A. Mengler, P.O. Box 753, both of Carson City, Nev.
Filed Oct. 2, 1970, Ser. No. 77,496
Int. Cl. G01n *1/00*
U.S. Cl. 175—20 **5 Claims**

A manually usable turf and ground core cutting, extracting and replacing tool for use by exploratory-minded enthusiasts and collectors of buried metal coins, objects and artifacts having monetary or intrinsic value, as the case may be. It comprises a vertically elongated cylinder whose upper apertured end is provided with suitably convenient handle means and whose lower open end is provided with an annular cutting edge which can be pressed through the turf and forcibly embedded in the selected core taking area of the ground. A tubular plunger member is slidingly and operatively mounted on and in the cylinder and has a projectable and retractable core engaging head. A rod of requisite length is fitted for reciprocation in the hollow portion of the tubular member and is used (1) as an object searching and locating probe and (2) as a guide for the cylinder and plunger assembly.



3,707,198
SUSPENSION SYSTEM FOR TRACKED VEHICLES

Neil W. Pierson, P.O. Box 98, Roseau, Minn.
Filed Nov. 27, 1970, Ser. No. 93,047
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 R **11 Claims**

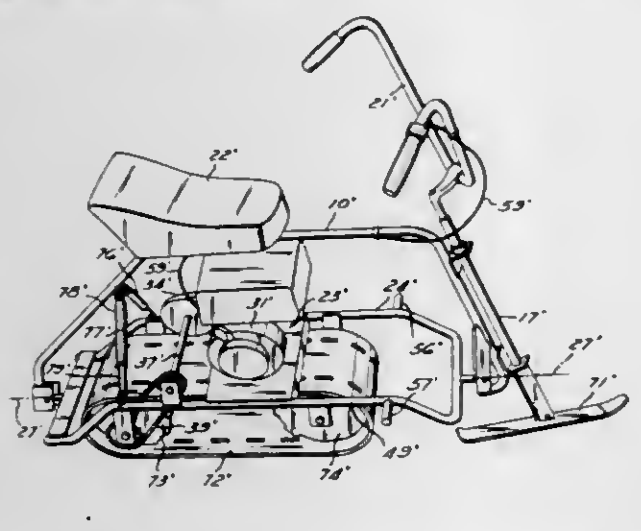


A new suspension system for tracked vehicles is disclosed by means of its application to a snowmobile including body, motor, bogie frame, track mounted on the bogie frame, and drive mechanism connected between the bogie frame and the track to propel the snowmobile. A preferred embodiment of the suspension system of the present invention as applied to such snowmobiles includes a pair of front linkage arms pivotally and symmetrically connected between a drive shaft of the drive mechanism and the front portion of the bogie frame, a pair of upstanding arms fixedly connected to the front linkage arms and further connected to the bogie frame by an adjustable spring, a body supporting shaft extending from side to side of the snowmobile body over the approximate longitudinal center of the bogie frame, a coil spring positioned between the supporting shaft and the bogie frame, and double pivoting rearwardly positioned stabilizer arms further connecting the body supporting shaft and the rear portion of the bogie frame. Track tightening apparatus is also positioned adjacent the rear of the bogie frame.

3,707,199
RECREATIONAL VEHICLE

Anton J. Gerich; Howard W. Bietz, and Merle P. Wilfing, all of c/o BGW Industries Inc., Box 1683, Mansfield, Ohio
Filed Jan. 11, 1971, Ser. No. 105,384
Int. Cl. B62m *27/00*
U.S. Cl. 180—5 **4 Claims**

Recreational vehicles are disclosed which are particularly suitable on snow or ice. The vehicles include a main frame on which the rider sits and a power unit connected to the main frame for pivotal movement about a longitudinal axis. Therefore, the rider may remain upright when passing over laterally sloping terrain or may lean into turns. Footrests are provided on each side of the longitudinal axis to provide rider stability without requiring the rider to place his feet on the ground. In one embodiment wheels are driven directly by the engine without an intermediate clutch, and the traction of the wheels is controlled by the operator's foot pressure on the power unit frame.



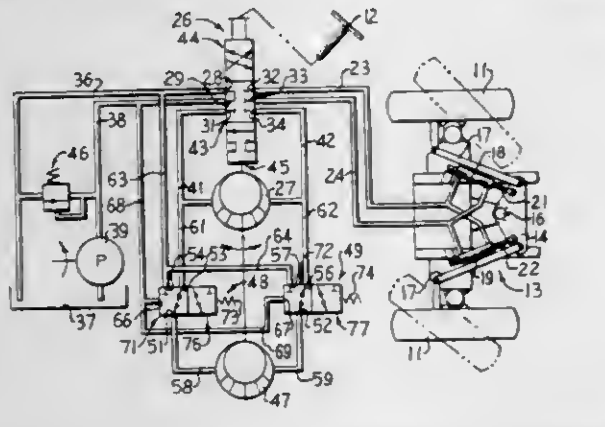
3,707,200
DUAL METER UNIT STEERING CONTROL

Glen S. Comer, Jr., Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 28, 1970, Ser. No. 101,989

Int. Cl. B62d *5/06*

U.S. Cl. 180—79.2 R **3 Claims**



A hydraulic power steering control wherein a second fluid meter unit shaft driven from a first fluid meter unit is employed to add to the fluid displacement of the first unit used to control the volume of fluid delivered from a pump to the control valve of a power steering unit during normal power steering operation. Means are provided to render the second meter unit inoperative in response to pump failure such that the relatively small displacement of the first meter unit alone provides a more favorable mechanical advantage for manual steering of a vehicle in an emergency condition.

3,707,201
CABINET-MOUNTED SPEAKER SYSTEM

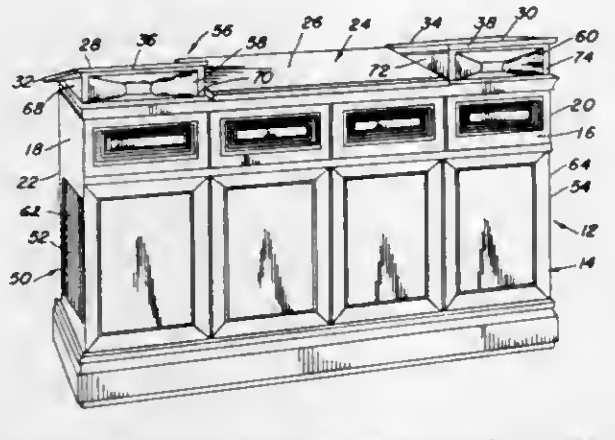
Daniel J. Domin, Deerfield, and Thomas E. Duvall, Morton Grove, both of Ill., assignors to TMA Company, Wheeling, Ill.

Filed Dec. 31, 1970, Ser. No. 103,109

Int. Cl. G10k *13/00;* **H04r** *1/28*

U.S. Cl. 181—31 B **11 Claims**

A cabinet-mounted speaker system, wherein the directivity and intensity of the middle to upper frequency range components of the output signal may be selectively reinforced, comprises a fixed speaker system mounted in the cabinet and a movable speaker system that is movable from a first position in a damping chamber in the cabinet, wherein substantially all of the sound emitted from the movable speaker system is absorbed by the damping chamber, to a second position outside the damping chamber, wherein substantially all of the sound emitted from the speaker is transmitted from the cabinet.



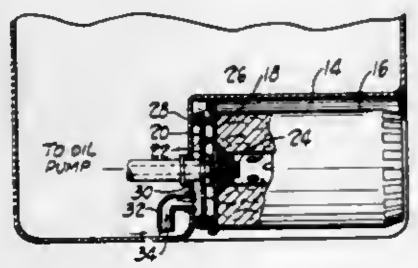
3,707,202
OIL FILTER IN CRANKCASE PAN

Roy H. Dixon, 17950 Holland Road, Brookpark, Ohio

Filed July 31, 1970, Ser. No. 60,058

Int. Cl. F16n *39/06*

U.S. Cl. 184—6.24 **3 Claims**



An external recess is formed in an oil pan so that an oil filter may be easily replaced therein. The filter is threadably engaged on a conduit. A gasket cooperates with the filter housing and an inlet means in the pan wall such that the oil travels from the pan to the filter and conduit then to the oil pump.

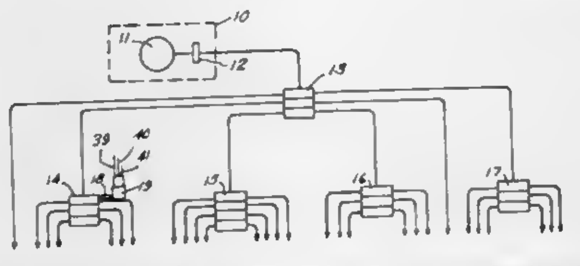
3,707,203
CENTRALIZED LUBRICATION SYSTEM

Robert D. Roberts, Streetsboro, Ohio, assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Filed March 29, 1971, Ser. No. 128,707

Int. Cl. F16n *29/00*

U.S. Cl. 184—6.4 **5 Claims**



A cyclic type lubrication system for lubricating an intermittently operated device having operating cycles of varying time durations. The system includes a control and monitoring mechanism for initiating a lubrication cycle after the device has been operated through a predetermined number of operating cycles and for providing an indication whether the lubricating cycle has been completed during a predetermined number of operating cycles of the device after initiation of the lubrication cycle.

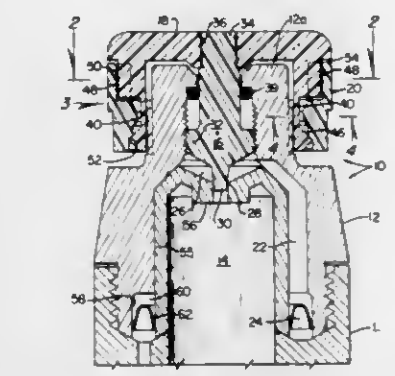
3,707,204
LUBRICATOR SIGHT FEED DOME

Claude J. Dussardier, Littleton, Colo., assignor to C. A. Norgren Co., Littleton, Colo.

Filed Sept. 13, 1971, Ser. No. 179,853

Int. Cl. F16n *7/34, 29/02*

U.S. Cl. 184—55 A **13 Claims**



Air line lubricator with sight dome drip feed, characterized by a metering needle valve, operated by a rotatable control knob having a locking ring which may be moved axially between locked and unlocked positions. When in locked position, it may be secured by a seal wire to prevent tampering with the metering adjustment. Replaceable inserts may be provided to select the size of oil drops which are delivered to an air stream.

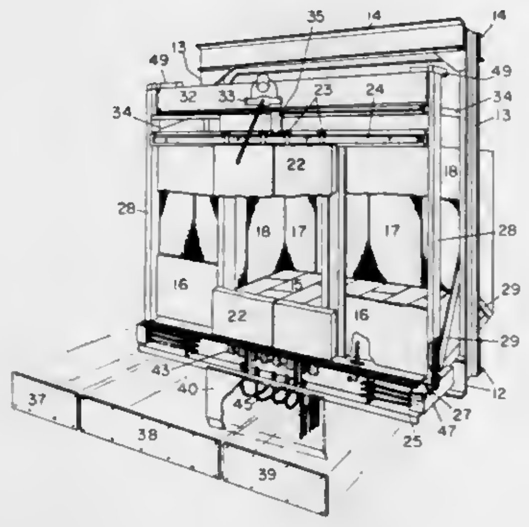
3,707,205
ELEVATOR CAR WITH ELEMENTS COMBINING BOTH STRUCTURAL AND WIRING HOUSING FUNCTIONS

George William Gibson, Old Bridge, N.J., assignor to Otis Elevator Company, New York, N.Y.

Filed Aug. 31, 1971, Ser. No. 176,634

Int. Cl. B66b *9/00*

U.S. Cl. 187—1 R **5 Claims**



An elevator car in which the junction box and wiring raceways for the electrical conductors are integral with horizontal and vertical structural members.

3,707,206
ELEVATOR CONTROL APPARATUS

Akinori Watanabe; Yoshinori Takahashi; Seinosuke Yahiro, and Kikuo Watanabe, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

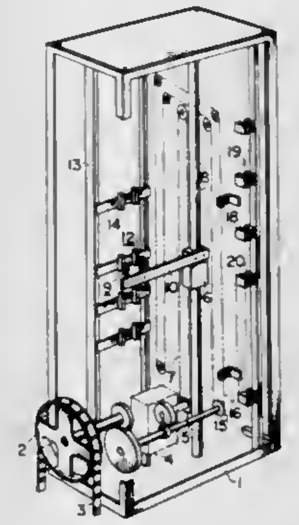
Filed April 20, 1971, Ser. No. 135,652

Claims priority, application Japan, April 20, 1970, 45/32998

Int. Cl. B66b *1/52*

U.S. Cl. 187—29 R **13 Claims**

An elevator control apparatus having a tracing device simulating the movement of an elevator cage at a certain reduced speed ratio, a preceding device detecting a target floor to determine the running mode of the elevator cage, a chain moved synchronously with the movement of the elevator cage at a smaller reduced speed ratio than said tracing means, mark plates provided on the chain at intervals proportional to each floor interval, a detector for detecting the mark plates in order to produce signals according to the positions of the elevator cage, and a pattern generator for generating a deceleration pattern by means of relays excited through the output of the detectors when the elevator cage approaches the target floor detected by the preceding device.



3,707,207
SPOT DISC BRAKES FOR VEHICLES

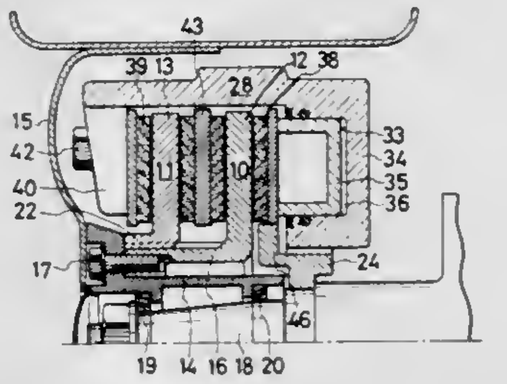
Toshio Kondo, Hekikai-gun, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan

Filed Sept. 4, 1970, Ser. No. 69,725

Claims priority, application Japan, Sept. 6, 1969, 44/84676

Int. Cl. F16d *55/36*

U.S. Cl. 188—71.5 **3 Claims**



Spot disc brakes particularly for use on heavy vehicles comprising plural brake discs, wherein one brake disc is securely mounted on a rotatable sleeve and is provided with a plurality of axially extended splines thereon, while the other brake disc is mounted slidably in its axial direction on and along the splines of said secured brake disc.

3,707,208
SLACK ADJUSTER MECHANISM FOR TREAD BRAKE APPARATUS

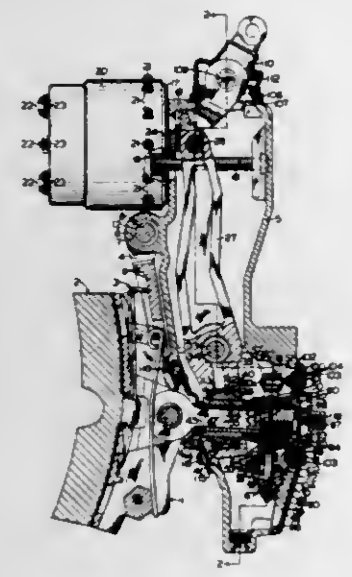
Allen W. Kylionen, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 19, 1971, Ser. No. 163,937

Int. Cl. F16d *65/56*

U.S. Cl. 188—202 **10 Claims**

This invention relates to a slack adjuster mechanism for a tread brake apparatus used for braking a railway car wheel. A fluid pressure operated piston transmits a braking force to a brake shoe through an actuating lever and a brake rod which comprises a screw and a nut about which is disposed a slack adjuster mechanism that embodies a ratchet secured to the nut and a pawl that is operated by a linkage that includes a bell-crank lever that is pivotally mounted at the junction of its arcuate-shaped arm and bifurcated arm on a slack adjuster stem driver carried by an operating stem that constitutes one member of this linkage. The arcuate-shaped arm of the bell-crank lever abuts a roller carried by a stationary bracket, and one end of the bifurcated arm carries a roller that abuts a stop formed on a slack adjuster ring disposed in surrounding relation to the brake rod and anchored to the brake actuating lever to be movable therewith so that this movable stop constitutes a fulcrum about which the bell-crank lever is rocked as the bracket roller rolls along the arcuate surface of the arcuate-shaped arm when a brake application is effected to cause downward movement of the junction of the lever arms thereby, via the stem driver, the operating stem, which extends through the bifurcated arm, and other members of the linkage actuating the pawl and ratchet to take up slack upon effecting a brake release if the shoe clearance is excessive.



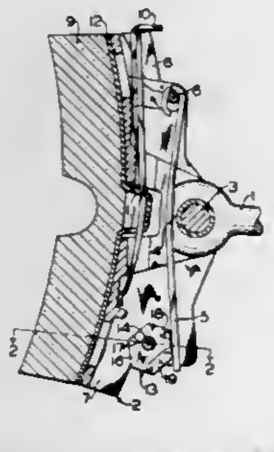
3,707,209
CAM ARRANGEMENT FOR BRAKE HEAD POSITION ADJUSTMENT

Robert J. Bridigum, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 19, 1971, Ser. No. 163,960

Int. Cl. B61h *13/38*

U.S. Cl. 188—220.6 5 Claims



This invention relates to a cam arrangement for varying the angular position of the braking surface of a brake assembly brake shoe relative to the tread surface of a railway car wheel.

A brake head having a brake shoe secured to one side by a brake shoe key has extending from its opposite side a pair of parallel spaced-apart flanges between which is disposed the end of a brake rod that is pivotally connected to the brake head by a pin, the opposite ends of which are anchored in coaxial bores provided in these flanges.

The pivoted end of the brake rod is provided with a flat surface that abuts intermediate its ends a flat leaf-type brake head positioning spring that has one end anchored to a pin, the opposite ends of which are also anchored in coaxial bores provided in these flanges. A third pin, having its opposite ends anchored in these flanges, has eccentrically and rotatably mounted thereon a polyhedron cam. Manual rotation of this cam by means of a wrench brings one or another face of the cam into contact with the lower end of the positioning spring to thereby rotate the brake head relative to the brake rod to adjust the arcuate braking surface of the brake shoe relative to the arcuate tread surface of the car wheel until the centers of these two arcuate surfaces are coaxial to provide even wear of the brake shoe and prevent the upper end thereof from contacting or dragging on the tread of the wheel when a brake application is released.

3,707,210
WHEEL BRAKE CYLINDER ASSEMBLY FOR A HYDRAULIC TWIN BRAKE SYSTEM

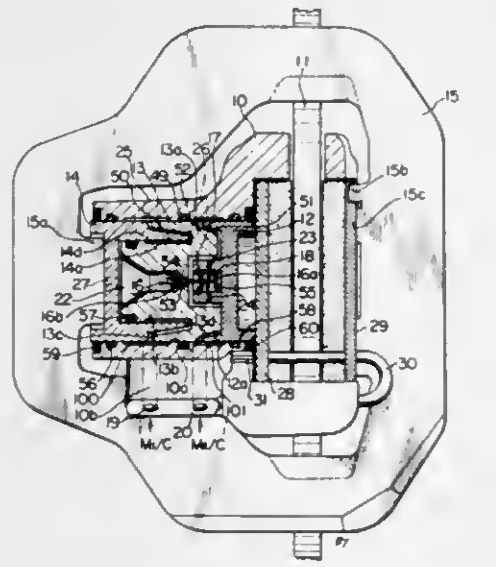
Mizuo Nyunoya, and Masatada Yokoi, both of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan

Filed Oct. 27, 1970, Ser. No. 84,291

Claims priority, application Japan, Oct. 27, 1969, 44/85930; Dec. 19, 1969, 44/102652

Int. Cl. B60t *11/00*

U.S. Cl. 188—345 6 Claims



A wheel cylinder in a braking system is provided with first and second pistons slidable therein and protruding from opposite ends to actuate the brake elements. An intermediate piston is slidably disposed in the cylinder between the first and second pistons to define first and second fluid pressure chambers disposed in communication with a high pressure system and low pressure system respectively. A third pressure chamber is formed between the intermediate piston and the first piston. A valve in the intermediate piston provides communication between the third pressure chamber and one of the first and second pressure chambers and is normally open when both pressure systems are operative. Upon failure of the high pressure system movement of the intermediate piston in the opposite direction by the low pressure system will close the valve thereby trapping the fluid therein to provide a fluid link between the intermediate piston and the first piston to prevent an increase in stroke when the low pressure system takes over.

3,707,211
FRICTION DISC CLUTCH FOR VEHICLES

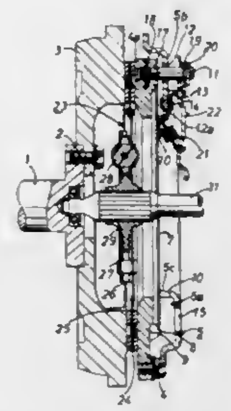
Syozo Kuno, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Japan

Filed Dec. 18, 1970, Ser. No. 99,387

Claims priority, application Japan, Dec. 20, 1969, 44/102781

Int. Cl. F16d *13/60*

U.S. Cl. 192—113 A **7 Claims**



A motor vehicle friction clutch of the type which includes an output shaft, a flywheel secured to a drive shaft, a clutch cover connected to the flywheel, a pressure plate, a dish spring interposed between the clutch cover and the pressure plate, and a clutch disc. Cooling air passages for cooling the dish spring and the pressure plate are provided around both sides of the dish spring by a number of ventilating recesses made on the annular inner edge of the clutch cover and a number of projections made on the annular circumferential edge of the pressure plate.

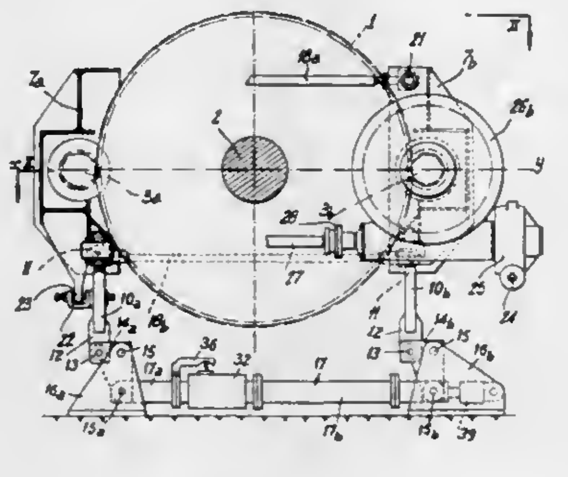
3,707,212
DEVICE FOR TRANSMITTING MOTION

Francois Durand, 108 Boulevard Carnot, Le Vesinet, France

Filed June 7, 1971, Ser. No. 150,455

Int. Cl. F16p *3/00;* **F16h** *57/00*

U.S. Cl. 192—150 3 Claims



In this device for transmitting motion to a large gear two driving pinions are in constant meshing engagement therewith and disposed at spaced intervals; these pinions are rotatably mounted on separate supports carrying a roller engaging a race formed concentrically on said gear, said supports being interconnected by a pair of coupling rods pivoted to a pair of retaining members each pivotally mounted about an axis parallel to the axis of the driven gear and interconnected in turn by a link of telescopic nature, with resilient means interconnecting in turn the sections of this link. One section of said interconnecting link is adapted to actuate a switch for opening the energizing circuit of the motor driving said pinions when the relative movements accomplished by these sections exceed a predetermined limit.

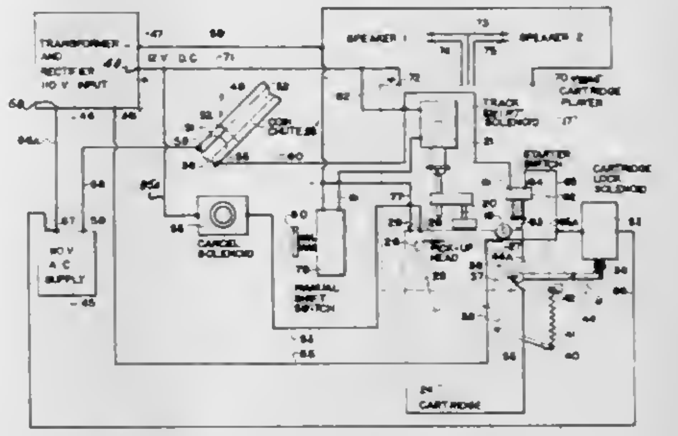
3,707,213
COIN OPERATED MANUALLY SELECTIVE TAPE CARTRIDGE PLAYER

Frank J. Larre, Box 452, St. Walburg, Saskatchewan, Canada

Filed March 1, 1971, Ser. No. 119,458

Int. Cl. G07f *5/10*

U.S. Cl. 194—6 **18 Claims**



A cartridge magazine permits manual selection of a cartridge which is then engaged into the player mechanism. The mechanism is energized by the insertion of a coin and de-energized by the track shift conductive strip of the tape. This deenergizing also ejects the coin to the coin vault in the machine.

3,707,214
SERIAL PRINTING DEVICE

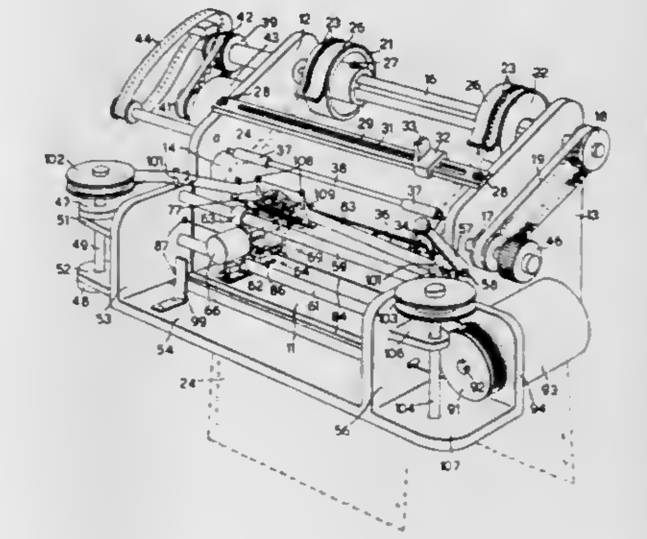
Gian Luigi Ponzano, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy

Filed May 18, 1970, Ser. No. 38,208

Claims priority, application Italy, May 23, 1969, 51959 A/69

Int. Cl. B41j *1/22*

U.S. Cl. 197—53 **14 Claims**

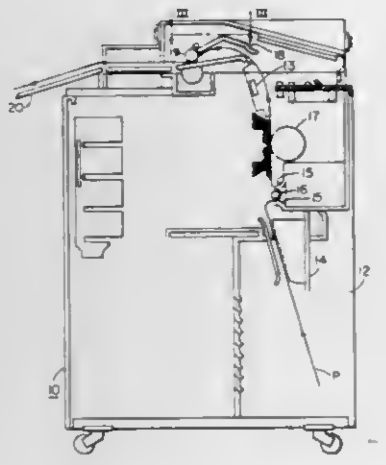


A serial printing device is provided with a rotatable disc having a set of flexible tongues each one engageable by a hammer to strike against the paper. The disc is rotated by a stepping motor controlled by electronic circuits to bring the selected type on the printing point through the shortest path. The disc is also mounted on a carriage which is moved by another stepping motor controlled by an electronic circuit.

The carriage and the relevant guides are mounted on a frame pivotable on a vertical shaft mounting one of the ribbon spools, in order to remove the disc from the carriage and to facilitate the insertion of fresh paper.

3,707,215
WEB TENSIONER FOR HIGH SPEED PRINTER

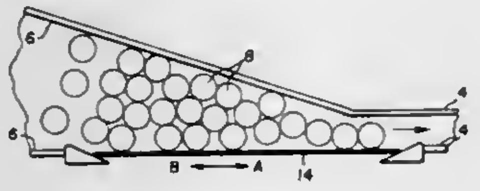
Stanley G. Familant, Framingham, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Filed July 6, 1970, Ser. No. 52,224
Int. Cl. B41j *15/16*
U.S. Cl. 197—133 P **14 Claims**



A high speed printer for use with data processing equipment wherein the printing is produced by feeding a paper web past a ribbon and rotating type roll, and striking the web against the type roll and ribbon with a plurality of hammers to produce the printed line. The web is fed in a path past the type roll by a tractor feed arrangement disposed after the type roll, and tensioning means is provided before the type roll to maintain tension in the web being drawn past the print station. A second tensioning means in the form of a pair of tensioning rolls is provided along the paper path after the tractor arrangement to produce an opposite or counter driving force to that force produced by the type roll action on the web during printing.

3,707,216
CONVEYOR JOGGING MECHANISM

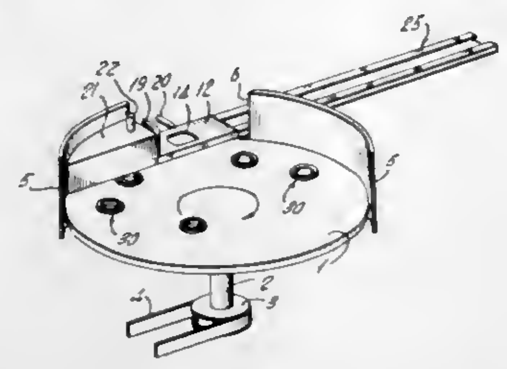
Anthony R. Peres, Bristol, N.Y., assignor to Peres Electronic Machinery, Inc., Rochester, N.Y.
Filed Feb. 26, 1971, Ser. No. 119,194
Int. Cl. B65g *47/26*
U.S. Cl. 198—30 **9 Claims**



A jogging mechanism for a conveyor or the like for preventing the jamming or bridging of articles on the conveyor. The jogging mechanism comprises an article-engaging wall member on the conveyor and a mechanism for simultaneously moving the wall member in two different directions. The moving mechanism comprises a reciprocating mechanism for moving the wall member back and forth substantially along a rectilinear path, and structure engageable by the ends of the wall member during reciprocal movement of the wall member along the rectilinear path, the structure imparting movement to the member in a direction transverse to the rectilinear direction.

3,707,217
METHOD AND APPARATUS FOR FEEDING CLOSURES

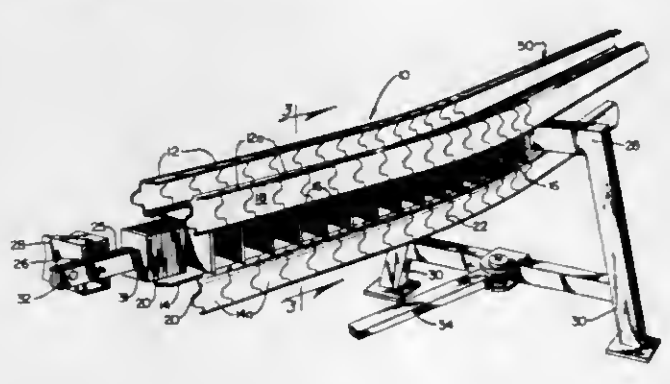
Jack Z. Sbarbou, Linden, N.J., assignor to American Flange & Manufacturing Co., Inc., New York, N.Y.
Filed Sept. 8, 1970, Ser. No. 70,213
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AA **10 Claims**



A method and apparatus for feeding circular closure seals properly oriented with their respective interior surfaces facing in the same direction. Randomly oriented closure seals are deposited on a rotating disc and fed into a tangentially directed exit chute partially oriented with their respective central axes in a vertical plane. As the partially oriented closure seals are fed through the exit chute seals having their interior surfaces facing downwardly are deflected back onto the rotating disc and seals having their interior surfaces facing upwardly allowed to pass through the exit chute.

3,707,218
CONVEYOR APPARATUS

Mackey M. Payne, 7300 W. Radcliff, Littleton, Colo., and John S. Harper, Jr., 2853 S. Krameria, Denver, Colo.
Filed Oct. 26, 1970, Ser. No. 83,697
Int. Cl. B65g *41/00*
U.S. Cl. 198—109 **11 Claims**



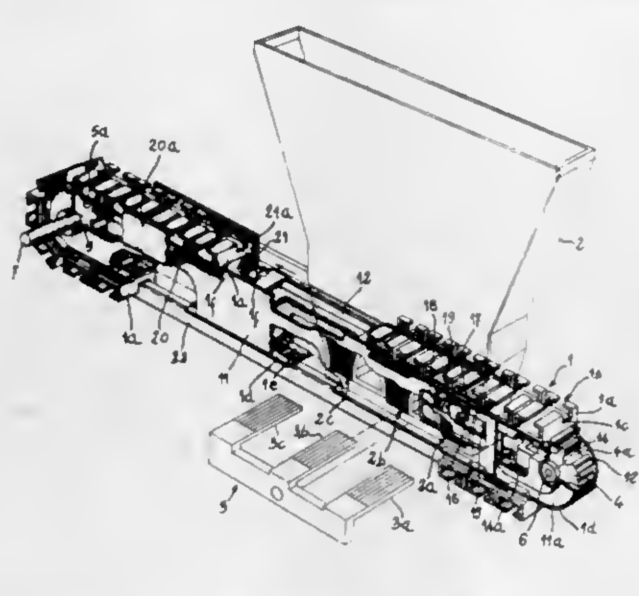
An endless belt conveyor section for use with an endless belt of a type constructed to permit it to move in a curved path, characterized by guideways having articulated sections along which spaced belt carriers move along upper and lower runs, the articulated sections being adjustable to provide various curved paths of movement for the belt.

3,707,219
CONVEYOR DEVICE HAVING CONTAINERS FOR STORING AND ASSEMBLING OVERLYING LAYERED SETS OF SIDE BY SIDE ARRANGED CIGARETTES FOR PACKING UP THEREOF AS PACKETS IN CIGARETTE PACKAGING MACHINES

Ariosoto Seragnoli, Via Bellinzona 31, Bologna, Italy
Filed March 19, 1971, Ser. No. 125,936
Claims priority, application Italy, Nov. 2, 1970, 3604 A/70
Int. Cl. B65g *15/00*
U.S. Cl. 198—131 **1 Claim**

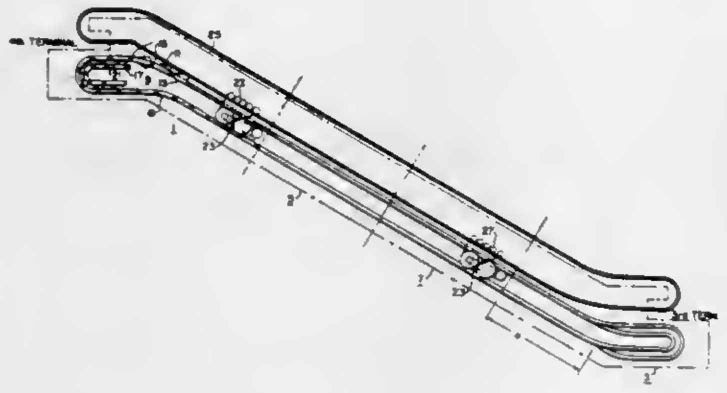
A conveyor device having cigarette storing containers wherein cigarettes are arranged side by side at a plurality of

supply stations for assembling overlying layered sets and packet packing up in cigarette packaging machines, characterized by comprising a belt element having one of its faces provided with transverse teeth longitudinally arranged throughout the belt length, said toothed belt element having an elongated looped configuration with horizontal runs about idle gears, wherein said transverse toothing is internally of said loop so as to mesh in a drive belt fashion with the toothing of said idle gears and having attached to the face opposite the transverse toothing and externally of the loop said cigarette set storing and assembling containers, said toothed belt element also being of a substantially inextensible material having a resiliently yieldable structure; protective fairing means being provided for a boxlike protection of the zone within the loop as defined by said toothed belt element and respective idle gears; and guide means being also provided for guiding said toothed belt element along said horizontal runs.



3,707,220
MODULAR PASSENGER CONVEYOR CONSTRUCTION

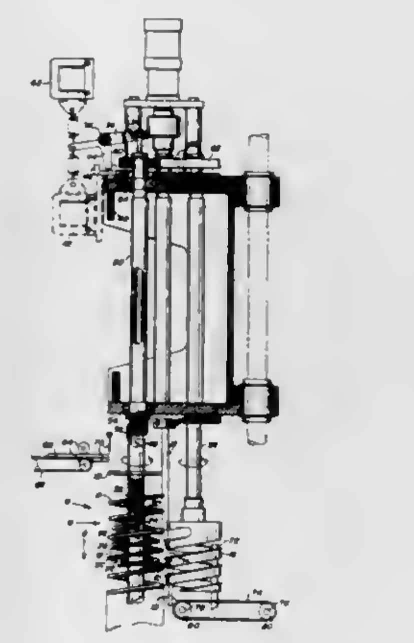
Henry Boltrek, Freeport, N.Y., and Joseph K. Kraft, Verona, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 23, 1970, Ser. No. 91,846
Int. Cl. B65g *15/60;* **B66b** *9/12*
U.S. Cl. 198—16 **20 Claims**



A passenger conveyor is assembled from standard modular units which may be combined in the required numbers to fit any installation. The modular units for a moving stairway are fabricated with all of the components precisely aligned with respect to the tracks which guide the steps so that when the units are joined in the field no adjustment of the tracks is required. Standardized modular drive units are inserted into selected modules in accordance with the requirements of the particular installation.

3,707,221
ARTICLE DIVERTING MECHANISM

James C. Foote, Jr., York, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed March 1, 1971, Ser. No. 120,011
Int. Cl. B65g *47/26*
U.S. Cl. 198—31 AA **23 Claims**

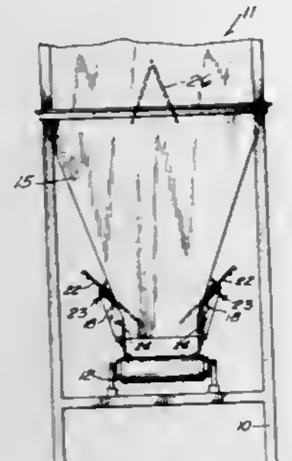


An article diverting mechanism for an article transporting device comprising in one embodiment a helical diverting spring concentrically mounted within a helical transporting coil that transports articles along one path, the diverting spring being movable between a normal inactive position in which it has no effect on the transported article, and a diverting position in which the diverting spring overrides the transporting coil and initially transports an article along one path, and then diverts the article along a different path. When the diverting spring is in its inactive position, transport of articles along the different path is prevented by spaced apart blocking flanges of the same pitch as the transporting coil and rotatable or movable in register or in phase therewith. When the diverting spring is in its diverting position, its pitch is somewhat less than the pitch of the transporting coil and blocking flange. Accordingly, the motion of the transported article is retarded somewhat, and the article ultimately passes through the space between the blocking flanges. In another embodiment of the invention, double transporting screw threads are used in which the lead ends of the threads are angularly spaced apart substantially 180°. The trailing end of one of the threads is interposed between the corresponding convolutions of the other thread and axially located adjacent to the blocking flanges. One of the threads transports articles along an axial path, transport in a lateral direction being blocked by the aforementioned spaced apart blocking flanges of the same pitch as the one thread. The other thread transports articles along the axial path, and then in a lateral direction through the space between adjacent blocking flanges.

3,707,222
HOPPER WITH SLIDE PLATES

Nelson Hartley, Towson, Md., assignor to Hartley Controls Corporation, Neenah, Wis.
Filed Feb. 25, 1971, Ser. No. 118,758
Int. Cl. B65g *47/18*
U.S. Cl. 198—57 **6 Claims**

A hopper for granular material is superposed over a belt conveyor. The hopper has side walls leading toward a discharge mouth opening onto the belt. The hopper side walls are provided with a longitudinal series of paired slidable plates extending through the side walls and toward the discharge mouth to shape the flow path of hopper contents intercepted by the plates. A preferred arrangement is to dispose the inner edges of the plates progressively closer to the centerline of the belt from the downstream to the upstream end of the hopper, whereby the flow path shaped by the plates is wider at its downstream end than its upstream end.

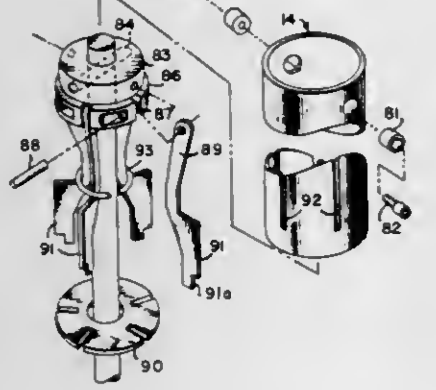


3,707,223
ANTI-BRIDGING MEANS FOR BULK FRUIT FEED SUPPLY

Earl R. Anderson, Los Gatos, Calif., assignor to Brex Corp., Trustee, Los Gatos, Calif.

Filed Sept. 18, 1970, Ser. No. 73,419
Int. Cl. B65g *15/00*

U.S. Cl. 198—185 **5 Claims**



A fruit feed system comprising a bulk supply conveyor for rollable fruit articles from which fruit is fed through a side discharge opening past a bridge preventing means to guard against fruit bridging across and blocking the opening. Anti-bridging rolls are provided at either side of the opening for projecting article feeding elements to active position anytime bridging begins.

3,707,224
CONVEYOR DEVICE FOR PULVERIZED, GRANULAR, FIBROUS OR FLUID PRODUCTS

Blaise B. Rastoin, 42, Avenue de la Panouse, Le Cabot, Marseille, France

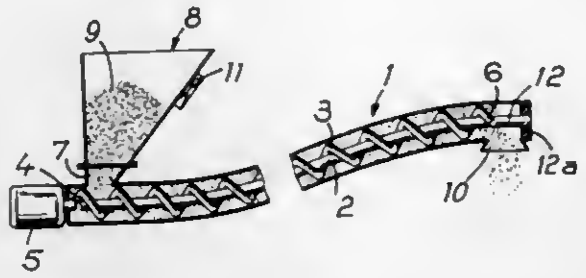
Filed Oct. 27, 1970, Ser. No. 84,305

Claims priority, application France, Nov. 5, 1969, 6938598; March 16, 1970, 7009351; Nov. 5, 1969, 6938599

Int. Cl. B65g *33/00*

U.S. Cl. 198—213 **1 Claim**

This invention relates to a conveying device for conveying pulverized, granular, fibrous or fluid materials, composed of a fixed cylindrical tube, a helical conveying element and a cylindrical central core. The conveying spiral occupies substantially all the space between the tube and the central core. To each speed of the spiral there corresponds a well determined output. The output is controlled by adjusting the speed of rotation of the spiral.

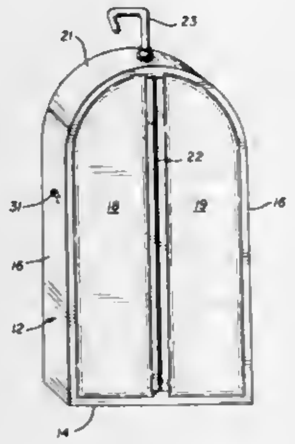


3,707,225
GARMENT CARRIER

Timothy R. Miles, 4455 W. 61st Place, Arvada, Colo., and Raymond C. Knittle, 7152 S. Cherry Street, Littleton, Colo.

Filed July 1, 1970, Ser. No. 51,430
Int. Cl. B65d *85/18*

U.S. Cl. 206—7 K **6 Claims**



A garment bag or carrier adapted to receive items of wearing apparel for the protection thereof. The carrier is provided with a plurality of multi-wall inflateable panels adapted to receive air under pressure whereby resilient protection is provided for the garments within the carrier and the carrier itself is made substantially more rigid. A supporting cross bar is disposed within the carrier and garments may be placed thereon with separately inflateable liners disposed in interspersed positions therebetween. By reason of the combined construction the carrier can be vertically free standing to support suspended garments or the carrier can itself be suspended by an external support hook.

3,707,226
COVER CAPS WITH PEGS FOR INSERTING IN A SERIES OF HOLES

Josef Wippermann, Kohlstadt uber Paderborn, Germany, assignor to Richard Heinze, Herford/Westphalia, Germany

Filed Jan. 29, 1970, Ser. No. 6,683

Claims priority, application Germany, July 11, 1969, P 19 35 247.7

Int. Cl. B65d *83/00*

U.S. Cl. 206—56 DF **1 Claim**

Improved integral strip of pegs with cover caps for furniture production and mounting. A plurality of such pegs in predetermined distances from one another are supported by a

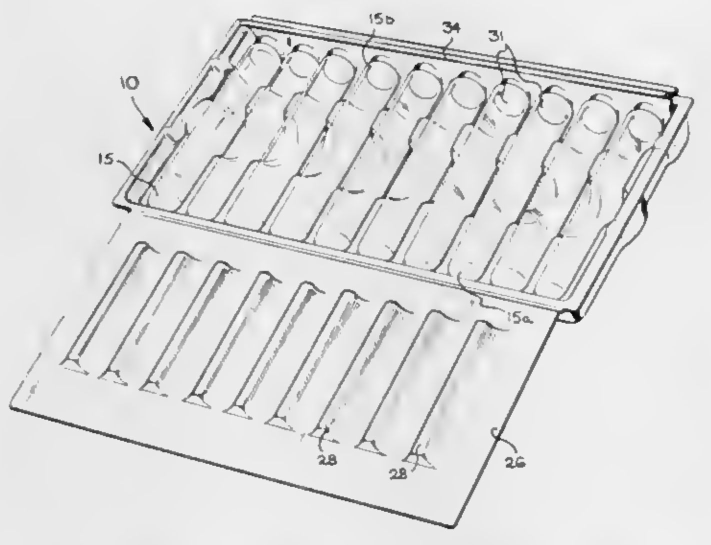
common integral strip and can be inserted in a row of holes at the surface of the furniture by striking over the strip, the latter being disposed to be broken out along prepared breakout lines around the circumferences of said caps.

3,707,227
TRAY PACKAGE FOR TUBES

Thomas M. Britt, Red Bank, N.J., assignor to Owens-Illinois, Inc.

Filed July 6, 1970, Ser. No. 52,303
Int. Cl. B65d *71/00*

U.S. Cl. 206—65 R **6 Claims**



A tray formed from a sheet of thermoplastic material is provided for holding culture tubes, test tubes, or like articles. The tray is provided with a contoured bottom having side and end wall portions extending upwardly therefrom. A cover member is integrally connected from the top edge of one of the sidewall members and is foldable from an open position to a position overlying the tubes to close the package. Integrally connected to the top edge of the opposite sidewall is a flap having a series of protrusions or plugs sized to fit within the ends of the tubes resting in the bottom of the tray. The flap is foldable from an open position to a position at which the plugs fit within the open ends of tubes resting on the contoured bottom.

3,707,228
METHOD AND APPARATUS FOR CLASSIFYING ARTICLES

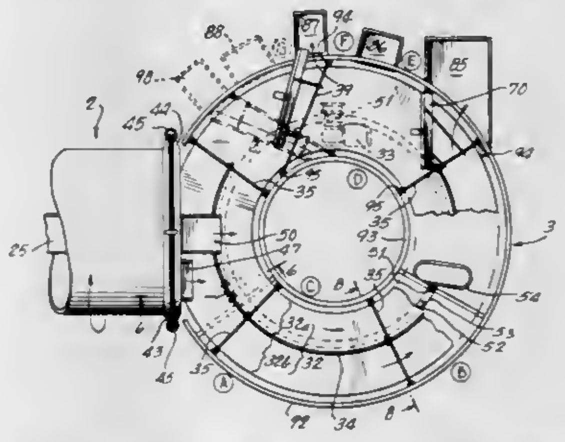
Lucas J. Conrad, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed April 1, 1970, Ser. No. 24,710
Int. Cl. B07c *7/04*

U.S. Cl. 209—124 **10 Claims**

Apparatus for separating meat and bones including: (1) a disuniter unit which separates the meat from the bones to which it is clinging and discharges a mixture of meat pieces and bones; (2) a separator which receives the mixture of meat pieces and bones and discharges through different outlets a stream of meat pieces and a stream of bones; (3) and an inspection table onto which the discharged streams of meat pieces and bones flow, and where any erroneously sorted meat pieces and bones are manually reclassified.

The inspection and classifying table comprises an annular deck rotatably mounted on a circular supporting frame located entirely under the deck. A motor on the frame continuously rotates the deck. A divider wall is supported above the deck at the middle of its annulus and rests on the deck surface. The wall is stationary and extends 270° around the deck. The wall separates an inner classification area from an outer classification area. The stream of bones is deposited on the outer classification area and the stream of meat pieces on the inner classification area. Operators both inside and outside the annular deck transfer misclassified bones to the outer area and misclassified meat pieces to the inner area. At the downstream end of the divider, a scraper diverts all bones remaining in the outer classification area into a bone receiving bin. In the open deck area between the ends of the wall, the meat pieces are spread across the entire deck area and are removed manually by operators stationed at the outside of the table and deposited in suitable receptacles. As the table approaches the upstream end of the divider wall it encounters another scraper which restores all pieces remaining on the deck to the inner classification area. Thus, all meat pieces passing from the inspection table to the meat receptacles are individually inspected and transferred by hand, minimizing the possibility of the inclusion of a bone piece in the separated meat pieces.

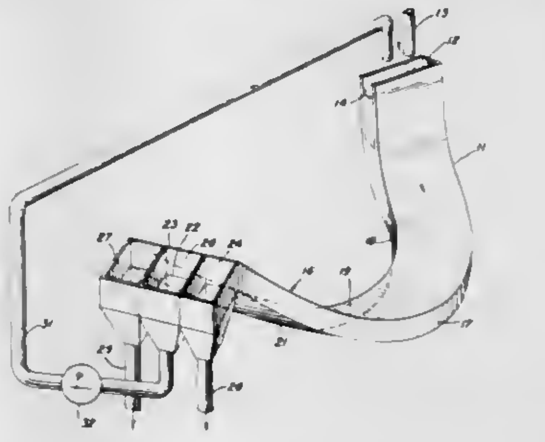


3,707,229
SOLID PARTICLES SEPARATION

Thomas E. Holm, Schiller Park, Ill., assignor to Herbert K. Holm, a part interest

Filed Feb. 16, 1971, Ser. No. 115,640
Int. Cl. B03b *3/30*

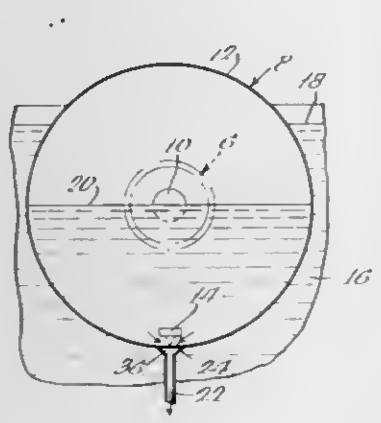
U.S. Cl. 209—157 **11 Claims**



Apparatus and method are provided for the separation of solid particles of different weights in a liquid suspension. The suspension is flowed upwardly in a wide confined stream of shallow depth over an inclined surface having a greater inclination at one side thereof than at the other. The heavier particles move toward the side of the stream having the lesser inclination. In a preferred embodiment, the confined stream follows a curvilinear path and the greater inclination of the inclined surface is adjacent the outer edge of the curved path.

3,707,230
METHOD AND APPARATUS FOR ULTRASONICALLY CLARIFYING LIQUID

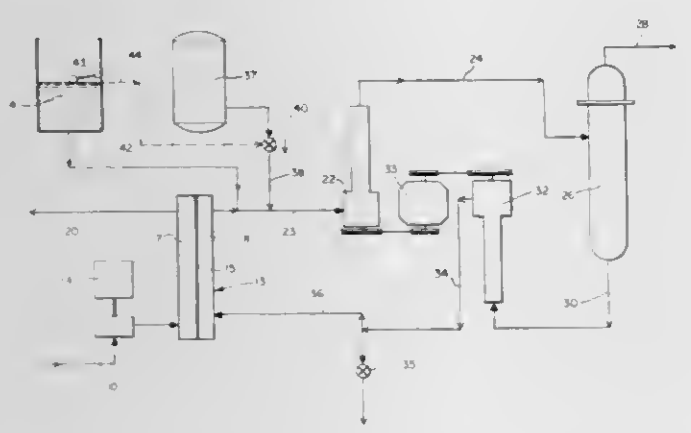
Roger Davidson, Arlington Heights, Ill., assignor to FMC Corporation
Filed Aug. 20, 1970, Ser. No. 65,621
Int. Cl. B01d *35/20*
U.S. Cl. 210—77 **3 Claims**



The removal of organic and other solids from a dilute aqueous suspension, such as the secondary effluent from a sewage treatment plant, is accomplished by passing the effluent through a rotating fabric in a chamber, which results in depositing solids on the fabric that serves as a filter. Located within the chamber and disposed immediately adjacent the filter are ultrasonic transducers that function to remove the solids from the filter by setting up vibrations. The solids so removed are directed through a solids discharge pipe positioned adjacent the transducers. The transducer can be located in a number of positions within the chamber outside the drum, such as (1) below the level of the contaminated stream, but above the level of the clarified liquid and (2) below the liquid level of the clarified stream, or inside the drum. In the latter two positions, clarified liquid may move outwardly to assist in carrying away the solids removed from the screen.

3,707,231
TWO-STAGE FLUID TREATMENT SYSTEM

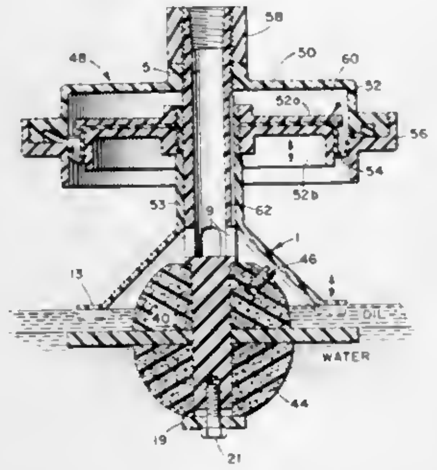
William E. Bradley, New Hope, Pa., assignor to Puredesal, Inc., Levittown, Pa.
Filed Jan. 25, 1971, Ser. No. 109,476
Int. Cl. B01d *31/00*
U.S. Cl. 210—98 **16 Claims**



Liquid purification is accomplished by adjusting osmotic pressure using two semi-permeable membranes and an intermediate fluid circulated between the two membranes. One of the membranes is operated as a direct absorption membrane at low pressure, whereas reverse osmosis is accomplished at the other membrane under high pressure.

3,707,232
SKIMMERS FOR POLLUTION CONTROL DEVICE

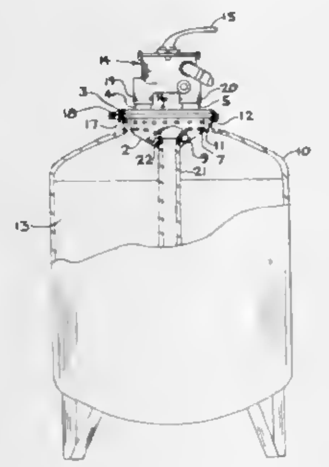
John W. Harrington, 7123 Merrimac Drive, and Edward G. Milne, 7115 Merrimac Drive, both of McClean, Va.
Filed Oct. 20, 1970, Ser. No. 82,526
Int. Cl. C02b *9/02*
U.S. Cl. 210—242 **11 Claims**



Floating skimmers slidable on an intake conduit having means counteracting the internal pressure drop normally incident to the intake operation. In one embodiment, the cone member has upper vent openings and an internal cylindrical part around the conduit and depending down to near the bottom of the cone. In a second embodiment, the upper cone member is connected pneumatically to the internal chamber of a bellows and the moveable part of the bellows is connected structurally to the cone. In both embodiments, the upper cone has a horizontal flange and the lower float has a flat surface extending slightly past the flange and positioned close to the flange in normal use.

3,707,233
FILTER TANK AND MOUNTING ADAPTOR FOR MULTIPORT VALVES

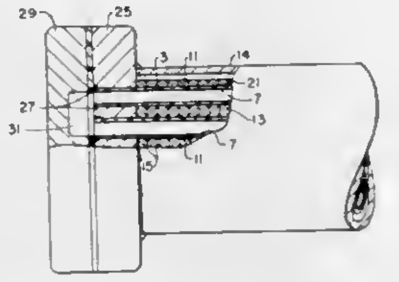
Marc Lerner, Swan Lake, N.Y.
Filed Oct. 13, 1970, Ser. No. 80,327
Int. Cl. B01d *23/20*
U.S. Cl. 210—278 **7 Claims**



A mounting adaptor for multiport multiposition valves adapted to be removably attached to an opening in a filter tank is provided. The adaptor has a peripheral flange which sealably engages a corresponding flange on the filter tank and is secured in place by a v-band coupling. Two fluid connecting ports for attachment to the multiport valve are provided to supply fluid to and discharge fluid from the filter depending on the valve position. The mounting adaptor also includes a fluid diffuser adapted to be disposed within the filter tank to uniformly distribute the influent fluid across the filter.

3,707,234
SUPPORT MODULE FOR REVERSE OSMOSIS MEMBRANE

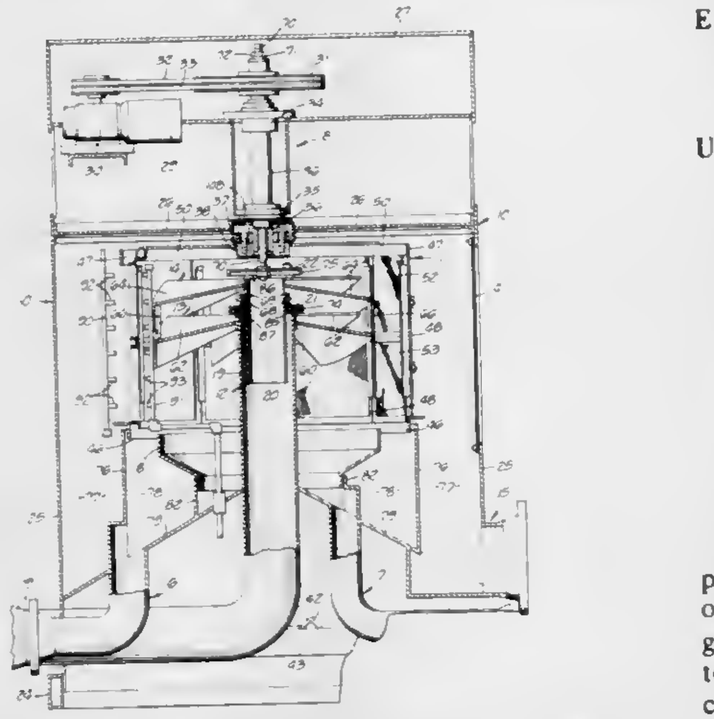
Nicholas A. Salemi, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 4, 1971, Ser. No. 140,179
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **7 Claims**



A support module for semipermeable tubular osmotic membranes formed from a stack of discs, which have a plurality of holes which register with holes in adjacent discs, the faces of the discs are rough to provide passageways for fluid to flow between adjacent discs, lengthwise welds form the discs in a rigid stack and cover plates, fastened to the end plates of the stack, have a series of grooves, which are disposed to place the tubular osmotic membranes disposed within the support module in series.

3,707,235
WASTEWATER CONCENTRATOR WITH PLURAL DISTRIBUTORS

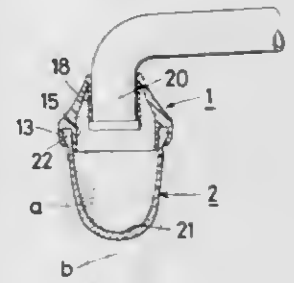
Walter J. Talley, Jr., Brentwood Park, Calif., assignor to Sweco, Inc., Los Angeles, Calif.
Continuation-in-part of Ser. No. 42,165, June 1, 1970, abandoned. This application March 19, 1971, Ser. No. 126,080
Int. Cl. B01d *21/26*
U.S. Cl. 210—377 **9 Claims**



There is disclosed herein equipment and methods for screening and concentrating wastewater overflow from combined sewer systems and the like. Exemplary equipment includes a separator employing a substantially cylindrical rotating screen. Influent is piped upwardly into the equipment and deflected outwardly by plural distributors toward the inner surface of the screen in a manner to achieve a desired flow rate and flow pattern of the influent onto the screen. Means including the distributors are provided for controlling the flow rate and for suitably directing the influent in a plurality of substantially discrete inclined streams toward the inner surface of the rotating screen. The screen is rotated at a speed to achieve a desired centrifugal force. Effluent passes through the screen to an outlet and the remaining concentrate passes to an outlet. The screen is in the form of a screen cage having a plurality of removable screen panels for facilitating replacement of damaged screens or changing screen type or mesh size. Cleaning means is provided for directing a cleaning fluid periodically at the screen. The methods disclosed involve the manner in which the influent, effluent, concentrate and backsplash are handled, and the manner in which the influent is screened to achieve a fluid concentrate which may be pumpable to other treatment equipment for ultimate disposal.

3,707,236
ANTI-SPLASH TAP NOZZLE

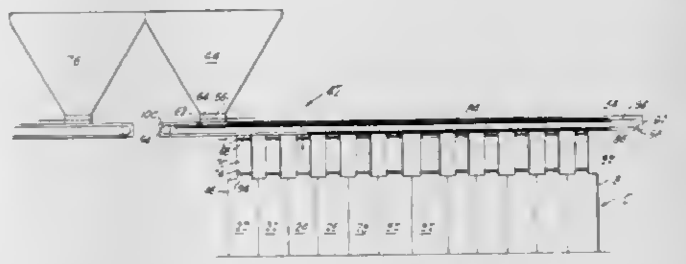
Hisatomo Takebayasi, Yokohama, Japan, assignor to Kurita Water Industries Ltd., Osaka, Japan
Filed Aug. 11, 1971, Ser. No. 170,835
Int. Cl. B01d *27/00*
U.S. Cl. 210—449 **7 Claims**



An anti-splash tap nozzle comprising a cap-shaped joint provided with a soft cylinder destined to clamp on the tap outer surface, and a filter provided with a convex head and made of a hard material having a uniform continuously foamed structure.

3,707,237
APPARATUS FOR CHARGING COKE OVENS

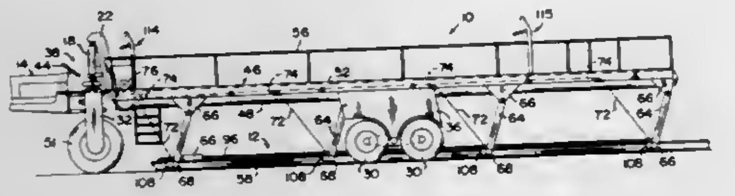
Erich Wiemer, Essen, Germany, assignor to Heinrich Koppers Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed March 31, 1971, Ser. No. 129,926
Int. Cl. C10b *31/04*
U.S. Cl. 214—21 **7 Claims**



A plurality of endless chain conveyors are positioned in parallel spaced relation above the charging holes of a coke oven battery. The endless chain conveyors are arranged longitudinally relative to the coke oven battery and transversely to the coke oven chambers so that each coke oven chamber can be simultaneously charged from all of the endless conveyors positioned thereabove. The endless chain conveyors are each positioned within an enclosure that has outlet means therefrom to the respective coke oven chambers. A coal tower or hopper is positioned above each endless conveyor and has an outlet means connected to the enclosure to supply coal to the respective endless conveyor. The outlets from the enclosure have gate valve means for each coke oven chamber. Suitable means may be provided to automatically open and close the respective gate valve means. Another embodiment is provided with an inclined conveyor connected to the hopper that conveys coal from the lower conveyor reach to the upper conveyor reach.

3,707,238
PRIME MOVER

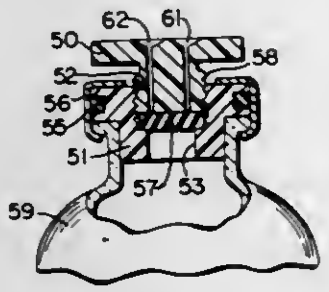
John L. Thibodeau, Sr., 8402 12th Street, Tampa, Fla.
Filed Sept. 2, 1970, Ser. No. 68,890
Int. Cl. B60p *1/64*
U.S. Cl. 214—390 **7 Claims**



A vehicle primarily designed to transport a large load, such as a modular home. The vehicle comprises a substantially U-shaped frame to partially enclose the load and load engaging means movably connected to the frame in such a manner as to enable adjustment in a horizontal direction to correspond to the specific size of the load and to enable movement in a vertical direction to lift the load.

3,707,239
ADAPTER UNIT, SEPTUM INLET DEVICES AND VALVES

Rano J. Harris, Sr., and Rano J. Harris, Jr., both of Baton Rouge, La., assignors to Precision Sampling Corporation
Continuation-in-part of Ser. No. 90,603, Nov. 18, 1970, and a continuation-in-part of Ser. No. 879,232, Nov. 24, 1969, Pat. No. 3,603,471, and a continuation-in-part of Ser. No. 115,496, Feb. 16, 1971. This application July 2, 1971, Ser. No. 159,170
Int. Cl. B64d *41/02*
U.S. Cl. 215—38 R **10 Claims**

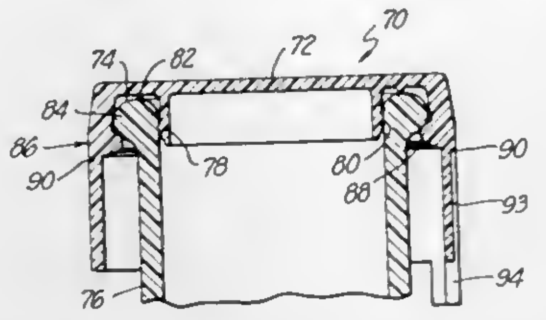


An adapter unit suitable for fitting upon the wall which forms the top portion of the neck of a container or bottle, and the combination of such unit with a septum inlet device or valve. The adapter unit comprises an internally threaded tubular member, with a flanged end containing a peripherally located O-ring, which flanged end of the said tubular member rests atop the neck of a bottle and can be retained in such position by use of a metal sealing ring. In one embodiment, a septum inlet device is provided by location of a septum within the said tubular member, and it can be retained therein by a second tubular member, externally threaded for engagement with the said adapter tubular member. In another embodiment, a valve assembly is located within the adapter unit.

3,707,240
CLOSURE WITH TEAR-OFF SKIRT

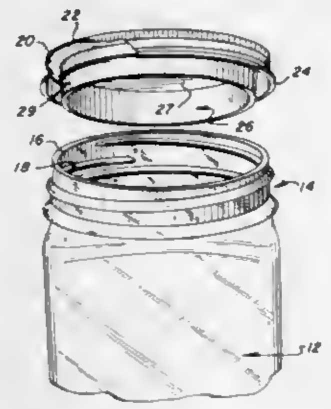
Woodrow S. Wilson, Slatersville, R.I., assignor to Polytop Corporation, Slatersville, R.I.
Filed Aug. 27, 1970, Ser. No. 67,467
Int. Cl. B65d *41/22*
U.S. Cl. 215—41 **1 Claim**

A closure for use on a container neck may be constructed including a top adapted to be located over the end of the neck, a sealing structure serving as a cork or stopper for engaging the interior of the neck located on the top so as to depend from it and a dependent skirt located at the periphery of the top so as to fit over and extend around the exterior of the neck. The skirt includes a fixed portion and a tear-off portion separated from the remainder of the closure by a severable means such as a line of reduced thickness, perforations or both. A tab is located on the fixed portion. With this structure the tear-off portion of the skirt may be removed from the closure so that the tab and fixed portion may thereafter be used as a handle in removing and replacing the closure upon a container neck.



3,707,241
PLASITC CONTAINER WITH THREADED MOUTH STRENGTHENING CLOSURE MEANS

Guy A. Taylor, Batavia, Ill., assignor to Sanford Research Company
Filed April 21, 1970, Ser. No. 30,517
Int. Cl. B65d *41/04*
U.S. Cl. 215—43 A **12 Claims**



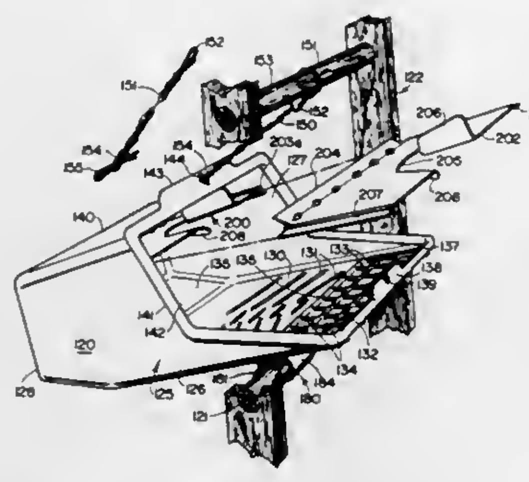
A blow molded plastic container such as a bottle or a jar having a threaded thin walled mouth portion is provided with an internally threaded closure and a reinforcing means for strengthening and backing the mouth portion of the container. The reinforcing means in said closure includes an insert or backing member which can have a tapered or frusto-conical outer surface for backing or strengthening the mouth portion of the bottle or jar adjacent the lip when the closure is screwed over the bottle or jar mouth. The insert or backing member can be an integral part of the closure. Alternatively the insert or backing member can be part of a disc insert for the closure, the backing member being a downwardly extending circular flange. In either event the backing member is spaced inwardly from the closure threads a proper distance to tightly receive the threaded mouth wall between the backing member and the closure threads against accidental dislodgement. The closure can also be provided with a surface for engaging the lip of the mouth of the jar for sealing the jar.

3,707,242
MULTI-USE PAINT TRAY

Henry Golden, and Samuel R. Genca, both of Rochester, N.Y., assignors to Tray-X Corporation, Rochester, N.Y.
Continuation-in-part of Ser. No. 884,127, Dec. 11, 1969, Pat. No. 3,625,388. This application Dec. 11, 1970, Ser. No. 97,252
Int. Cl. E06c *7/14*
U.S. Cl. 220—1 R **2 Claims**

A multi-use paint tray is disclosed wherein means are provided for positioning the tray into various positions ranging

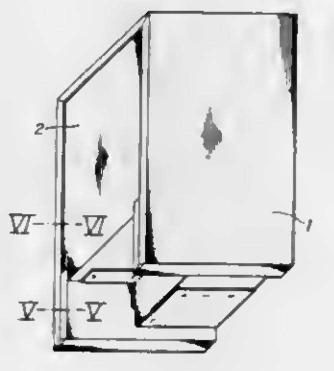
from a vertical position to a horizontal position on a flat surface, a ladder having rungs or a step ladder. A tray insert means is included for stowing tools such as paint brushes



ready for use in all of the aforesaid positions away from a bottom wall of the paint tray which wall is primarily used for draining paint from paint applicators.

3,707,243
REFRIGERATOR CABINETS

Joshua Wilson Kitson, Huntingdon, England, assignor to U. S. Philips Corporation, New York, N.Y.
Filed Jan. 20, 1970, Ser. No. 4,193
Claims priority, application Great Britain, Jan. 21, 1969, 3,270/69; Jan. 21, 1969, 3,271/69; Jan. 21, 1969, 3,272/69; Jan. 21, 1969, 3,273/69; March 14, 1969, 13,438/69; July 23, 1969, 36,913/69; Sept. 4, 1969, 43,861/69
Int. Cl. B65d *25/18*
U.S. Cl. 220—9 F **11 Claims**

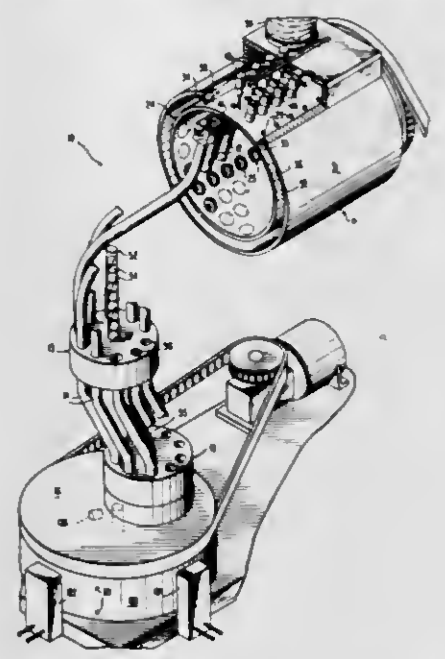


A refrigerator cabinet having an inner lining, an outer surface layer, and an insulating body of foamed plastic material between the inner lining and outer surface layer. The outer layer is formed of a first sheet of thin material having a plurality of folds so as to define three walls of the container and a recess for accommodating a refrigeration unit and an air duct passage. A second sheet of thin material defining at least an additional surface of said container, is arranged so as to be secured to a plurality of flanges on said first sheet of material.

3,707,244
COIN PROCESSING METHOD AND APPARATUS

Gerry G. Hull, and Eugene B. Morris, Jr., both of Atlanta, Ga., assignors to ATL Machine Corporation, Atlanta, Ga.
Filed June 22, 1970, Ser. No. 48,077
Int. Cl. G07f *11/00*
U.S. Cl. 221—13 **7 Claims**

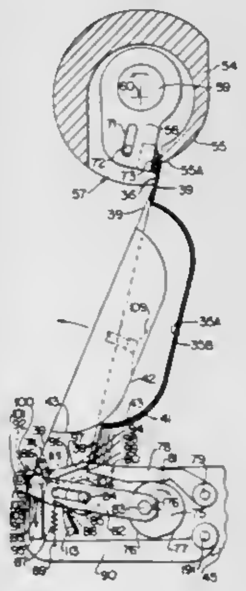
A coin processing method and apparatus in which coins of predetermined physical characteristics are lifted from a mass of coins, dropped into a plurality of coin hoppers and moved through individual conduits down to a coin shelf. A predetermined number of coins from the hoppers are allowed to accumulate and form stacks on the coin shelf and the stacks of coins are passed in sequence over a discharge opening in the coin shelf. Balls of a diameter approximately equal to the diameter of the coins are inserted between the coin stacks at the coin shelf discharge opening, and a transparent plastic



material is applied to the line of coin stacks and balls to form a continuous tubular wrapper about the coins and balls. The continuous wrapper is opened at the balls and the balls are separated from the coin stacks, leaving separate packages of coins.

3,707,245
METHOD AND APPARATUS FOR DISPENSING STACKED AND NESTED ARTICLES

George D. Bryan, Jr., Mechanicsville, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed March 26, 1971, Ser. No. 128,301
Int. Cl. B65g *59/08*
U.S. Cl. 221—251 **30 Claims**

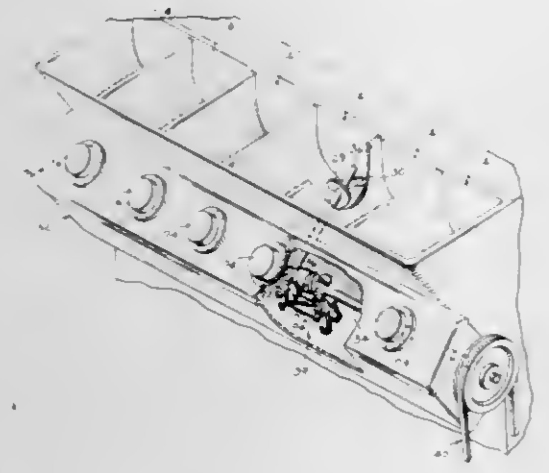


Dispensing apparatus for nested open ended articles wherein a guide structure is provided for receiving a stack of the nested articles with the lead article being at one end of the stack. Means are disposed adjacent the guide structure for causing relative movement between the lead article and the article in the stack adjacent thereto in a direction substantially transverse to the nesting direction of the articles to cause camming between the lead article and the adjacent article so that the lead article will begin to separate on one side thereof from the adjacent article in a direction substantially opposite to the nesting direction. Other means are also disposed adjacent the guide structure for further separating the lead article from the stack in a direction opposite to the nesting direction thereof.

3,707,246
SPEED REGULATING DEVICE FOR MATERIAL DISCHARGE APPARATUS

Edgar C. Ewell, Ossian, Ind., assignor to Modern Mill, Inc., Ossian, Ind.

Filed March 29, 1971, Ser. No. 128,765
Int. Cl. B67d *5/60*
U.S. Cl. 222—134 **15 Claims**

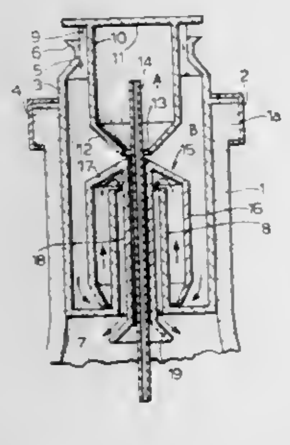


A device for regulating the speed of an auger utilized to deliver grain or similar particulate material from one location to another. A motor driven, constant speed shaft carries a concentric disk which rotates with the shaft and which is tiltable relative to the axis of the shaft. A pair of reciprocal drive couplers is connected to the shaft of the auger and is utilized for imparting one-directional rotative movement to the auger. A pair of rocker arms is operatively connected between the drive couplers and the disk carried by the drive shaft. Each rocker arm has one end connected to a drive coupler and its opposite end resting upon one side face of the disk. Rotation of the disk when in a tilted position causes oscillatory movement of the rocker arms and the resulting actuation of the drive couplers, which in turn cause rotative movement of the auger. The disk carried by the drive shaft is designed so as to be adjustably tiltable relative to the axis of the drive shaft. By varying the tilt of the disk, the extent of oscillatory movement or swing of the rocker arms may be varied and the speed of the auger correspondingly changed.

3,707,247
LIQUID MEASURING AND DISPENSING BOTTLE CLOSURE DEVICE

Piergiacomo Guala, Alessandria, Italy, assignor to Societa Angelo Guala di Piergiacomo E. Roberto Guala & C. S.a.S., Alessandria, Italy

Filed Sept. 21, 1971, Ser. No. 182,497
Claims priority, application Italy, Sept. 23, 1970, 70189 A/70; July 16, 1971, 69408 A/71
Int. Cl. B67d *3/18*
U.S. Cl. 222—188 **12 Claims**

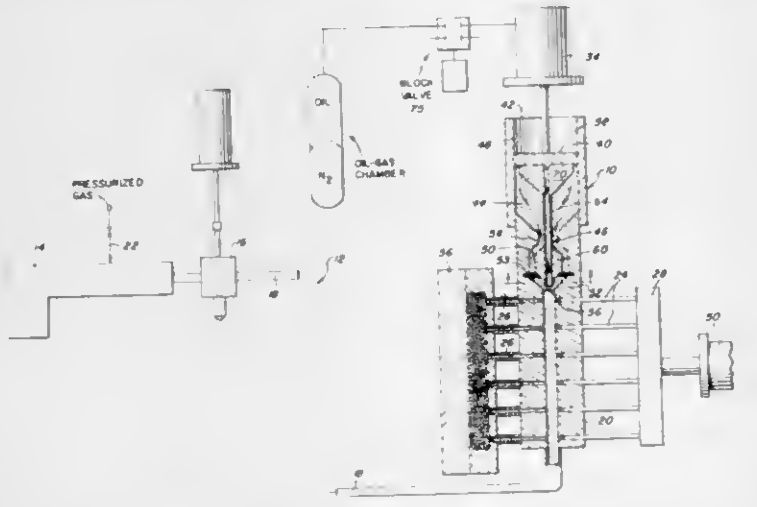


This invention provides an improved liquid measuring and dispensing closure device having axial symmetry and including a tubular body with an internal lock chamber which communicates with the interior of the bottle by way of a narrow coaxial vent tube, the lock chamber also communicating by way of an annular aperture with a first annular coaxial passage which connects the interior of the bottle with a pouring opening. During pouring liquid flows into the lock chamber through a second annular coaxial passage, narrower than the first, and also through the pouring opening until the liquid in the lock chamber closes off the vent tube, direct flow of air into the bottle through the first passage being prevented, and the axial symmetry of the stopper permitting its effective use in any orientation of the bottle.

3,707,248
ACCUMULATOR USEFUL IN MOLDING ARTICLES OF MANUFACTURE FROM PLASTIC

James E. Aker, Seymour, Ind., assignor to Standard Oil Company, Chicago, Ill.

Filed Feb. 18, 1971, Ser. No. 116,410
Int. Cl. B67d *5/52*
U.S. Cl. 222—255 **2 Claims**

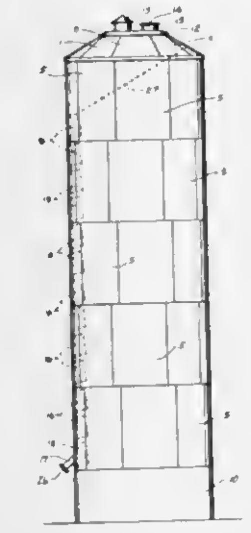


Heat degradation of plastics is minimized using an accumulator in which fresh plastic is introduced into the accumulator at a point remote from the point where previously stored plastic is withdrawn. Consequently, plastic which was last introduced into this accumulator is withdrawn before freshly introduced plastic. A control system for regulating the flow of plastic is also disclosed.

3,707,249
DISCHARGE MEANS FOR TANKS OR BINS

William H. Tomlinson, Kansas City, Mo., assignor to Columbian Steel Tank Company, Kansas City, Mo.

Filed Sept. 2, 1970, Ser. No. 69,035
Int. Cl. B65g *65/36*
U.S. Cl. 222—464 **3 Claims**

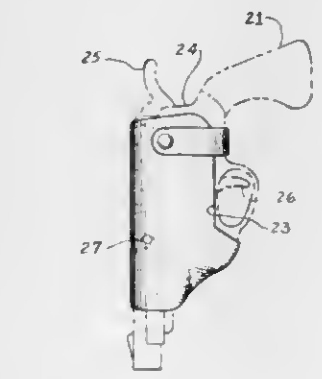


A vertical row of vertically spaced baffles is provided on the side wall of a receptacle for loose material such as grain, the series of baffles forming a vertical conduit from near the top to adjacent the bottom of the receptacle which has uniformly vertically spaced inlets into it at the upper end of each of the baffles. The baffles are secured to the side wall of the receptacle by either welding or bolting and have flanges for this purpose. The baffles provide conduit sections that have flat walls that incline outwardly in a downward direction so that each baffle forms a gradually widening conduit section. The grain or other loose material is drawn off from the top of the mass downwardly feeding into each of the baffles until the angle of repose of the material is reached, whereupon the material is fed into the next lower baffle, the unloading of the bin or tank thus being in successive layers from the topmost portion of the contents as discharge proceeds.

3,707,250
CONCEALED HOLSTER

Raymond Esposito, 56-51 195th Street, Fresh Meadows, N.Y.

Filed Aug. 11, 1970, Ser. No. 62,968
Int. Cl. F41c *33/02*
U.S. Cl. 224—2 B **2 Claims**



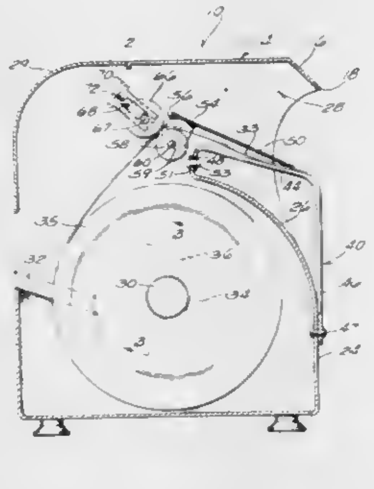
A concealed weapon holster utilizing a one-piece body folded so as to have two halves and a plurality of apertures permitting gas egress upon the discharge of a shell. The two halves form a pair of flaps which permit the insertion of ammunition into the weapon chamber, and detachable securement on any desirable location on the person, such as a pocket or belt.

The holster is designed to wrap around the weapon in a glove-like fashion and remain in such a posture while in use.

3,707,251
ROLL FILM DISPENSER

Merwin J. Dashnier, and James A. Diring, both of Green Bay, Wis., assignors to Alwin Manufacturing Company, Inc., Green Bay, Wis.

Filed Dec. 7, 1970, Ser. No. 95,523
Int. Cl. B26f *3/02*
U.S. Cl. 225—21 **5 Claims**

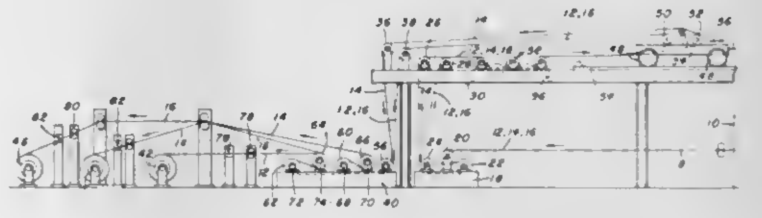


A dispenser for a supply roll of web material or roll film includes spaced web supports connected to a dispenser wall below the dispensing slot to support the free end of the web in a convenient access position below a tear-off knife. Correspondingly spaced tabs are pivoted to the dispenser for swinging movement across the dispenser outlet between a position to clamp the web on the web supports and an upwardly displaced position when the web is pulled and lifted against the tear-off knife. After a length of film is severed from the roll, the tabs return by gravity toward the web supports, removing the web from the knife and clamping the free end of the web on the web supports.

3,707,252
AUTOMATIC TENSIONING DEVICE FOR MULTIPLE LINE STRIP

Joseph J. Kasecky, New Kensington, and Charles W. Thompson, Blairsville, both of Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Filed Sept. 10, 1971, Ser. No. 179,401
Int. Cl. B65h *25/04*
U.S. Cl. 226—25 **14 Claims**

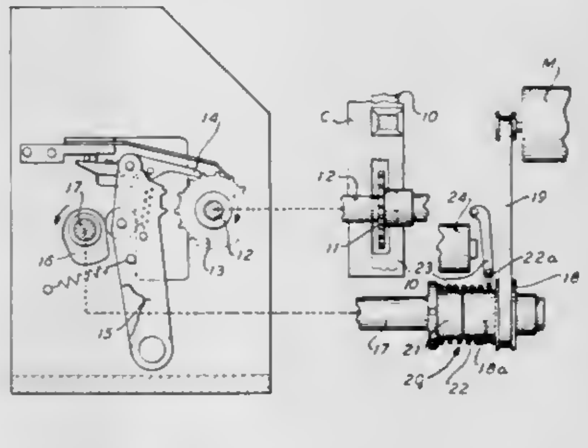


An automatic tensioning device for separate strips in a multiple strand process line for preventing sagging of lines of strip and thereby guiding the strip in separate paths of travel and preventing their drifting into each other and characterized by separate sets of strip-engaging rolls which are responsive to strip sagging. Each set of rolls has one roll which drops by gravity in response to reduction in strip tension, thereby maintaining the tension necessary for guiding the individual strip in its designated line of travel. The apparatus includes a position-control servomechanism responsive to the position of the one roll and directed to strip drive rolls for increase of the strip speed and returning said one roll to its home position.

3,707,253
VARIABLE PROJECTOR SPEED CONTROL

Henry L. Brill, Flushing, N.Y., and James A. Stanford, East Orange, N.J., assignors to E. R. E. Laboratory, Inc., West Orange, N.J.

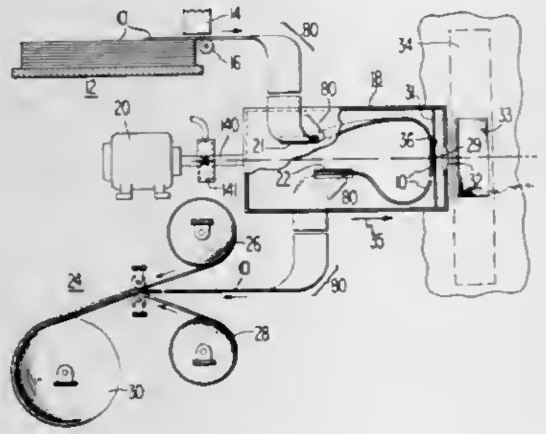
Filed Aug. 31, 1971, Ser. No. 176,517
Int. Cl. G03b *1/24*
U.S. Cl. 226—76 **12 Claims**



A film projector is stepped ahead by a ratchet mechanism operated by a rotating cam itself driven from a motor through a one-revolution integrating clutch. The clutch is controlled by a solenoid which when continuously energized causes the clutch to be continuously engaged and the film to be advanced at a maximum speed of about 22 frames per second. Lower projector speeds down to one frame every two seconds are accomplished by cutting off the steady current supply to the solenoid and operating it by a pulse generator. An RC timing circuit for the generator has a manually variable rheostat which at zero setting (minimum resistance) has a time constant of the order of 22. When the rheostat is moved from zero setting it first operates a switch to cut off the steady current supply to the solenoid and then it activates the pulse generator at a rate determined by the timing circuit.

3,707,254
AERIAL PHOTOGRAPHY

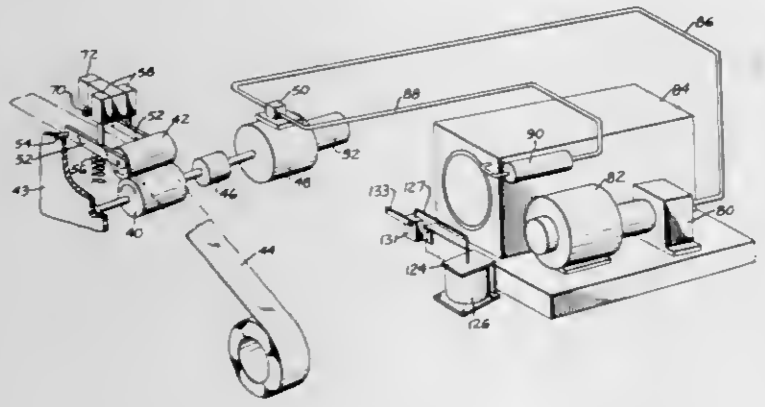
Richard David Scott, Camden, N.J., assignor to RCA Corporation
Filed March 19, 1971, Ser. No. 126,112
Int. Cl. B65h *17/32*
U.S. Cl. 226—97 **7 Claims**



Discrete lengths of elongated web are both pushed and pulled through a complex path formed in part by spaced-apart guides made of porous material. Pressurized gas forced into the path through the porous walls creates gas layers over which the webs ride. Means are also provided for transporting the webs between stationary and moving paths.

3,707,255
FEED ARRANGEMENT FOR STRIP STACK

Merrill L. Ridgway, Minster, and Willard D. Kaiser, Grove City, both of Ohio, assignors to The Minster Machine Company, Minster, Ohio
Continuation-in-part of Ser. No. 832,202, June 11, 1969, abandoned. This application Jan. 13, 1971, Ser. No. 106,151
Int. Cl. B65h *17/22*
U.S. Cl. 226—136 **21 Claims**



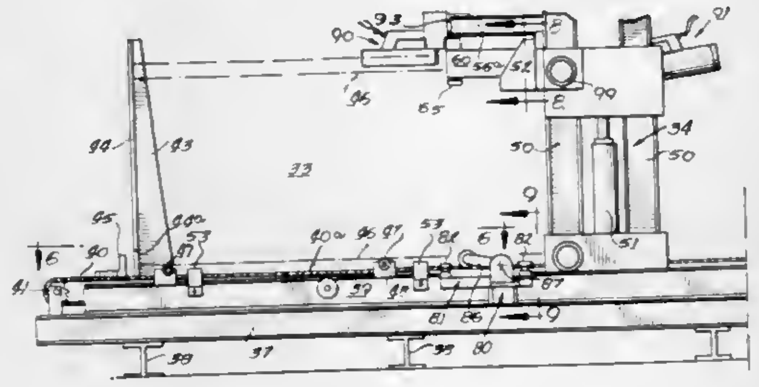
Feed arrangement for feeding strip stock, or the like, into a press in which the feeding mechanism for the stock comprises a drive roller which drives the stock and which also drives a signal producer, the signal from which is compared with another signal preset on a manually adjustable signal producer with the feed being automatically terminated when the two signals bear a certain relation to each other. The signals may be digital signals or analog signals.

ERRATUM

For Class 227—130 see:
Patent No. 3,707,406

3,707,256
INTERIOR DOOR UNIT ASSEMBLY MACHINE

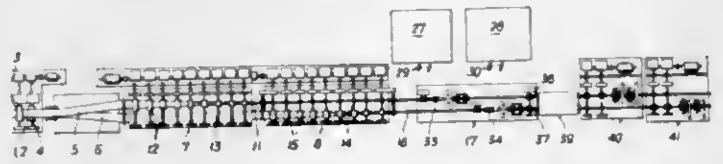
Adolph H. Lubin, deceased, late of Springfield, Ill.; by Robert L. Lubin, Springfield, Ill.; by Rose Lubin, Springfield, Ill. (co-executors), and Ivan R. Stacy, Springfield, Ill., assignors to Barker-Lubin Company, Springfield, Ill., by said Stacy
Filed Nov. 19, 1970, Ser. No. 91,135
Int. Cl. B27f *7/06*
U.S. Cl. 227—7 **10 Claims**



A machine is adapted to assemble and package a pre-hung interior door unit, together with a jamb including a split latch and exterior trim. The machine has an elongated horizontal bed provided with an endless chain for conveying the door and side jamb members past fixed staple guns which staple the trim to their associated jamb members. Lugs on the chain stop the assembly prior to firing the guns. A separate gun drives a temporary staple to hold the two sections of the jamb together. Another gun drives a staple to temporarily hold the door in place so that after it is packaged, the assembly is rigid for shipping, yet easily disassembled as far as needed for installation.

3,707,257
PLANT FOR THE SELECTIVE PRODUCTION OF EITHER TWO ONE-SEAM TUBES OR ONE TWO SEAM-TUBE

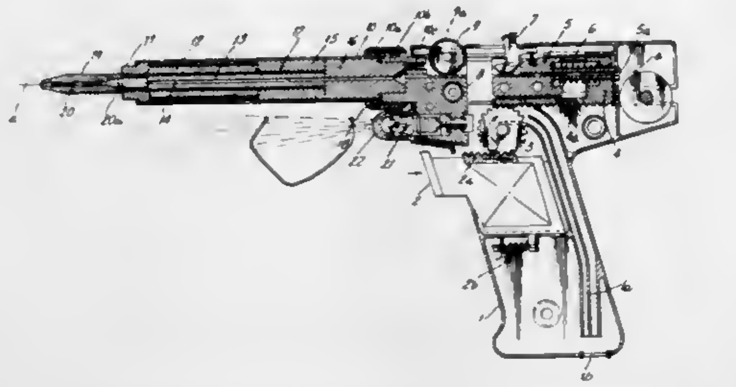
Alfred Wogerbauer, and Anton Hulek, both of Linz, Austria, assignors to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria
Filed Sept. 8, 1970, Ser. No. 70,439
Claims priority, application Austria, Sept. 8, 1969, A 8493/69
Int. Cl. B23k *1/00, 5/00*
U.S. Cl. 228—6 **2 Claims**



The disclosure relates to a plant for the selective production of either two one-seam tubes or one two-seam tube comprising two roll forming machines arranged one behind the other for the formation of two slotted tubes or component sections from strips and a welding apparatus with two welding stations, wherein the improvement resides in that at least one roll forming machine is vertically displaceable relative to the other roll forming machine and at least the forming rolls of one roll forming machine are horizontally displaceable relative to the forming rolls of the other roll forming machine and the positions of the two welding stations are likewise changeable relative to each other. This plant is highly economical and versatile as regards tube shapes and dimensions.

3,707,258
SOLDERING GUN FOR ONE-HANDED MANIPULATION

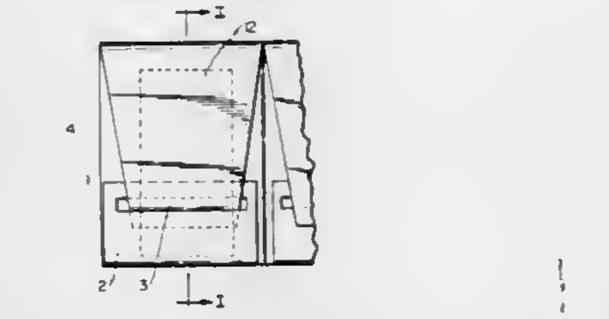
Klaus Schlitt, 2, Voltenseestrasse, 6 Bergen-Enkheim near Frankfurt/Main, Germany
Filed May 13, 1969, Ser. No. 824,209
Claims priority, application Germany, March 26, 1969, P 19 15 259.1
Int. Cl. B23k *3/06*
U.S. Cl. 228—52 **17 Claims**



A soldering gun, and more particularly a soldering gun for one-handed manipulation is provided containing a supply bobbin for soldering wire and means for feeding the latter. Said soldering gun consists of two functional assemblies resiliently coupled as required by the state and properties of the soldering wire by means of a compression spring being placed between said cooperating assemblies. The soldering wire advances through the axial bore of a fine steel barrel which contains insulating lining members as well as a heating cartridge, the advance of the wire being controlled by a locking wheel located in a stationary part of the soldering gun. Thus a thrust is generated that does not exceed the buckling strength of the heated wire.

3,707,259
FOLDER

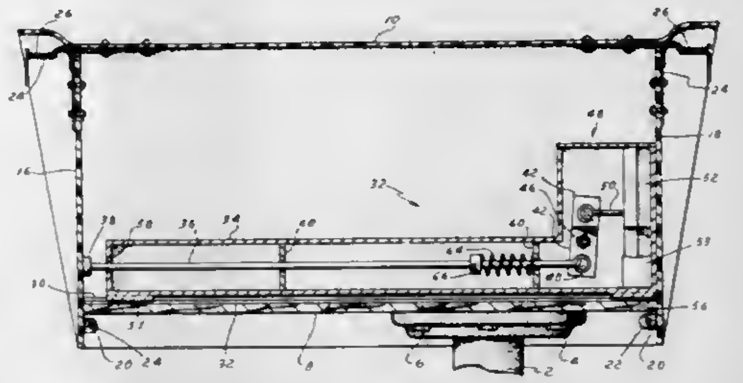
Herbert Meyer, Regensburg, Germany, assignor to The Herold Press, Inc., New York, N.Y.
Filed Sept. 1, 1970, Ser. No. 68,695
Claims priority, application Germany, Nov. 29, 1969, G 69 46 411.5
Int. Cl. B65d *27/22*
U.S. Cl. 229—92.5 **1 Claim**



A folder comprising a single folded blank and characterized by a rear portion and upper and lower flaps hinged to said rear portion. One of said flaps has a transverse slot therethrough, into which the other of said flaps may be received. Inserts such as brochures, pamphlets or the like may be inserted into the slot and retained in place by the other of the flaps also inserted through the slot. In a preferred embodiment of the invention, the folder may comprise a two-part folder having two identical portions in side-by-side relationship and joined by a common fold line.

3,707,260
MAIL BOX WITH REMOTE SIGNAL TRANSMITTER

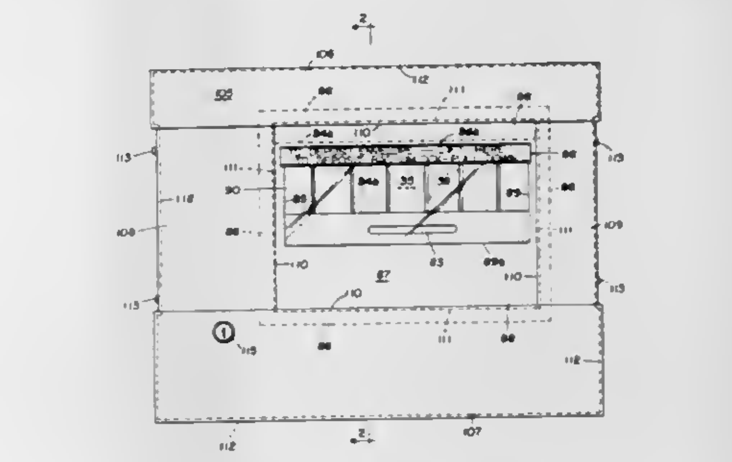
Leodore H. Gelineau, Sr., R.F.D. No. 2, Southbridge, Mass., and Gordon A. Moore, R.F.D. No. 1, Palmer, Mass.
Filed March 30, 1971, Ser. No. 129,354
Int. Cl. B65d *91/00*
U.S. Cl. 232—36 **6 Claims**



A rural route mail box having an insertable unit housing a remote signal transmitter and a rod and lever actuating mechanism to trigger the same on opening the box door to deliver or pick-up mail. The unit is slidable into position with an enlarged transmitter housing portion located at the rear of the box, the rod and lever being arranged for push-button like operation of the transmitter responsive to movement of the front door. The unit, in the embodiment disclosed, is further slidably movable under spring pressure for transmitter operation in response to the opening of a door at the rear end of a box having an access opening at either end.

3,707,261
AFTER-HOURS DEPOSITORY ENTRANCE

Larry I. Cutter, Cedar Rapids, Iowa, assignor to LeFebure Corporation, Cedar Rapids, Iowa
Filed June 1, 1970, Ser. No. 42,202
Int. Cl. E05g *1/00*
U.S. Cl. 232—44 **31 Claims**



An after-hours depository entrance employs a cylindrical drum with an article receptacle therein which rotates in a housing between an article receiving opening and an article depositing opening. The housing is fitted with a number of fixed article interceptors which sweep through the article receptacle as it passes the article depositing opening in order to insure that no articles therein can be returned to the receiving opening, the drum being rotatable in one direction only for this purpose. The drum is rotatable in both directions, however, through a limited arc so that if the receptacle is improperly loaded, it can be reversed for reloading.

An important feature of the depository entrance is a closure for the housing receiving opening in the form of a two-way sliding door which when slid in one direction opens into the receptacle for receipt of bagged deposits and which when slid in the other direction brings a slot only in the door into communication with the receptacle for envelope deposits. A cover plate is provided over the door with an aperture therein in registry with the housing receiving opening, margins of the aperture overlapping margins of the door in order to prevent entry of weather elements into the housing receiving opening. An electric motor drives the drum and a circuit interconnecting the door and drum controls operation of the motor according to movement of the door.

3,707,262

HIGH-SPEED TAPE PERFORATOR

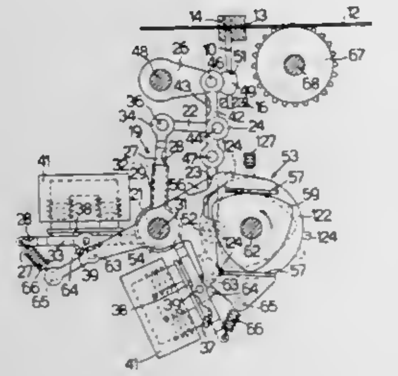
Armando Costa, and Giovanni Cerutti, both of Ivrea, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy

Filed Nov. 25, 1970, Ser. No. 92,778

Claims priority, application Italy, Nov. 28, 1969, 54196 A/69

Int. Cl. G06k *1/02*

U.S. Cl. 234—119 **10 Claims**



A high-speed paper tape perforator is disclosed including a series of punches each adapted to be actuated by a corresponding kinematic train. Each train includes a selection electromagnet for selecting the punches to be actuated. A frame common to the kinematic trains cyclically actuates the trains. A kinematic train actuated by the common frame is also provided for advancing the paper tape alternately with each perforation cycle.

3,707,263

HEATING ARRANGEMENT FOR A VEHICLE

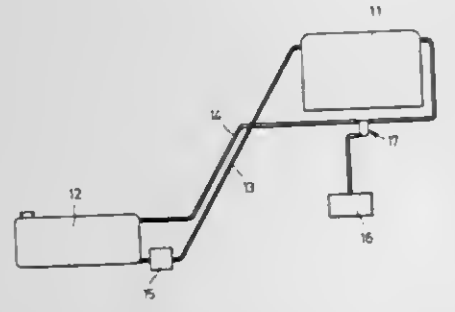
Helmut Baumgartner, Fallersleben, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed Nov. 18, 1970, Ser. No. 90,605

Claims priority, application Germany, Dec. 10, 1969, P 19 61 831.6

Int. Cl. B60h *1/14*

U.S. Cl. 237—12.3 C **2 Claims**



A motor vehicle comprising an injection-type engine, a gas tank, a feed conduit for supplying fuel to the engine under excess pressure from the tank, and a fuel return line connected between the engine and the tank, the return line being under reduced pressure, in combination with a heating device operable with the same type of fuel as the engine, a bubble separator connecting the heating device to the fuel return line and adapted to separate the bubbles formed in the return line.

3,707,264

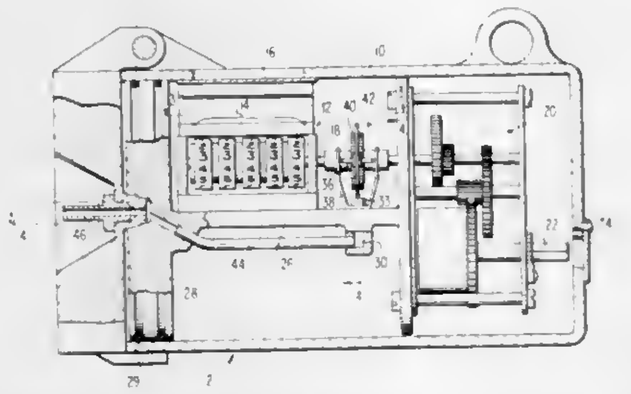
SPRING DRIVEN TRAFFIC COUNTER

Harry E. Trigg, and Luther W. Mitchell, both of Hampton, Va., assignors to International Transportation Service Corporation, Hampton, Va.

Filed Jan. 3, 1972, Ser. No. 214,910

Int. Cl. G06m *1/08*

U.S. Cl. 235—99 A **3 Claims**



A register driven by a spring motor produces a half count for each pulse from a pneumatic tube by means of a pneumatically driven escapement mechanism.

ERRATUM

For Class 237—12 see:
Patent No. 3,707,263

3,707,265

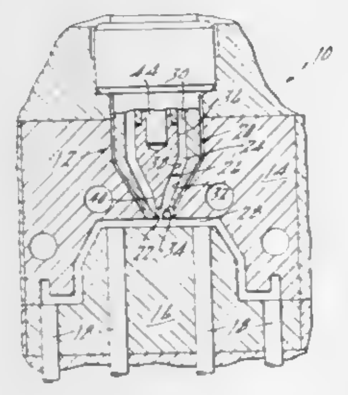
NOZZLE FOR AN INJECTION MOLDING MACHINE

Alex Seres, Fraser, Mich., assignor to Incoe Corp., Troy, Mich.

Filed March 3, 1971, Ser. No. 104,293

Int. Cl. B29f *1/08*

U.S. Cl. 239—601 **6 Claims**



A nozzle for a plastic injection molding machine having an axially extending orifice and a flow passage of annular cross-section communicating with the orifice. The flow passage is defined in part by a radially and axially converging radially outward wall with the rate of radical convergence increasing as the orifice is approached.

3,707,266

CRUSHING MACHINES

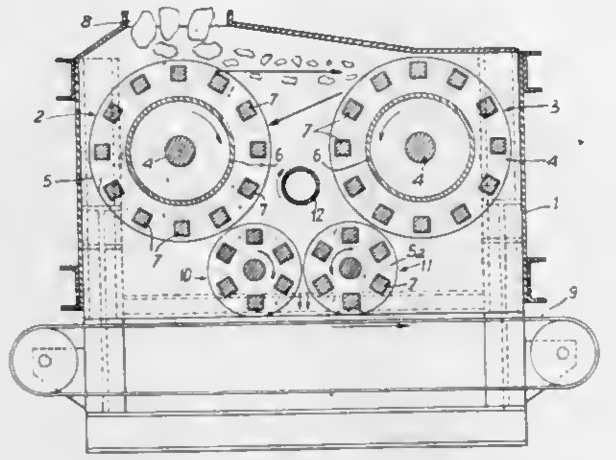
Gerard J. Llabres, Residence Robineau No. 45, Muret, France

Filed Dec. 7, 1970, Ser. No. 95,714

Int. Cl. B02c *13/20*

U.S. Cl. 241—154 **7 Claims**

A crusher adapted to crush clay for the manufacture of bricks and tiles, even when the raw material is somewhat moist. To this end, two upper rollers are provided each with an annular series of parallel rods to cause the material to be thrown off one rotor on to the other before it is comminuted between two smaller lower rollers and forms a homogeneous mixture.



3,707,267

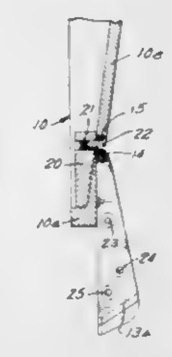
REPLACEABLE VANE INSERT FOR IMPELLER

Philip G. Bump, Pittsfield, Mass., assignor to Beloit Corporation, Beloit, Wis.

Filed Feb. 24, 1971, Ser. No. 118,429

Int. Cl. B02c *18/06*

U.S. Cl. 241—294 **6 Claims**



An impeller for a paper pulp having a plurality of blade receiving stations each receiving a blade with a bulbous end seated in an axial recess for locking the blade in position with the blade additionally being held by a slotted rotor and being bolted in place with its outer end shaped for refining.

3,707,268

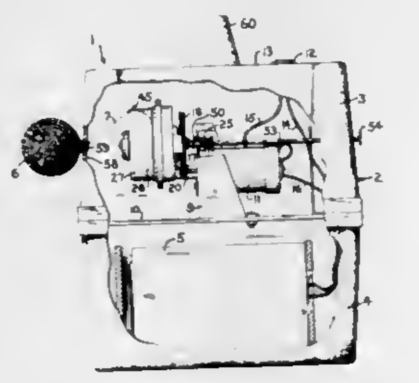
ARTICLE RETRIEVING APPARATUS

Gerald R. Kelly, 6506 E. 18th Street, Kansas City, Mo.

Filed March 2, 1970, Ser. No. 15,692

Int. Cl. B65h *75/00;* **A01k** *89/00*

U.S. Cl. 242—54 **3 Claims**



A portable article retrieving apparatus is enclosed within a housing having a base member mounted therein with a frame upstanding from the base member and a storage bobbin sleeved on a shaft which is rotatably mounted on the frame and rotated in response to activation of power means. A flexible member has an article to be retrieved affixed to one end thereof and the other end affixed to the bobbin. Bobbin positioning means are operatively connected to the bobbin to position same to receive an intermediate portion of the flexible member in response to rotation of the shaft for winding the flexible member around the bobbin and means operated from outside the housing for allowing substantially drag-free unwinding of the flexible member therefrom.

3,707,269

FILAMENT TENSIONING APPARATUS

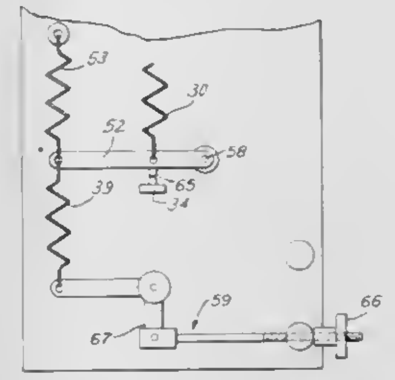
Marcel A. M. Gerest, Paris, France, assignor to Societe A Responsabilite Limitee Dite Altic, Paris, France

Filed May 27, 1970, Ser. No. 41,044

Claims priority, application France, May 28, 1969, 6917286

Int. Cl. B65b *59/16*

U.S. Cl. 242—155 R **6 Claims**



An automatic wire tensioning device for regulating the tension in a filament on a rotatable pulley during reeling and unreeling operations. The braking force on the pulley is controlled by a friction brake which is operated by a force balancing lever actuated by a braking spring and a wire tension spring. The braking spring has an adjustable loading and the wire tension spring senses the actual tension on a wire wound around and frictionally engaged with the pulley in an interdependent manner.

3,707,270

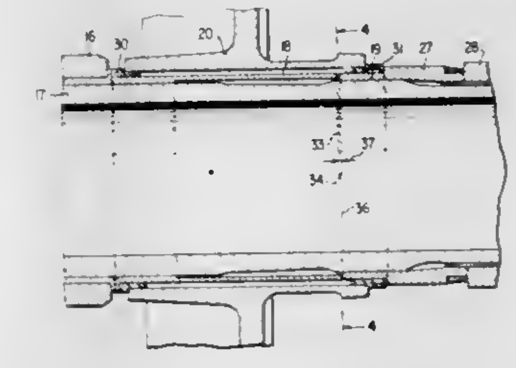
WEAR SLEEVE-TRANSDUCER COMBINATION FOR AIRCRAFT LANDING GEAR

Eric Laimins, Belmont, Mass., assignor to BLH Electronics, Inc., Waltham, Mass.

Filed Nov. 30, 1970, Ser. No. 93,785

Int. Cl. B64c *25/00*

U.S. Cl. 244—103 R **11 Claims**



A brake sleeve protecting an aircraft landing gear axle from brake collar wear is prevented from adversely affecting distributions of forces sensed by an inside-axle strain gage transducer by being split into a pair of end-to-end, substantially tubular sleeve parts fitted on the axle with certain clearance and having a semi-annular gap formed therebetween above the neutral axis of the axle, whereby pivotal movements of the sleeve parts relative to one other are accommodated about a transverse horizontal axis at or below the neutral axis and measurement-disturbing mechanical interferences between the sleeve and the axis are minimized.

3,707,271

CLOSURE CONSTRUCTION FOR PLASTIC BAGS

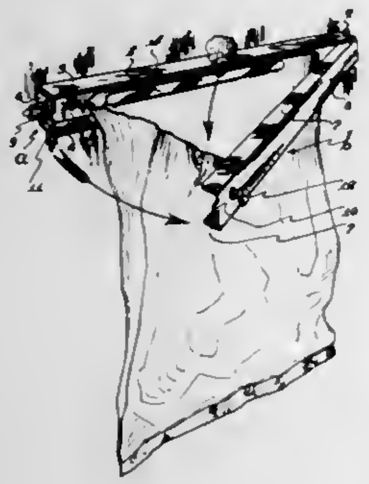
Manuel Rodriguez Sanchez, and Jose Puigdomenech Baste, both of Gorriti 3688, Buenos Aires, Argentina

Filed Dec. 14, 1970, Ser. No. 97,820

Claims priority, application Argentina, Dec. 16, 1969, 225,919

Int. Cl. B65b *67/04*

U.S. Cl. 248—101 **4 Claims**



A hinged closure device for supporting a removable plastic bag adjacent to its mouth and for selectively holding the mouth of the plastic bag in an open position so that refuse, etc., may be placed into the plastic bag or in a closed position wherein the mouth of the plastic bag is closed and sealed.

3,707,272

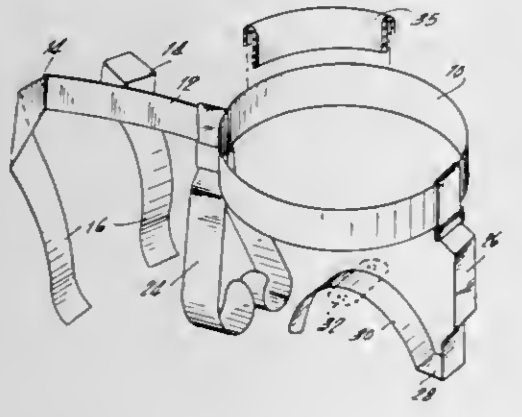
CUP HOLDER FOR AUTOMOBILES

Lester M. Rasmussen, 611 N. Ash Street, Momence, Ill.

Filed May 19, 1970, Ser. No. 38,746

Int. Cl. A47c *7/70*

U.S. Cl. 248—311 **8 Claims**



A cup holder is provided with clip and brace means for detachably securing same to the inside of an automobile door to hold any food dispensed in cups. Auxiliary clips detachably secured to the holder can be used to support bags holding additional food or refuse as well as holding napkins and the like.

3,707,273

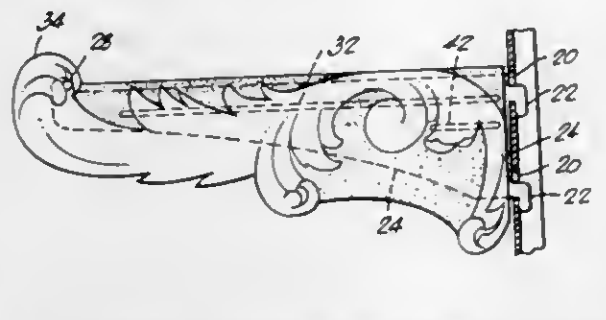
SHELF BRACKET COVER

Jack D. Bortz, 240 N. Crescent Drive, Beverly Hills, Calif.

Filed Aug. 20, 1970, Ser. No. 65,645

Int. Cl. A47g *29/02*

U.S. Cl. 248—235 **6 Claims**



This is an enclosure for an elongated member such as a shelf bracket which can be slipped over the bracket after it has been secured to a support member to provide a decorative cover for the bracket.

3,707,274

SLIDE BOX

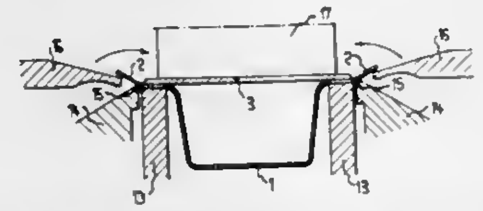
Thomas Hausler; Heinz Werren, both of Fribourg, and Ernest Eltschinger, Cottens, all of Switzerland, assignors to CP Conseiller en Packaging S.A., Fribourg, Switzerland

Filed Sept. 17, 1970, Ser. No. 73,080

Claims priority, application Switzerland, Dec. 3, 1969, 17999/69

Int. Cl. B65b *7/28*

U.S. Cl. 53—40 **2 Claims**



A slide box having a slide lid covering the opening of a container, said lid having disengageable locking means preventing removal of the lid, and a method and machine for manufacture of said slide box wherein the lid is applied onto flanges in the plane of the container opening whereafter such flanges are turned over round the edges of said lid.

3,707,275

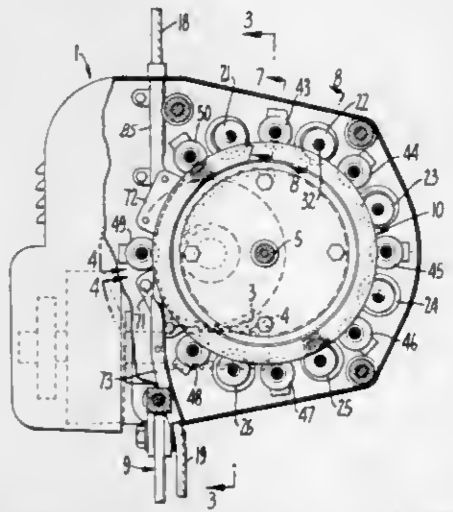
HOISTING DEVICE

Carter H. Arnold, 317 Rocky Point Road, Palos Verdes Estates, Calif.

Filed Sept. 4, 1970, Ser. No. 69,709

Int. Cl. B66d *1/30*

U.S. Cl. 254—150 **12 Claims**



A hoisting device of the type in which a rope is wound around a drum to provide a plurality of windings in side by side substantially parallel relationship. The shunting of the rope from one winding to the adjacent winding and the tensioning of the rope is accomplished by rollers so as to provide automatic self-reeving action and to reduce power loss due to friction as well as minimizing rope wear and enhancing reliability of the hoisting apparatus.

3,707,276

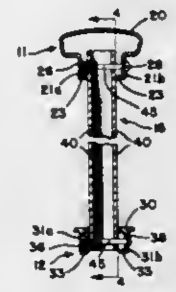
SIMPLIFIED RELATIVELY HEAVY DUTY RAILING CONSTRUCTION

Thomas V. Francis, and Edward L. Borchers, both of Russia, Ohio, assignors to Superior Aluminum Products, Inc., Russia, Ohio

Filed Nov. 5, 1971, Ser. No. 196,152

Int. Cl. E04h *17/16*

U.S. Cl. 256—22 **7 Claims**



Relatively heavy duty aluminum top and base rail extrusions are disclosed for railing constructions. Each extrusion includes an intermediate top portion and a pair of spaced and downwardly extending first and second side flanges. A pair of vertically spaced and inwardly extending rib-like jaws having internal serrated gripping teeth are continuously formed during the extrusion process on the first side flanges. and a plurality of openings are formed in the second side flanges diametrically opposed to the teeth of the first side flanges. Pickets are pivoted to the rails at their upper and lower ends by bolts extending through the pickets from the openings in the second side flanges into the teeth on the first side flanges.

3,707,277

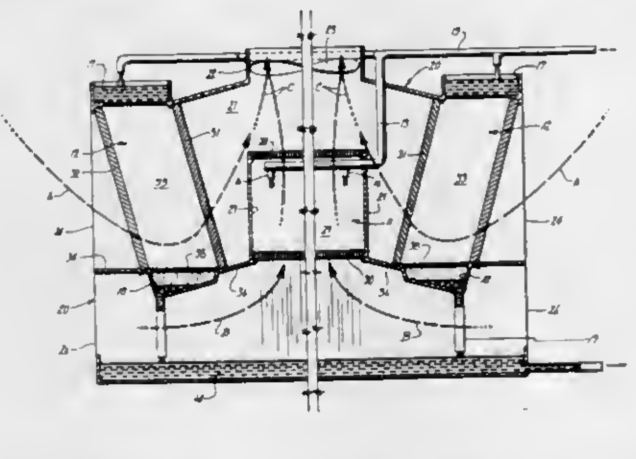
COMBINATION CROSS FLOW AND COUNTER FLOW COOLING TOWER

Peter M. Phelps, 15 Buckeye Way, Kentfield, Calif.

Filed March 25, 1970, Ser. No. 22,506

Int. Cl. B01f *3/04*

U.S. Cl. 261—23 **6 Claims**



A cooling tower including a counter flow packing section in the central portion of the tower, cross flow fill sections positioned laterally to and spaced-apart from the first named section, and an impermeable partition therebetween. A substantial portion of the packing and fill sections are disposed at the same elevation. In operation, water gravitating through the cross flow section is intersected by a transversely flowing air which is directed upwardly out of the tower. Simultaneously, an independent source of air is directed from below the counter flow section, wherein free counter flow with gravitating water occurs, and thence upwardly out of the tower.

3,707,278

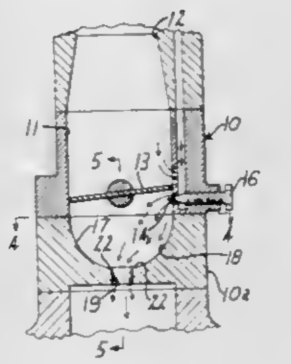
CARBURETOR FOR INTERNAL COMBUSTION ENGINE

Porter Landrum, Birmingham, Ala., assignor to Porter Landrum, Jr.; Edward Y. McMorries; Mrs. Marshall Timberlake, Birmingham, Ala.; Mrs. William Null, Salina, Kans. and Mrs. Willie Mae McMorries, Birmingham, Ala., a part interest to each

Filed Oct. 26, 1970, Ser. No. 83,717

Int. Cl. F02m *29/14*

U.S. Cl. 261—62 **10 Claims**



Oppositely disposed downwardly and inwardly extending concave side walls in main air passage of carburetor below throttle terminating in spaced relation to each other to define elongated opening therebetween which extends transversely of air passage and parallel to side walls. Side walls direct oppositely disposed streams consisting of fuel and air toward each other prior to passing through elongated opening.

3,707,279

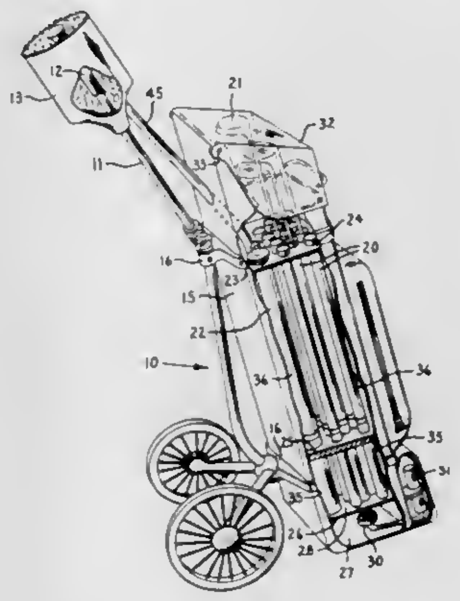
GOLF CLUB AND BALL WARMER

Henry J. Kaiser, deceased, late of 730 N.W. 20th Avenue, Portland, Oreg. (by Agnes Kaiser, heir)

Filed Jan. 19, 1970, Ser. No. 3,674

Int. Cl. F27b *9/00;* **A63b** *55/08*

U.S. Cl. 263—2 R **6 Claims**



Heated tubes receive balls and the handles of clubs. The tubes may be incorporated in a golf cart or bag and a separate ball warmer is disclosed. In different modifications the tubes are heated by a gas flame, electric heating elements, a chemical heater or charcoal-type fuel sticks. The heat dries and warms the club handles when wet or cold and increases the elasticity of the balls so that longer drives may be made in cold weather.

3,707,280
APPARATUS FOR COOLING HOT MATERIAL IN BULK

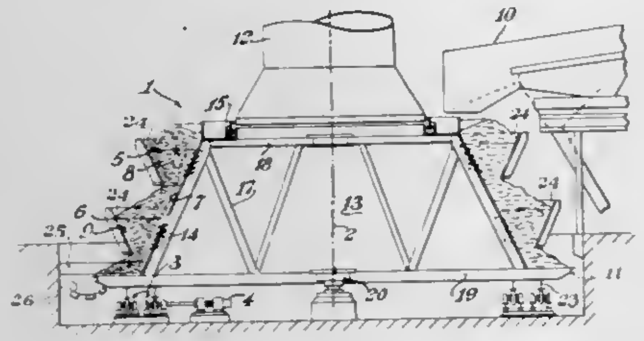
Johannes Lorrek, Murb (Ruhr), and Josef Lorrek, Essen, both of Germany, assignors to Head Wrightson and Company Limited, Yarm, Yorkshire, England

Filed Dec. 21, 1970, Ser. No. 99,960

Claims priority, application Germany, Dec. 20, 1969, P 19 63 936.2; Feb. 10, 1970, P 20 05 928.3

Int. Cl. F27b *21/00*

U.S. Cl. 266—20 **4 Claims**



Apparatus for continuous cooling of iron sinter and other hot material in bulk comprising a base part, at least two annular troughs supported on the base part for rotary motion about a vertical axis, said troughs being superimposed one above the other, each trough being open at the top and bottom to permit of introduction and flow through of material be discharge from the bottom thereof, and having a downwardly tapering section, means for introduction of material into the upper trough from which it passes into the lower trough to discharge therefrom and means for injecting cooling medium into the bed of material in each trough.

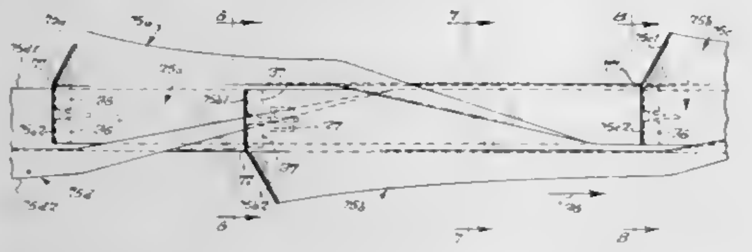
3,707,281
WEB FOLDING APPARATUS AND METHOD

James A. Murphy, Camarillo, Calif.; Charles A. Lee, Knoxville, Tenn., and Eduards Spravniks, Weston, Ontario, Canada, assignors to International Paper Company, New York, N.Y.

Continuation-in-part of Ser. No. 737,034, June 14, 1968, Pat. No. 3,542,356. This application Nov. 23, 1970, Ser. No. 91,711

Int. Cl. B65h *45/22*

U.S. Cl. 270—40 **23 Claims**



An apparatus and method for forming longitudinal folds in a series of webs while interfolding the webs into a continuously moving stack. The webs are interfolded through the use of a plurality of folding devices which are positioned along the path of the stack and are effective to successively turn a longitudinally extending edge portion of each web over the stack. A single folding device is provided for each pair of webs to be interfolded, and the webs in each pair are received by the corresponding folding device at spaced locations along its length. The folding devices are of identical construction and include longitudinal guide elements for preventing the turning over of an edge portion of the web received at the first location until after it has moved past the succeeding location. An angularly disposed guide element on each folding device thereafter turns the edge portion over the stack. An edge portion of the second web received by the folding device is not turned over until the web passes the first location on the immediately succeeding folding device and is received by an additional angularly disposed guide element thereon.

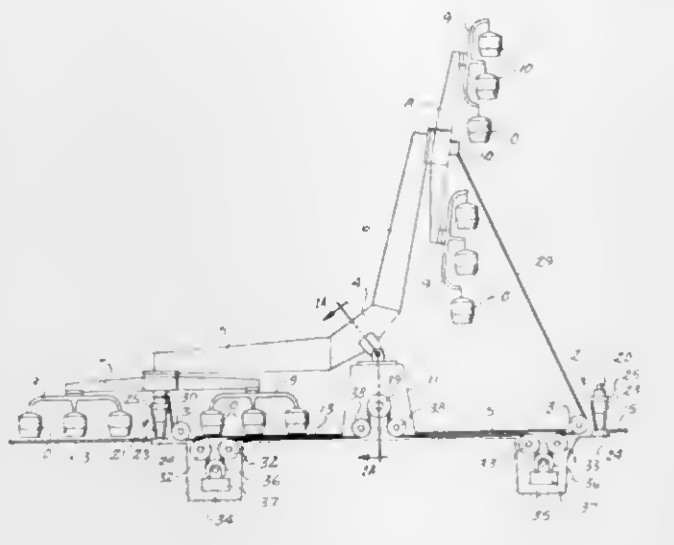
3,707,282
PLANETARY AMUSEMENT RIDE

Ralph G. Robinson, Tempe, Ariz., assignor to Le Roy A. Anderson, Scottsdale, Ariz., a part interest

Continuation-in-part of Ser. No. 720,756, April 12, 1968, abandoned. This application Feb. 5, 1970, Ser. No. 8,925

Int. Cl. A63g *1/08, 27/04*

U.S. Cl. 272—36 **3 Claims**



An amusement ride is described of duplex structure having a pair of main rotatable wheels or spiders which carry rotatable subwheels or spiders. The subwheels in turn carry passenger capsules or compartments. Two main arms which carry the main wheels are at obtuse angles to each other and are joined to form a rigid structure which is pivoted on a solid base for rocking in a vertical plane. The arms are rocked by cable and winch drum arrangement or by hydraulic piston mechanism. The main wheels or spiders are driven in rotation by hydraulic or electric motors; the subwheels can be rotated dependently or independently by the same or separate prime mover means. One set of wheels can be loaded and/or operated like a merry-go-round while the other set is high in the air analogous to a Ferris wheel.

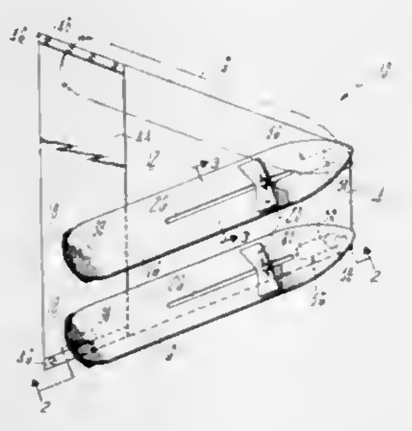
3,707,283
SKI BOARD TRAINING DEVICE

Gerald R. Cormier, 17 Dosmond Drive, Wethersfield, Conn.

Filed Aug. 10, 1970, Ser. No. 62,541

Int. Cl. A63b *69/18*

U.S. Cl. 272—57 B **6 Claims**



A platform, a pair of skis, and individual support means for supporting each ski for pivoting and rocking motion about mutually perpendicular axes of rotation while permitting limited fore and aft translational movements of each ski independently of the other ski relative to its respective longitudinal axis.

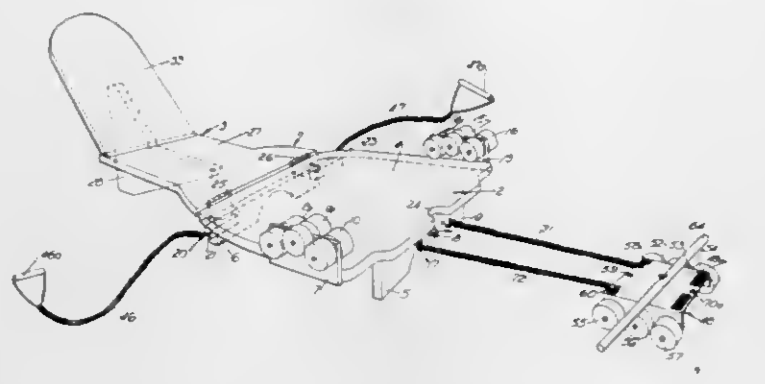
3,707,284
EXERCISE AND MASSAGE DEVICE

John Waldeck, 2764 Faber Avenue, Cincinnati, Ohio

Filed April 21, 1971, Ser. No. 136,109

Int. Cl. A63b *21/00*

U.S. Cl. 272—58 **15 Claims**



An exercise and massage device comprising a body support structure having a base assembly and a back assembly. The back assembly is capable of assuming at least two positions so that the operator may sit or recline upon the body support structure. The body support structure carries a plurality of rollers whereby parts of the operator's body can be massaged. In addition, tension springs may be detachably affixed to the body support structure in various positions and combinations to be engage by the operator's hands and feet.

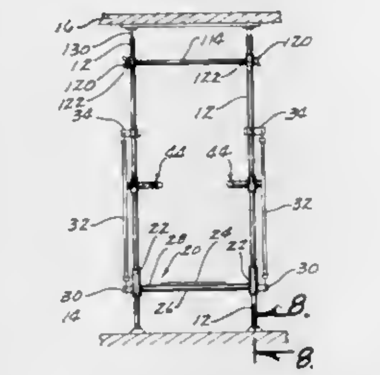
3,707,285
HORIZONTAL BAR EXERCISING DEVICE

Robert M. Martin, 90 N. Hudson Avenue, Pasadena, Calif.

Filed July 23, 1970, Ser. No. 57,532

Int. Cl. A63b *1/02*

U.S. Cl. 272—62 **9 Claims**



An exercise device including a pair of upright poles interconnected by top and bottom cross members, the bottom cross member being slidable on the poles and adapted to be biased upwardly by spring elements at opposite ends. A horizontally disposed weight may be detachably carried on the bottom cross member. U-shaped members are pivotally and slidably connected to the poles to provide parallel handles when pivoted to an inwardly extending position and provide supports for a pivotal bed frame when the U-shaped members are pivoted outwardly. The bed frame is pivoted such that the center of gravity of the exerciser will be shifted back and forth across the pivotal axis by moving the hands from the sides towards the head. A canvas material supports the buttocks, back and head while a pair of cross elements engage the ankles and the feet. The cross elements are adjustable along the length of the body frame and with respect to each other. A pair of U-shaped hooks may be secured to the exerciser's ankles and engage the top cross bar to suspend the exerciser in an inverted position or engage one of the cross elements on the body frame to hold the exerciser stationary on the body frame as he pivots from an upright position to an inverted position.

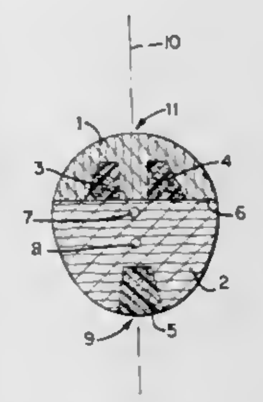
3,707,286
BAR STRUCTURE FOR THE HORIZONTAL BARS OF A GYMNASTIC APPARATUS

Albert Spieth, Baumreute 15, Oberesslingen, and Rudolf Spieth, Haus-14, Esslingen-Oberhof, both of Germany

Filed July 6, 1970, Ser. No. 52,422

Int. Cl. A63b *3/00*

U.S. Cl. 272—63 **8 Claims**



A gymnastic apparatus having horizontal laminated bars substantially of wood, wherein each bar comprises upper and a lower lamena glued together at an interface therebetween, and wherein longitudinal, cord-like inserts of elastic, synthetic material of inorganic origin are disposed in grooves of the lamenas. The bar is symmetrical along an imaginary vertical center line. The lamenas have at least three inserts. The direction of the fiber of the upper of the lamenas extends substantially vertically. Two of the inserts are disposed in the upper lamena and engage the interface provided between the upper and lower lamenas, and the third of the inserts is disposed in the lower lamena and extends to the lower outer face of the lower lamena.

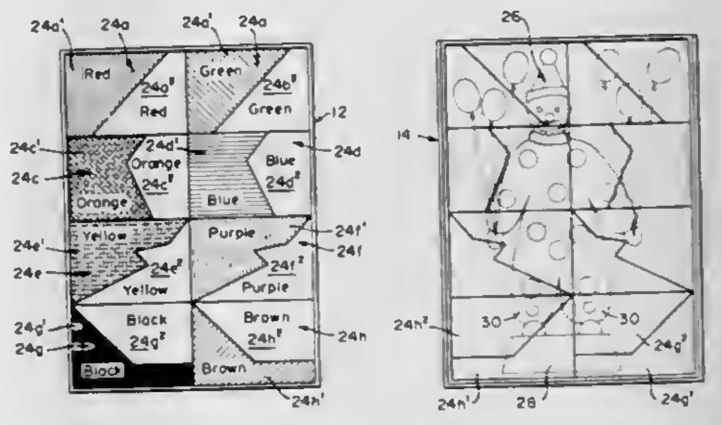
3,707,287
COLOR FAMILIARIZATION GAME

Berdine E. Spector, 67 Wyllys Street, Manchester, Conn.

Filed July 28, 1971, Ser. No. 166,707

Int. Cl. A63f *9/10*

U.S. Cl. 273—157 R **9 Claims**

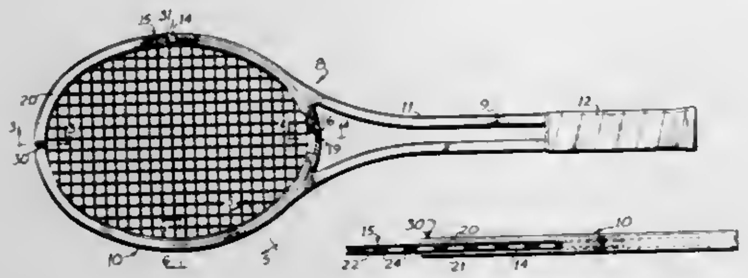


A game for young children for familiarizing them with colors and their word names, including a board and cover, the board being divided into parallel rows of boxes of different color, and a plurality of matching pairs of puzzle sets with the pieces of the pairs being physically interchangeable. One piece of each set is color coded to one of the boxes, and all of the pieces of each set bear the name of the particular color. When the pieces are assembled on the board in proper relation to the boxes and then inverted, a picture on the back of the assembled pieces serves as a proof that the pieces have in fact been properly assembled.

3,707,288

RACKET WITH REPLACEABLE STRING FRAME

Thomas B. Edlefsen, 1315 N. June Street, Hollywood, Calif.
Filed March 29, 1971, Ser. No. 129,059
Int. Cl. A63b *51/00*
U.S. Cl. 273—73 L **5 Claims**

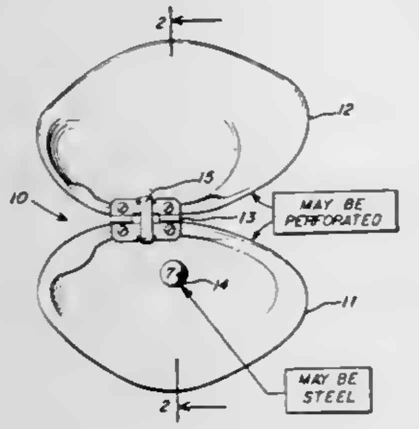


A racket for use in playing tennis or similar games, the racket having a removable playing surface. The racket-frame is provided with an opening, and a removable string-frame is provided to carry the playing surface. The string-frame can be easily removed from the racket-frame, and another string-frame with a new playing surface can be inserted into the racket-frame and secured by fastening means.

3,707,289

PLURALITY OF ENCLOSURES EACH CONTAINING A NUMERICAL INDICIA ELEMENT

Carl Q. Wicks, Route 2, Long Lake, Minn.
Filed Nov. 27, 1970, Ser. No. 93,114
Int. Cl. A63b *71/06*
U.S. Cl. 273—139 **8 Claims**



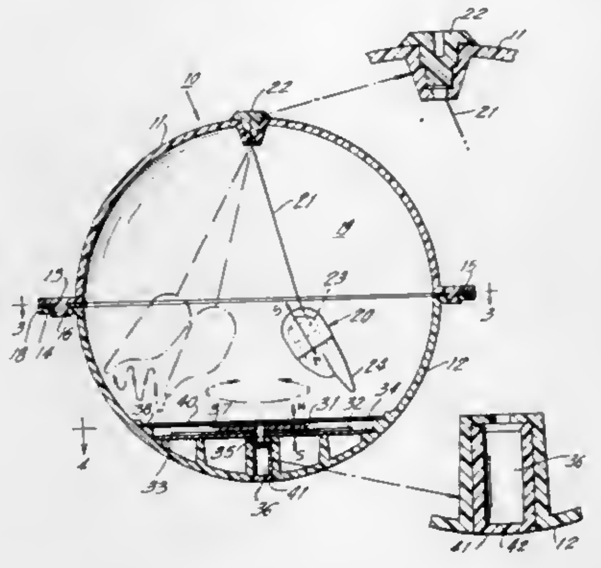
A game comprising a plurality of simulated clam shell enclosures, with each enclosure having a plurality of walls including a cover wall and defining an enclosure cavity. Simulated pearls are confined within the cavity and have numerical indicias thereon representing a numerical value. A hinge is provided for each simulated clam shell, with the hinge being biased into first and second stable positions, and being arranged to close said cover wall in one of said stable positions, and hold said cover wall open in the second stable position. In addition, holes or weights are provided for maintaining the density of the enclosures, while in water, at a value substantially greater than 1.

3,707,290

ANSWER BOARD WITH MAGNETICALLY INFLUENCED POINTER

Melvyn Birnkrant, Beacon, N.Y., assignor to Colorforms, Norwood, N.J.
Filed June 10, 1971, Ser. No. 151,833
Int. Cl. A63f *9/18*; A63h *33/26*
U.S. Cl. 273—141 A **7 Claims**

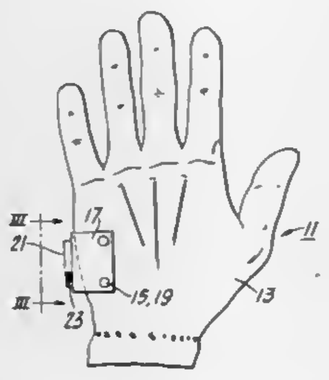
An amusement device is constructed with a pointer suspended above an answer board. The pointer is secured to the lower end of a flexible filament whose upper end is supported at a vertical axis passing through the center of the answer board. A disc-like permanent magnet positioned immediately below the answer board cooperates with a permanent magnet mounted to the pointer, in that the flux fields of the magnets interact, so that the pointer is repelled thereby being directed toward the periphery of the answer board. The edges of the disc magnet are notched so that the flux lines are not uniformly distributed and because of this free swing of the pointer is broken as it seeks to find an equilibrium position, and pointer motion is erratic so that the pointer appears to jump.



3,707,291

GOLF SWING TRAINING GLOVE INCLUDING LIGHT PROJECTING DEVICE

Wynn B. Tredway, P.O. Box 130, Freeport, Pa.
Filed July 21, 1971, Ser. No. 164,598
Int. Cl. A63b *69/36*
U.S. Cl. 273—183 B **7 Claims**



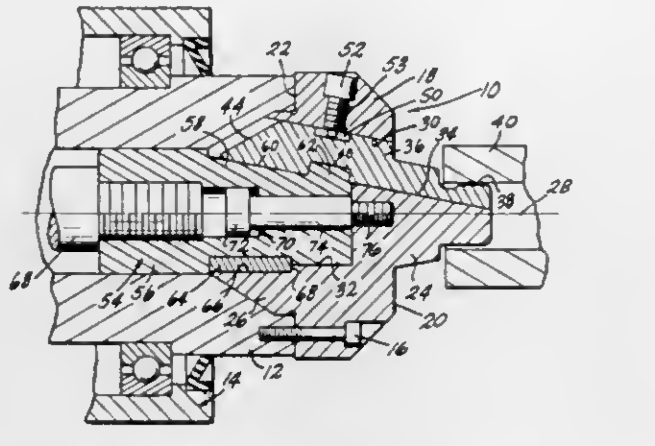
A glove of the type worn by golfers includes a light attached to or incorporated in the glove with a lens that projects an indicia on a wall at a prescribed location when a golf pupil wearing the glove and holding a club has his hands and club in the correct position at the top of the backswing. The rays of light are projected in the plane of the glove and substantially perpendicular to the fingers of the glove.

3,707,292

MULTI-JAW CHUCK

London T. Morawski, Mt. Clemens, and John J. Parker, Warren, both of Mich., assignors to The John J. Parker Living Trust, by said Parker
Filed Dec. 24, 1970, Ser. No. 101,210
Int. Cl. B23b *31/10*
U.S. Cl. 279—110 **6 Claims**

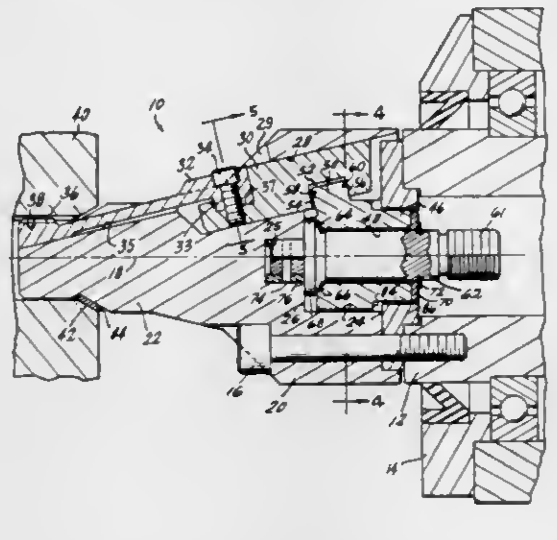
A chuck having a plurality of jaw carrying rods slidably arranged within bores inclined relative to the chuck axis. The rods may be axially shifted in opposite directions to thereby increase and decrease the diameter of the circle defined by the jaws for gripping and releasing the peripheral surface of a workpiece. The rods are insertable and removable from the front of the chuck and after insertion are operatively connected to an actuator slide within the chuck by rotary indexing of the rods within their respective bores.



3,707,293

MULTI-JAW CHUCK

London T. Morawski, Mount Clemens, and John J. Parker, Warren, both of Mich., assignors to The John J. Parker Living Trust, by said Parker, a part interest
Filed Dec. 24, 1970, Ser. No. 101,209
Int. Cl. B23b *31/10*
U.S. Cl. 279—110 **20 Claims**



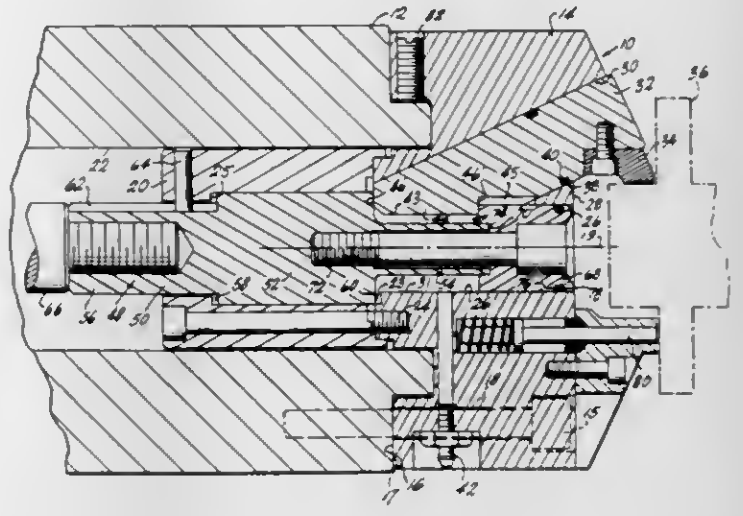
A chuck having a plurality of jaw carrying rods axially movable within bores inclined relative to the chuck axis. The rods may be axially shifted in opposite directions by a jaw actuator to thereby increase and decrease the diameter of the circle defined by the jaws for engaging and disengaging the peripheral surface of a workpiece. If the peripheral surface of the workpiece is either out of round or eccentric, one of the jaws is moved axially relative to another to ensure that all the jaws grip the workpiece. A plurality of guideways formed in the forward external surface of the chuck guide the jaws and render them accessible for quick replacement.

3,707,294

MULTI-JAW CHUCK

London T. Morawski, Mt. Clemens, and John J. Parker, Warren, both of Mich., assignors to The John J. Parker Living Trust, by said Parker, a part interest
Filed Dec. 24, 1970, Ser. No. 101,212
Int. Cl. B23b *31/10*
U.S. Cl. 279—110 **9 Claims**

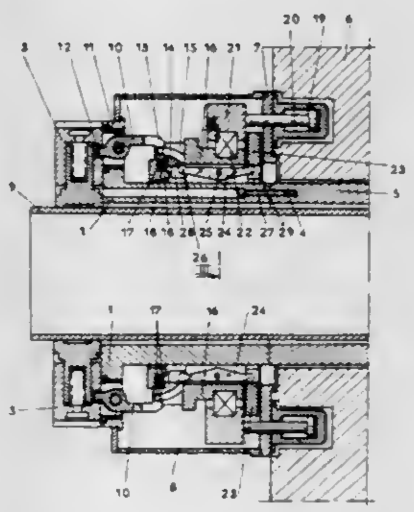
A chuck having a plurality of jaw rods arranged within bores inclined relative to the axis of the chuck. The jaw rods may be moved axially in opposite directions to decrease and increase the diameter of the circle defined by the chuck jaws to thereby engage and disengage the peripheral surface of a workpiece. The rear portions of the rods are interengaged with a jaw actuator by means of a plug which is insertable and removable through a central bore in the front of the chuck. Removal of the plug from the chuck enables the jaw rods to be removed from the front of the chuck.



3,707,295

MANDREL FOR MACHINE TOOL

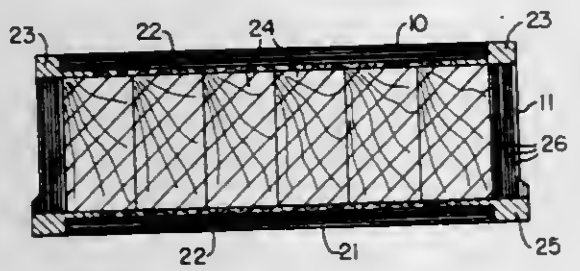
Gerard G. Vennin, Chaville, France, assignor to CRI-DAN, Paris, France
Filed Oct. 8, 1970, Ser. No. 79,049
Claims priority, application France, Dec. 15, 1969, 6943284
Int. Cl. B23b *31/16*
U.S. Cl. 279—119 **7 Claims**



A mandrel for a machine tool comprising a body having a plurality of locking jaws radially floatably mounted therein. The mandrel includes a mechanism for compensating for eccentricity of a workpiece retained by the mandrel, which mechanism includes a floating ring mounted on a sleeve, both of which are adapted to slide longitudinally relative to the body. The ring is provided with a plurality of inclined ramps, each of which cooperate with a respective lever to operate the locking jaws during longitudinal movement of the ring. The mandrel also includes a balancing device to compensate for the eccentric weight of the ring when same is eccentrically positioned relative to the mandrel axis.

3,707,296
MODIFIED PHENOLIC RESIN SYSTEM AND LAMINATES MADE THEREFROM

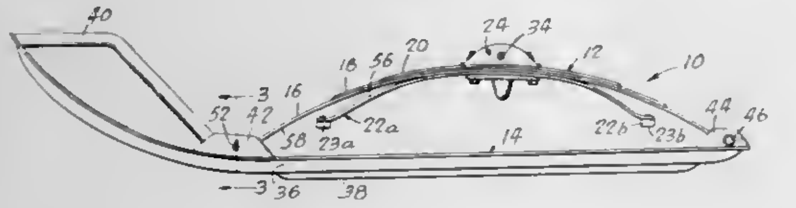
Salvatore E. Palazzolo, Hampton, and Harold O. McCaskey, Allendale, both of S.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 9, 1970, Ser. No. 1,749
Int. Cl. A63c *5/12*
U.S. Cl. 280—11.13 L **12 Claims**



A laminate, that can be used as an exterior, refinishable surface for snow skis, comprises a plurality of plastic resin impregnated bonded paper sheets, each having been impregnated with a solution of a melamine-formaldehyde, phenol-formaldehyde resinous admixture which contains from about 10 to 70 weight percent melamine-formaldehyde resin solids based on phenol-formaldehyde resin solids.

3,707,297
SPRING UNIT FOR SNOWMOBILE SKI RUNNER ASSEMBLY

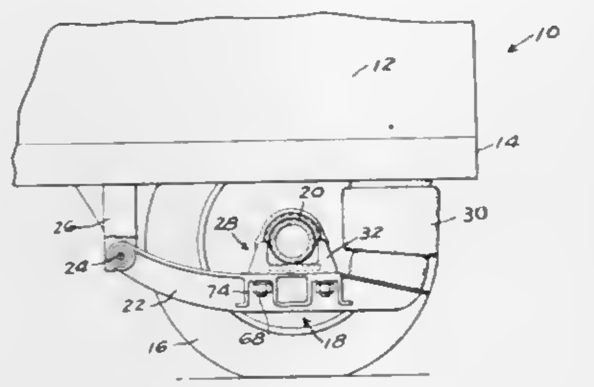
Jules Perreault, and Claude Lemieux, both of Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada
Filed Nov. 16, 1970, Ser. No. 89,664
Claims priority, application Canada, Nov. 6, 1970, 097,634
Int. Cl. B62b *17/04*
U.S. Cl. 280—25 **10 Claims**



The disclosure herein describes a ski assembly for mounting at the front end of a snowmobile wherein an auxiliary spring leaf has been added underneath the conventional spring leaf unit to provide to the ski assembly a double constant feature. In one embodiment, the auxiliary spring leaf has its central portion fastened to the central portion of the main spring leaf and its opposite end portions spaced from adjacent portions on the main spring leaf. In a second embodiment, the auxiliary spring leaf extends directly over the upper face of the ski runner with one end secured to the ski runner and the other end slidably bearing thereon. Both embodiments provide a much smoother springing action to the ski assembly because, in both cases, the auxiliary spring leaf is flexed only after an initial deflection of the original spring leaf unit or after the loads imparted on the ski assembly have exceeded a predetermined value.

3,707,298
SUSPENSION STRUCTURE FOR LAND VEHICLES

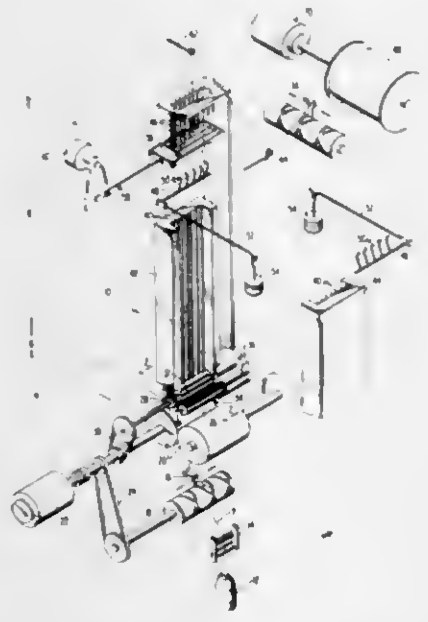
O. Lee Henry, and William C. Pierce, both of Muskegon, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.
Filed Oct. 6, 1970, Ser. No. 78,364
Int. Cl. B60g *7/04*
U.S. Cl. 280—124 R **10 Claims**



Lateral projection on each end of an axle is rockable under torsion forces within a receptacle on each of two vertically swinging control arms. Rocking is yieldably resisted by elastomer material between the end of the projection and bottom of the receptacle. The projection end is curved to provide greater elastomer thickness where greatest deflection occurs. Apposed sides of projection and receptacle interengage to limit the range of rocking movement.

3,707,299
STUFFER CRIMPER WITH DRIVEN CHOKE MEMBERS FOR PRESSURE CONTROL IN THE CRIMPING ZONE

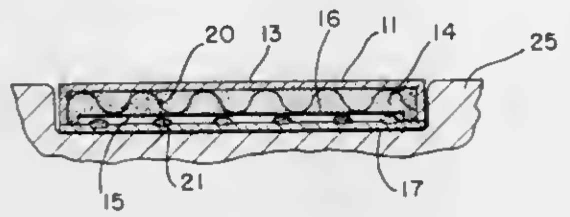
Alexander L. Trifunovic, Wilmington, Del., assignor to Joseph Bancroft & Sons Company, Wilmington, Del.
Filed March 26, 1971, Ser. No. 128,363
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 **11 Claims**



A stuffer crimper fed with yarn from a pair of feed rolls having a chamber defining a crimping zone adjacent the feed rolls followed in succession by a heating zone and a cooling zone where the pressure on the yarn core within said crimping zone and the pressure on the core passing through the succeeding heating and cooling zones are independently controlled by roller means having core gripping surfacing projecting into said chamber at the juncture of said crimping and heating zones, said roller means being mounted and driven to rotate parallel to the axes of said feed rolls at a speed related to the speed of said feed rolls.

3,707,300
TAMPERPROOF SERIAL NUMBER

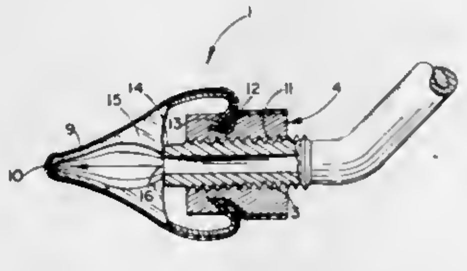
Robert J. Tamburro, 1273 Trapelo Road, Waltham, Mass., and Ronald N. Ohanian, 16 Whites Avenue, Watertown, Mass.
Filed Sept. 1, 1971, Ser. No. 177,044
Int. Cl. B42d *15/00;* **B09f** *17/00*
U.S. Cl. 283—8 **5 Claims**



A serial number is imprinted on a chemical saturated tape encapsulated in plastic and surrounded by another preselected chemical in turn enclosed in a plastic container and affixed to an automobile or other item of personal property—said serial number will be destroyed due to intermixing of the chemicals when the serial number is tampered with.

3,707,301
ADJUSTABLE ADAPTER

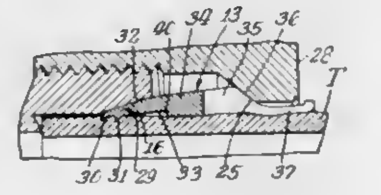
James M. Rauls, 11642 Eudora Lane, Garden Grove, Calif.
Filed June 3, 1970, Ser. No. 43,098
Int. Cl. F16l *25/00*
U.S. Cl. 285—9 R **8 Claims**



The device includes an expandable cone section which adjusts into conformation with the inner diameter of a tube being coupled by the device to another tube. The cone section is expanded by the engagement of the other tube in the open end of the device.

3,707,302
HIGH PERFORMANCE FITTING

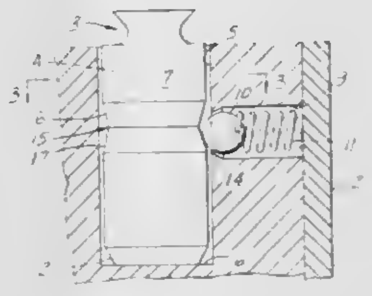
Jan A. Hiszpanski, Chicago, Ill., assignor to I-T-E Imperial Corp.
Continuation-in-part of Ser. No. 774,920, Nov. 12, 1968, abandoned. This application Aug. 27, 1970, Ser. No. 67,512
Int. Cl. F16l *19/08*
U.S. Cl. 285—116 **7 Claims**



A tube fitting having a deflectible sleeve member arranged to be constricted by a nut member advanced toward a body member to sealingly bite into the outer wall of a tube end and sealingly engage the body member to provide a high performance tube fitting. The sleeve member includes biting means on the nose portion adjacent the body member and constrictible tube supporting means spaced substantially outwardly from the nose portion to provide an improved support of the tube at a distance from the seal. The sleeve member further includes means cooperating with the nut member for maintaining the sleeve member in association with the nut member prior to make-up of the fitting thereby to assure the proper disposition of the sleeve member relative to the nut member and to make the fitting effectively a two-part fitting prior to make-up. The maintaining means is further arranged to be displaced as the result of make-up of the fitting to permit the nut member to be moved away from the sleeve member thereby to permit disassembly of the made-up fitting and permit remaking as desired. The support portion of the sleeve member and the maintaining means may be circumferentially discontinuous to provide facilitated deflection thereof. The support means further provides a gradual stress variation along the tube to provide improved vibration resistance.

3,707,303
MEANS FOR SECURING AN INSERT TO A BASE PIECE

Nello J. Petri, San Francisco, Calif., assignor to Petri-Johnson, Inc., San Jose, Calif.
Filed March 10, 1971, Ser. No. 122,947
Int. Cl. F16b *1/00*
U.S. Cl. 287—20.3 **3 Claims**

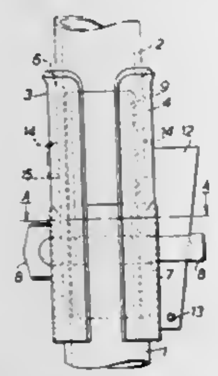


Means for removably securing an insert element to a larger base piece. The invention as disclosed solves the problem of securing an insert element such as a punch to a larger base piece such as a punch ring. The invention is particularly applicable to a rotary punch of the type having a rotating punch ring with punch elements removably secured around the periphery of said ring. In lieu of the usual set screw method of securing the punches to the punch ring quick releasable means is provided for fixedly but removably securing the shank of a punch or the like within a bore in the punch ring. The cross sectional contour of the shank or the bore is formed so that the shank engages the bore at two points in cross section. The shank is forced against said two points by means of a spring pressed ball so that the insert is urged simultaneously against the bottom of the bore and against the two points. The "three point support" thus achieved insures not only optimum stability of the insert with respect to the punch ring but also permits extremely accurate positioning of the punch relative to the punch ring.

3,707,304
BUILDERS' SCAFFOLDING

Peter Eric Gostling, Sutton Coldfield, England, assignor to Kwikform Limited, Birmingham, England
Filed Sept. 8, 1970, Ser. No. 70,088
Int. Cl. F16b *7/04*
U.S. Cl. 287—111 **8 Claims**

Builders' scaffolding comprising means for securing two scaffolding uprights together in alignment including a split outer sleeve transversely pinned to the end of one upright to form a socket which grips the end of another upright when the pinning is tightened by means such as a wedge. The socket may be flared and may include an inner sleeve preferably shorter in the first upright. Pinning may be by means of a pin with a tee head aligned in a longitudinal groove in the outer sleeve and slotted to take a wedge parallel to the tee head. The wedge is preferably captive, tightened by driving it downwardly, and rotatable with the pin when loose to hang downwardly. A tension connection to permit assembled scaffolding to be crane lifted may be provided in addition by radial stud and hole engagement between the outer sleeve and the gripped end of the inserted upright.



3,707,305

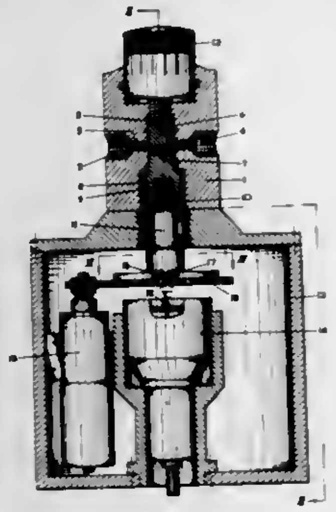
AUTOMATIC SPRAY FLUID CONTROL DEVICE

Petrus Johannes Alloyslus de Kinkelder, 42, Zuiderlaan, Zevenaar, Netherlands

Filed Feb. 17, 1971, Ser. No. 116,060

Int. Cl. B05g *1/30*

U.S. Cl. 239—62 **7 Claims**



An automatic fluid control device designed to be combined with spray apparatus for controlling the flow of insecticide, fertilizer and the like is provided. The fluid control provides a valve responsive to a manual control and an automatic control governed by the speed of the vehicle carrying the spray apparatus. A pair of scanners correlates the vehicle speed with the spray flow by causing the valve plug to meter the flow as it rotates. The manual control displaces the valve plug along its longitudinal axis to provide a cumulative control of the fluid flow.

3,707,306

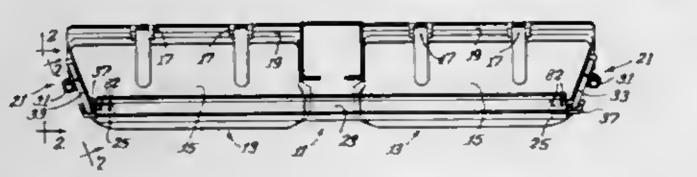
HOPPER CAR DOOR LOCK

Vaughn T. Hawthorne, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.

Filed Dec. 4, 1970, Ser. No. 95,092

Int. Cl. E05c *5/00, 19/12*

U.S. Cl. 292—113 **7 Claims**



A lock for a railway hopper car having a hinged door. The lock comprises a pivotable eccentric member to which is pivotably and eccentrically mounted at latch which engages a lug to hold the car door either loosely or tightly closed. The lug is mounted on the door and loosely engages the latch, which is on the door frame, when the door is swung out. Cam surfaces on the latch and lug cause engagement of the latch and lug. The eccentric member can be rotated to draw the door tightly closed. Rotation of the eccentric member engages the latch in a tightly locked, over-center position on the lug, and the latch and eccentric member can be held in the tightly locked position by a pivotable cam lock. Rotation of the eccentric member in the opposite direction disengages the latch from the tightly locked position and further rotation of the eccentric member causes projections on that member and on the latch to abut so as to lift the latch out of engagement with the lug to permit the door to open fully.

3,707,307

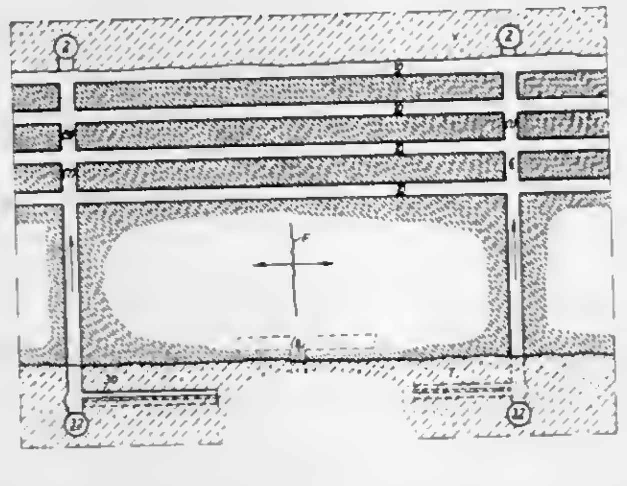
METHODS IN MINING BY SUBLEVEL CAVING

Harry Kristoffersson, Kampementsgatan 34, 115 38 Stockholm, and Sune Torsten Henriksson, Lingonstigen 2, 981 00 Kiruna, both of Sweden

Filed Dec. 11, 1970, Ser. No. 97,188

Int. Cl. E21c *41/00*

U.S. Cl. 299—12 **10 Claims**



A method in mining by sublevel caving in which in a development phase are driven haulage drifts or shafts and from said drifts or shafts are driven cross-cuts in an orebody with a spacing vertically and horizontally suitable from an economical and technical point of view, from which cross-cuts one or more longitudinal drifts are driven in said orebody, wherein said cross-cuts are driven straight through said orebody and into the rock wall at the opposite side thereof, where said cross-cuts are connected with upwardly directed ventilation shafts, and vertically adjacent pairs of discs are connected with these shafts and/or haulage drifts or shafts and associated ventilation means in such a way, that the upper disc then during the mining can be put under considerable sub-atmospheric pressure, while the lower disc can be put under suitable, comparatively moderate positive pressure by entering fresh air, whereby an essentially continuous mining of said orebody is allowed.

3,707,308

WHEEL DEVICE

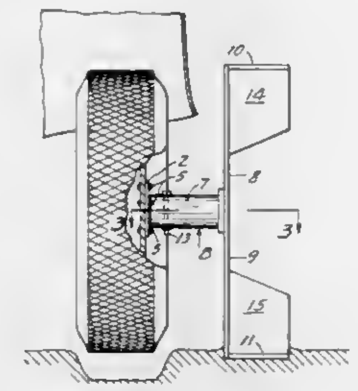
Herman Smith, 620 Cochrane Street, Eau Claire, Wis.

Filed Nov. 18, 1970, Ser. No. 90,635

Int. Cl. B60b *15/22*

U.S. Cl. 301—44 R **2 Claims**

A device for attachment to an automobile wheel to assist in driving the automobile out of snow, mud or other material in which the automobile may be stuck. The device includes a means for attaching radial arms to the outerface of an automobile wheel so that the radial arms extend, parallel to the face of the wheel, approximately to the periphery of the tire on the wheel. The radial arms are provided, at their ends, with heel elements which will grip the surface upon which the automobile rests. As the automobile wheel is caused to turn, the device will then serve to "lift" the automobile from its stuck position.



3,707,309

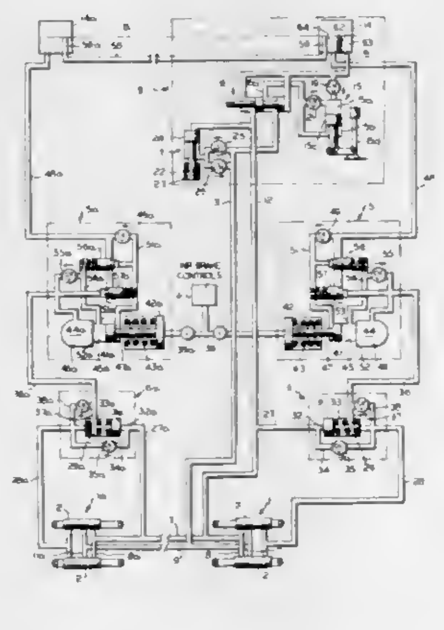
HYDRAULICALLY OPERATED HAND BRAKE - SERVICE BRAKE SYSTEM FOR RAILWAY CARS

Thomas H. Engle, Cape Vincent, N.Y., assignor to General Signal Corporation

Filed June 4, 1971, Ser. No. 150,054

Int. Cl. B60t *17/16*

U.S. Cl. 303—13 **5 Claims**



The disclosure concerns fluid operated brake systems for railway cars incorporating hydraulic brake cylinders which serve both service braking and hand braking functions. The brake cylinders on both trucks are operated by a single hand brake control unit, but are embodied in separate service brake circuits supplied with hydraulic fluid from two reservoirs, one of which also supplies the hand brake circuit. The reservoirs are interconnected so as to permit maximum utilization of the total volume of hydraulic fluid without depleting either below the minimum level required to satisfy the demands of the equipment it supplies. Preferably, the reservoir which serves the hand brake and one service brake is divided to provide separate sources for these circuits.

3,707,310

ANTI-LOCK BRAKE SYSTEM WITH VARIABLE RATE BRAKE PULSING

Denis Sharp, East Grinstead, England, assignor to U.S. Philips Corporation

Filed Aug. 21, 1970, Ser. No. 65,800

Claims priority, application Great Britain, Aug. 22, 1969, 42,083/69

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 CG **12 Claims**

A control circuit for a vehicle anti-lock brake system that includes a wheel sensor that produces electric signals proportional to the wheel speed, a control circuit responsive thereto to produce an electrical output when the wheel deceleration exceeds a given value, and a control valve responsive to said electrical output to release the braking pressure. The control circuit includes a pulse generator that produces a series of pulses during an anti-lock period. If the wheel continues to decelerate despite the release of the braking pressure, then the control circuit continues to supply output pulses at a rate which is a function of the wheel deceleration until the wheel deceleration no longer exceeds said given value.

3,707,311

ANTI-LOCK BRAKE SYSTEMS FOR WHEELED VEHICLES

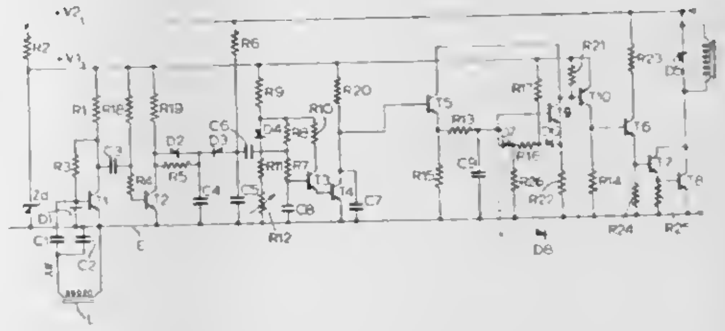
Denis Sharp, East Grinstead, England, assignor to U.S. Philips Corporation

Filed Aug. 19, 1970, Ser. No. 65,163

Claims priority, application Great Britain, Aug. 22, 1969, 42,022/69

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 CG **8 Claims**



An anti-lock vehicle brake control system includes a control circuit that energizes the brake solenoid when the wheel deceleration exceeds a reference value. The normal energization period of the solenoid is determined by the time it takes for the released wheel to again reach the reference value speed. On a slippery road it takes longer for the wheel to reach the reference value. When the normal energization period exceeds a given time period indicative that braking occurs on a slippery road, the control circuit extends the period of solenoid energization so that the wheel speed approximates the vehicle speed before the brakes are reapplied.

3,707,312

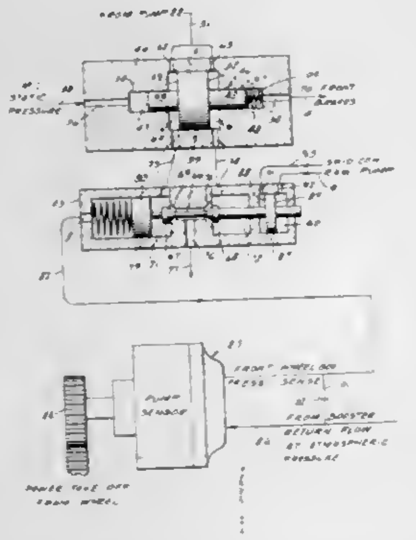
FOUR WHEEL SKID CONTROL SYSTEM WITH DYNAMIC PROPORTIONING

Gilbert H. Drutchas, Birmingham; Rupert L. Atkin, Grosse Pointe Woods, both of Mich., and Garrett D. Shaw, Rolling Hills, Calif., assignors to TRW Inc., Cleveland, Ohio

Filed Jan. 22, 1971, Ser. No. 108,848

Int. Cl. B60t *8/06, 8/12*

U.S. Cl. 303—21 F **10 Claims**



Dynamic pressure control means responsive to differences in the front and rear wheels speeds apply more or less pressure to the front brake actuating motors thereby to maintain an optimum relationship of front-to-rear wheel slip.

3,707,313

ANTI-SKID BRAKING SYSTEMS

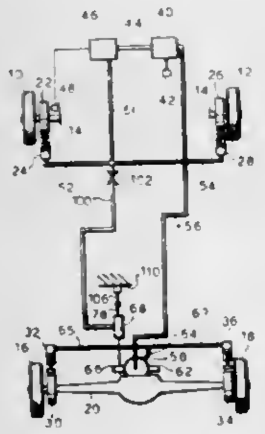
Giancarlo Michellone, Cambiano; Mario Palazzetti, and Giovanni Tabasso, both of Turin, all of Italy, assignors to Fiat Societa per Azioni, Turin, Italy

Filed Jan. 6, 1971, Ser. No. 104,372

Claims priority, application Italy, Jan. 13, 1970, 67084-A/70

Int. Cl. B60t *8/10, 8/18*

U.S. Cl. 303—21 A **3 Claims**



A vehicle braking system has an anti-skid device which periodically interrupts the supply of pressure fluid to the brake of a first wheel on a first axle. A second wheel on a second axle is equipped with known means to vary the braking effort on that second wheel in accordance with the load on the second axle. The invention provides means to vary the supply to the brake of the second wheel in accordance with fluctuations induced by the anti-skid device in the supply to the brake of the first wheel.

3,707,314

BRAKE CONTROL VALVE APPARATUS

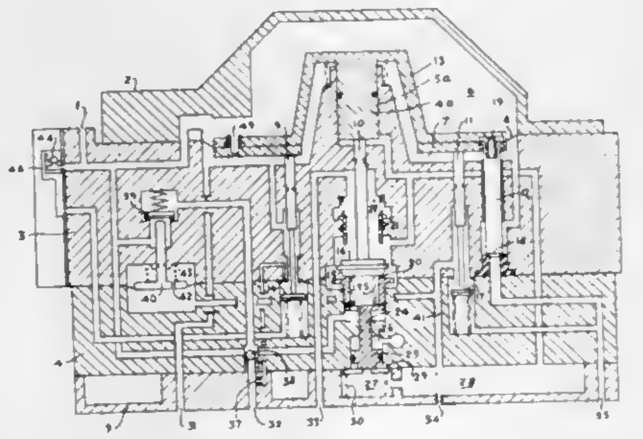
Philip Norman Paginton, London, England, assignor to Westinghouse Brake and Signal Company Limited, London, England

Filed Feb. 16, 1971, Ser. No. 115,650

Claims priority, application Great Britain, March 19, 1970, 13,301/70

Int. Cl. B60t *15/52*

U.S. Cl. 303—36 **14 Claims**



An improved form of triple valve for brake control applications has a quick service bulb and quick service exhaust and inlet valves so arranged that following initiation of a brake application, and movement of the main pile of the triple valve, the bulb inlet valve opens before the exhaust valve closes thereby dumping a small amount of brake pipe pressure but on the bulb pressure building up, a special pressure responsive conditioning device is operated to bring the quick service valve closure member and seat closer together to ensure that on movement towards lap position or release position of the main pile, the bulb inlet valve is sealed off before the bulb exhaust valve which has a slidable spring loaded seat, opens. This ensures that loss of recovering brake pipe pressure does not occur between the bulb inlet and exhaust valves on release of the brake.

3,707,315

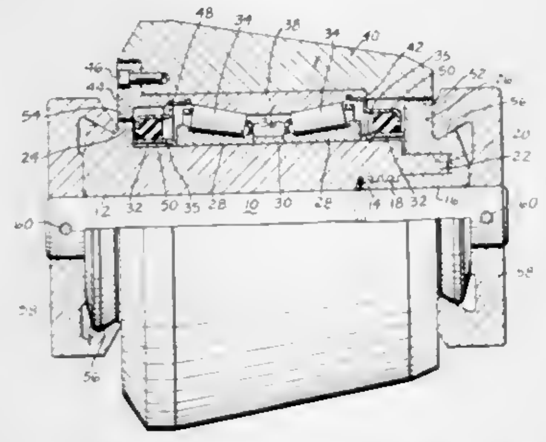
ROTARY CUTTER FOR EXCAVATION, ESPECIALLY FOR USE WITH RAISE BORING AND TUNNEL BORING MACHINES

Robert D. Goodfellow, Bedford, Pa., assignor to Subterranean Tools Inc., Beaumont, Tex.

Filed Feb. 2, 1971, Ser. No. 111,924

Int. Cl. F16c *19/38, 33/76, 35/06*

U.S. Cl. 308—8.2 **7 Claims**



The specification discloses a rotary cutter, especially for use on tunnel boring or raise boring machines, for reducing formations to be excavated in which a rotary cutter body is rotatably supported on a nonrotatable central structure by special antifriction bearing means particularly characterized in the employment of a single ring for the outer race of both of a pair of antifriction bearings on which the cutter body is supported.

3,707,316

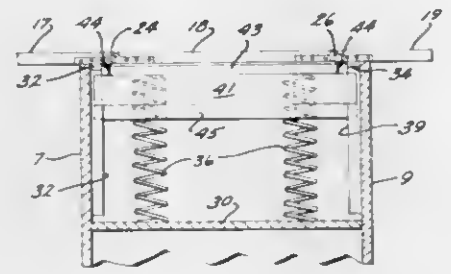
CONVERTIBLE END TABLE-DESK

Vennice E. Mark, 1576 Fisk Road S. E., Grand Rapids, Mich.

Filed March 9, 1971, Ser. No. 122,380

Int. Cl. A47b *21/00, 81/00*

U.S. Cl. 312—208 **12 Claims**



A typewriter stand and storage cabinet has a working surface on which a typewriter or other equipment can be placed. The working surface is slidably mounted on a carriage assembly which can be retracted into an enclosed storage compartment. A stabilizer depends downwardly from the carriage assembly and extends through an aperture in a bottom platform of the storage compartment when the carriage assembly is in its retracted position. The stabilizer interacts with the storage compartment sidewalls to provide the carriage assembly and associated working surface lateral stability as the carriage assembly is extended from and retracted into its stored position in the storage compartment.

3,707,317

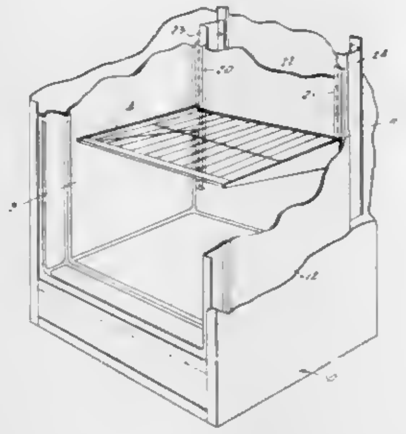
CANTILEVER REFRIGERATOR SHELF

Daniel B. Dawley, and Roy V. Johnson, both of Galesburg, Ill., assignors to Admiral Corporation, Chicago, Ill.

Filed July 23, 1970, Ser. No. 57,701

Int. Cl. A47b *81/00;* **F25d** *11/00*

U.S. Cl. 312—214 **1 Claim**



A refrigeration cabinet having an outer housing formed of sheet metal or similar material and an inner liner formed of a molded thermoplastic material. The inner liner is spaced from the outer housing and the space may be filled with an insulating material. The inner liner has substantial lateral flexibility and is generally insufficient to support the weight of refrigerator shelves. Shelf support members are positioned between the outer housing and the inner liner. Shelf attachment means such as an adjustable rack is then positioned against the inner surface of the molded liner and firmly secured directly to the shelf support member by means of fasteners which extend through the inner liner to the shelf support member. In this way, racks may be firmly supported within the refrigeration cabinet. The entire assembly gives sufficient rigidity to the shelf racks to support the shelves in a cantilever manner. In such an arrangement, only two shelf support means are required. Each of the shelf support means extend vertically at the rear of the refrigeration cabinet between the molded liner and the outer housing of the cabinet.

3,707,318

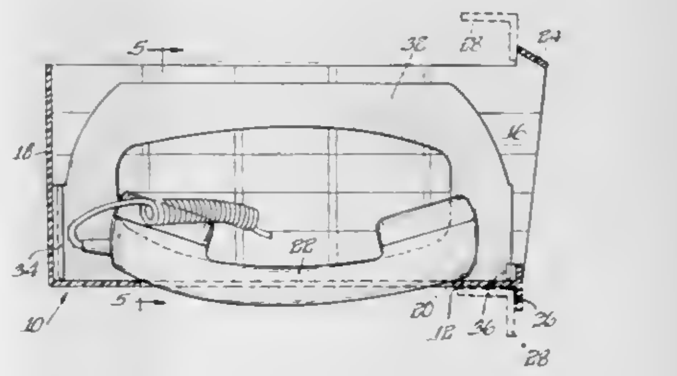
DRAWER RECEPTACLE

Donald E. Andrews, Schaumburg; Daniel C. Heck, Deerfield, and John A. Pestka, Park Ridge, all of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed July 10, 1970, Ser. No. 53,882

Int. Cl. A47b *88/04;* **B65d** *1/24*

U.S. Cl. 312—323 **7 Claims**



The present invention relates generally to improvements in drawer receptacles and more particularly to receptacles in the form of a drawer adapted to be supported by a frame structure in cantilever fashion. Flange means provided at the forward extremity of the drawer cooperate with horizontally spaced frame members to permit the drawer to tilt downwardly toward the rear extremity thereof thereby preventing unauthorized or unintentional withdrawal of the drawer from the frame structure. The particular embodiment disclosed herein is designed to accommodate telephone bases, head sets, and the like.

3,707,319

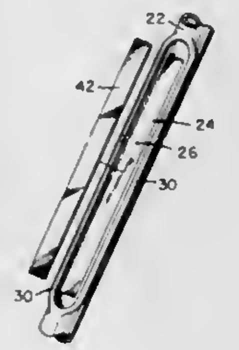
HANDLEBAR WITH REFLECTOR-RECEPTIVE RECESSED AREAS

Carlton P. Pawsat, and Robert F. Humlong, both of Maysville, Ky., assignors to Wald Manufacturing Company Incorporated, Maysville, Ky.

Filed Aug. 10, 1970, Ser. No. 62,451

Int. Cl. G02b *5/12*

U.S. Cl. 350—97 **11 Claims**



A conventional handlebar is provided with selectively recessed portions for the reception of reflective or decorative material for thereby enhancing the visibility and attention-arresting characteristics of the handlebar.

3,707,320

INFLATABLE AND COLLAPSIBLE PYLON

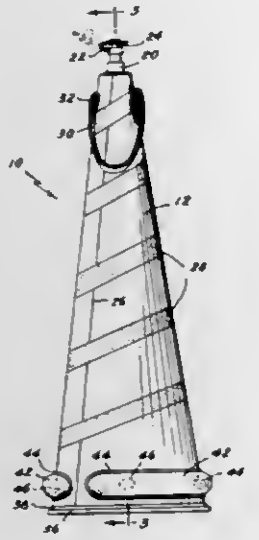
Howard Brynes, 36 Welch Road, Warwick, R.I.

Filed Nov. 9, 1970, Ser. No. 87,968

Int. Cl. G02b *5/12*

U.S. Cl. 350—97 **2 Claims**

An inflatable and collapsible pylon for use as a road warning or signal comprising a conical body portion having an inflating



opening and means for closing same, said body portion having a weighted base secured to the bottom thereof and handle means adjacent the top of said body portion whereby when the collapsed pylon is held by the handle, the weighted base will cause it to unfold, and the pylon will simultaneously self-inflate to a substantial degree, the pylon further comprising means causing it to self-right if it should be tipped or knocked over.

3,707,321
MAGNETO-OPTICAL PROBE HAVING NATURAL BIREFRINGENCE ERROR COMPENSATION

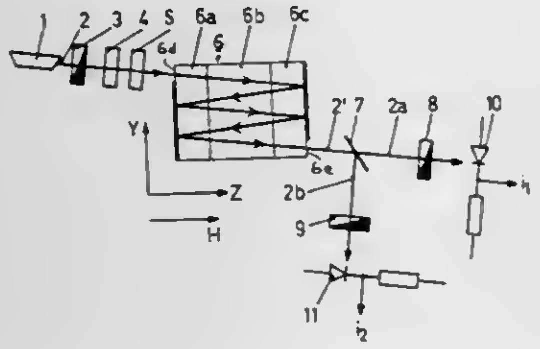
Andre Jaecklin, Ennetbaden, and Manfred Lietz, Wettingen, both of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Jan. 27, 1971, Ser. No. 110,004

Claims priority, application Switzerland, Feb. 4, 1970, 1578/70

Int. Cl. G02f *1/22*

U.S. Cl. 350—151 **6 Claims**



A magneto-optical probe is comprised of a composite magneto-optical solid medium subjected to a variable magnetic field and constituted by a plurality of plane parallel contiguous component parts and through which an elliptically polarized light beam of adjustable eccentricity and inclination is passed for multiple reflection within the medium. After issuing from the medium, the beam which is now again substantially linearly polarized and inclined by an amount proportional to the magnetic field is passed through an optical divider and the two parts of the beam are passed respectively through analyzers which produce two phase-shifted linearly polarized light signals that are then passed to photo-detectors which convert the light signals into corresponding electric signals for further electronic processing.

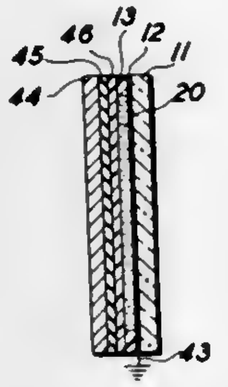
3,707,322
ELECTROSTATIC LATENT IMAGING SYSTEM USING A CHOLESTERIC TO NEMATIC PHASE TRANSITION

Joseph J. Wysocki, 544 Crest Circle; James E. Adams, 528 Forest Lawn Road, both of Webster, N.Y.; James H. Becker, 212 Gebhardt Road, Penfield, N.Y.; Robert W. Madrid, 160 Jacobs Road, Macedon, N.Y., and Werner E. L. Haas, 822 Westwood Trail, Webster, N.Y.

Division of Ser. No. 821,565, May 5, 0196, Pat. No. 3,652,140. This application Aug. 5, 1971, Ser. No. 169,458

Int. Cl. G02f *1/16*

U.S. Cl. 350—160 LC **3 Claims**



A system transforming an optically negative liquid crystalline substance to an optically positive liquid crystalline mesophase by an applied electrical field, and an imaging system wherein the electrical field-induced transition images a liquid crystalline member.

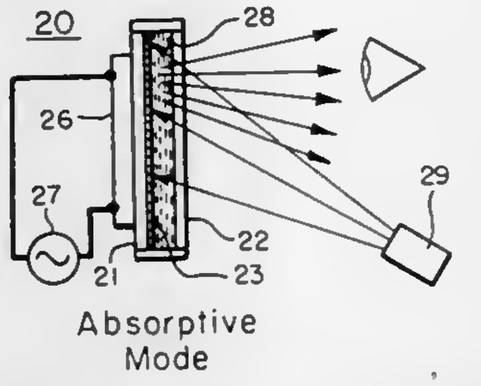
3,707,323
LIQUID CRYSTAL DEVICES AND SYSTEMS FOR ULTRASONIC IMAGING

Lawrence W. Kessler, 418 Warren Road, Glenview, Ill., and Samuel P. Sawyer, 2915 Grant Street, Evanston, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Nov. 6, 1970, Ser. No. 87,553

Int. Cl. G02f *1/16*

U.S. Cl. 350—161 **9 Claims**



A device is disclosed which includes a layer comprising a nematic liquid crystal toward which ultrasonic wavefronts are directed. A marked change over any particular area of the layer occurs from a clear state to a light-scattering state when the intensity of the ultrasound applied to that area exceeds a threshold value. The degree of light scattering obtainable is found to be functionally related to the intensity of the applied ultrasound above the threshold. A matrixed array of such devices is arranged in a system with suitable ultrasonic addressing means and scanning means to provide a real-time image display system having a gray-scale. A system for visualizing ultrasonic image information either conventionally or holographically is also provided by causing a sound beam carrying image information as well as a reference beam to impinge on a common area of such a device. The resulting pattern of ultrasonic intensity variations over the area causes light to be variably scattered from different points in the area in accordance with the ultrasonic intensity pattern, thereby rendering visible the analogue optical hologram of the image.

3,707,324
HIGH-SPEED VARIFOCAL OBJECTIVE SYSTEM WITH FIVE-LENS BASIC OBJECTIVE

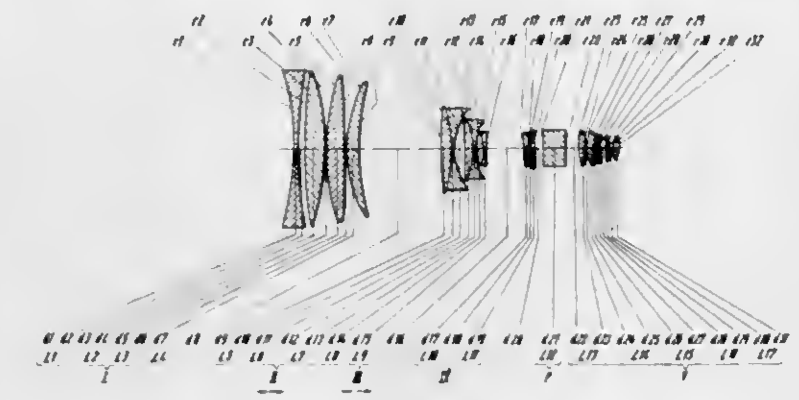
Karl Macher, bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke Kreuznach, Bad Kreuznach (Rhineland), Germany

Filed June 30, 1971, Ser. No. 158,439

Claims priority, application Germany, July 1, 1970, P 20 32 573.9

Int. Cl. G02b *15/16*

U.S. Cl. 350—184 **2 Claims**



A varifocal objective system with a relative aperture of 1 : 1.8 and a varifocal ratio of about 11 : 1 consists of a five-lens basic objective and a four-component vario attachment. The lenses of the basic objective are all singlets, the third and fourth lenses being dispersive. The attachment is composed of two axially movable negative components bracketed by two substantially fixed positive components; the first component, which may be limitedly shiftable (in whole or in part) for focusing purposes, includes a negative front lens and three positive singlets; the second compartment consists of two negative doublets; the third component is a meniscus-shaped singlet; and the fourth component consists of two air-spaced positive singlets.

3,707,325
OPTICAL IMAGING SYSTEM

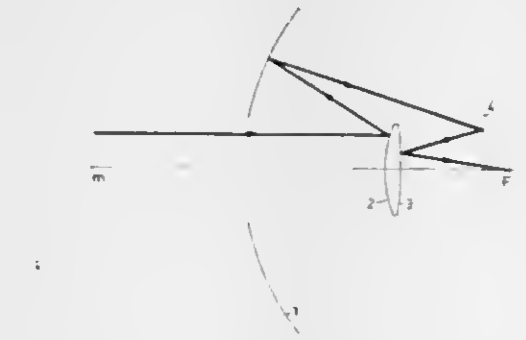
George Eduard Gerard Hardeman, deceased, late of Eindhoven, Netherlands, and Casper Antonius Henricus Mulkens, administrator, Hugo de Grootplein 35, Eindhoven, Netherlands

Filed July 23, 1970, Ser. No. 57,674

Claims priority, application Netherlands, Aug. 16, 1969, 6912510

Int. Cl. G02b *5/10, 17/06*

U.S. Cl. 350—294 **4 Claims**



An optical imaging system is described which includes a mirror system comprising a convex spherical mirror and an apertured concave spherical mirror having coincident principal axes. It is shown that by placing a plane mirror and a second convex spherical mirror in the path taken by the rays which emerge from the mirror system the focal distance can be increased, resulting in an acceptable light-shadow ratio with a non-excessively large aperture and also in a very good correction for spherical aberration.

3,707,326
AUTOMATIC FILM REWIND DEVICE FOR MOVIE PROJECTORS OF THE SMALL TYPE

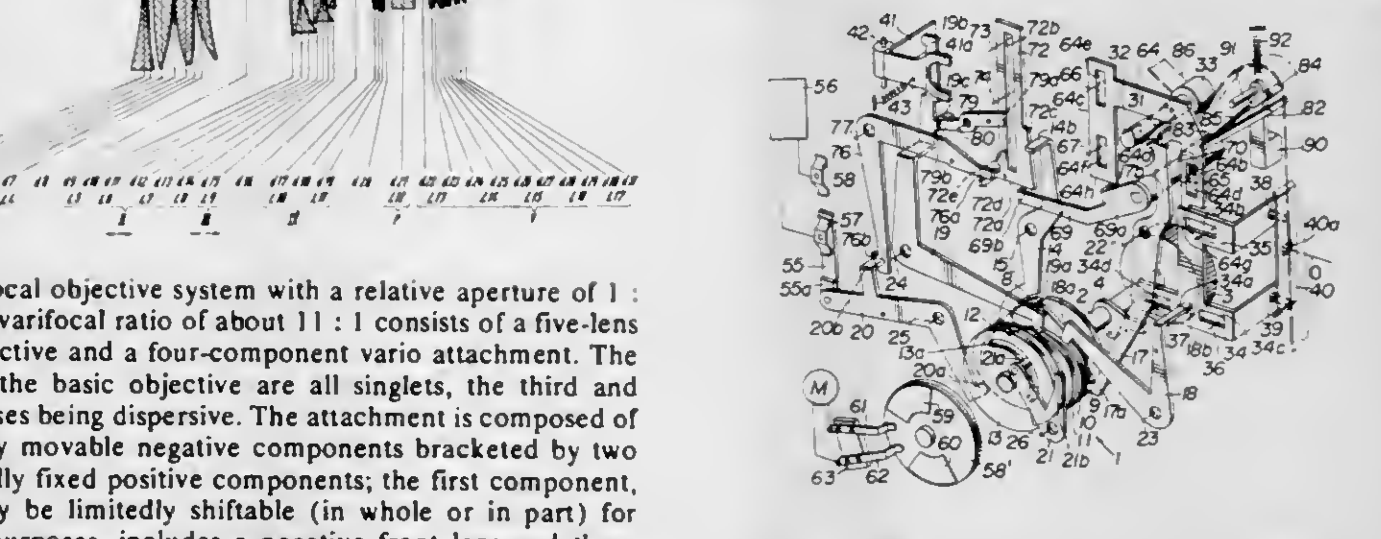
Tatsusuke Kadowaki, Yokohama, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Sept. 21, 1970, Ser. No. 73,814

Claims priority, application Japan, Oct. 4, 1969, 44/79391

Int. Cl. G03b *23/00*

U.S. Cl. 352—124 **10 Claims**



An automatic film rewind device for movie projectors of the small type effects automatic rewinding of the film rsponsive to detection of tensioning of the film, wound on the shaft of a supply reel, at the terminating stage of film supply. The device further is operable selectively to effect single-frame projection, as well as projection of the film while moving in the rewind direction. Externally excessible operating means are manually operable to effect rewinding of the film. The device includes a control cam group movable between forward film feed, neutral and reverse film feed positions by an externally accessible control knob, and a control lever group is engaged with the control cam group. This control lever group sets the components of the projector to either feed film forwardly or to rewind film, and is locked in the forward feed film position by a holding member which is released responsive to the mentioned tensioning of the film in the last stage of film supply. A locking lever is operable to lock the control cam group in either the forward film feed position or the neutral position, and is released automatically responsive to such tensioning of the film.

3,707,327
MAGNIFIER WITH OPTICAL CONTRAST EQUALIZER

Josef Scheibel, Ober-Morlen, Germany, assignor to Braun A.G., Frankfurt/Main, Germany

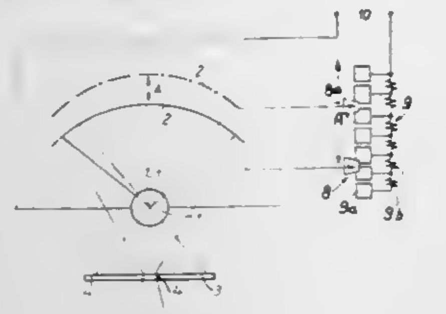
Filed Aug. 5, 1970, Ser. No. 61,103

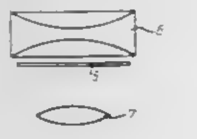
Claims priority, application Germany, Aug. 16, 1969, P 19 41 804.3

Int. Cl. G03h *27/16, 27/76;* **F21v** *7/00*

U.S. Cl. 355—71 **5 Claims**

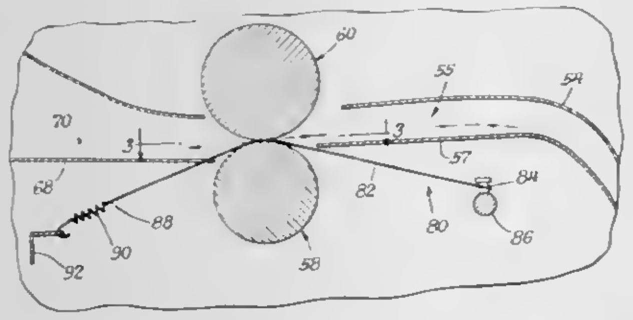
A magnifying apparatus having a projection lamp with a preferably small filament, a concave reflector mounted for movement along the optical axis of the apparatus, a transparent medium mounted in the path of the light rays produced by the projection lamp, the concave reflector forming an image of the filament on the transparent medium which image serves as the effective light source, the planar expansion of the effective light source is adjustable by the axial adjustment of the concave reflector in a continuous fashion.





3,707,328
SHEET GUIDE APPARATUS

Richard C. Robertson, Mount Prospect, Ill., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.
Filed Oct. 2, 1970, Ser. No. 77,669
Int. Cl. G03b *27/30*
U.S. Cl. 355—106 **2 Claims**

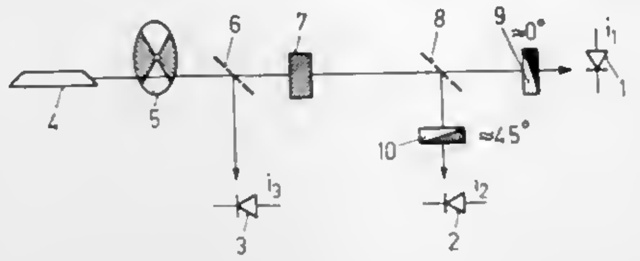


A guide arrangement for guiding sheet material through a developer unit over and in contact with a roller, the surface of which is wetted with a liquid developer solution, includes a plurality of fine, filament-like guide wires strung taut across the roller in the direction of movement of the sheet material. The wires prevent the sheet material from becoming wrapped about the roller member.

3,707,329
APPARATUS FOR ELECTRONICALLY ANALYZING MODULATED LIGHT BEAMS

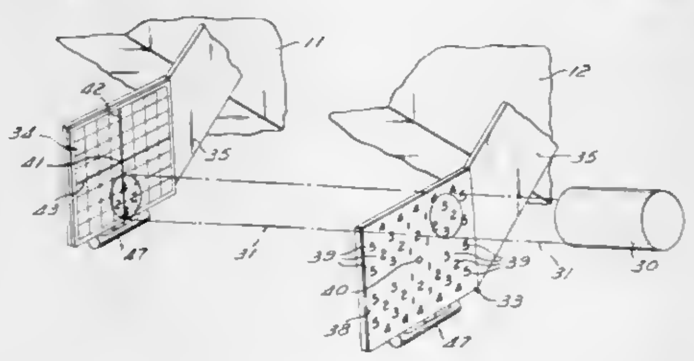
Andre Jaecklin, Ennetbaden; Jiri Mastner, Niederrohrdorf, and Friedrich K. von Willisen, Zurich, all of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Feb. 17, 1971, Ser. No. 116,176
Claims priority, application Switzerland, Feb. 25, 1970, 2794/70
Int. Cl. G01n *21/40;* **G01r** *31/00*
U.S. Cl. 356—117 **8 Claims**

Apparatus for analyzing a light beam modulated by a quantity to be measured in which two parallel electrical signals are derived from the modulated beam, the signals being shifted in phase relative to each other and being described by functions with a sine or cosine with an argument proportional to the quantity being measured. These signals are then added to produce a phase-modulated signal proportional to the measurement. To avoid errors in measurement due to an inherent drift effect in the photo-detectors on which the electrical signals appear, the beam of light is periodically interrupted (or attenuated) independently of the modulation effect produced by the quantity being measured and each of the electrical signals prior to the addition step is passed through a filter having a flat pass characteristic in the range of the interruption (or attenuation) frequency plus/minus the maximum variation in time of the argument proportional to the quantity measured and a cut-off frequency below twice the interrupter (or attenuation) frequency. One of the signals is also passed through a $\pi/2$ phase-shifter before the addition.



3,707,330
LIGHT BEAM GUIDING DEVICE

Marmon Pine, Des Plaines, Ill., assignor to Jarva, Inc., Sulon, Ohio
Filed Feb. 5, 9171, Ser. No. 112,953
Int. Cl. G01b *11/27*
U.S. Cl. 356—153 **8 Claims**



A light beam guiding device for a tunneling machine includes a light source for emitting a beam of light, a first target, and a second target. The first target includes means for passing a light pattern to the second target which is dependent upon the position of the first target relative to the light beam. The second target includes means for indicating the location of the light pattern thereon. Proper alignment of the tunneling machine relative to the light beam is determined by a predetermined light pattern from the first target falling on a predetermined location of the second target. Each target is mounted on the tunneling machine by a mounting means, each of which includes a means to adjustably position its associated target relative to the tunneling machine to compensate for machine roll.

3,707,331
CONCENTRATION DIFFERENCE CELL

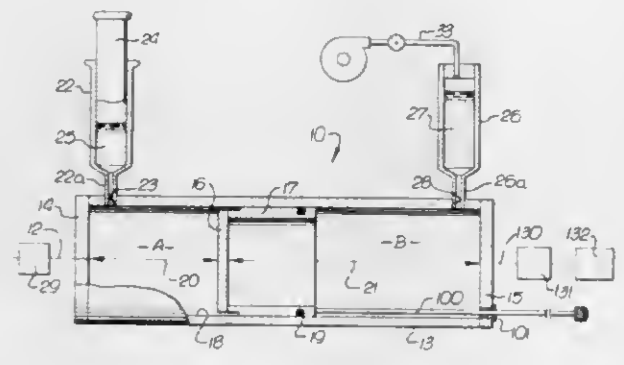
Kenyon P. George, Arcadia, and Roland C. Hawes, Monrovia, both of Calif., assignors to Cary Instruments, Monrovia, Calif.
Filed March 29, 1971, Ser. No. 129,031
Int. Cl. G01n *1/10, 21/24*
U.S. Cl. 356—246 **20 Claims**

A concentration difference cell adapted for use with spectrophotometer apparatus producing a light beam, the cell comprises:

a. first and second chambers including windows located to pass the beam transmitted successively through the chambers,

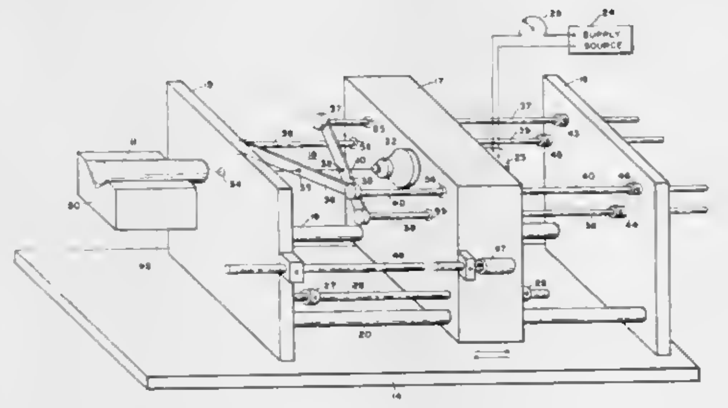
b. said chambers having associated beam path dimensions, the beam path dimension of the first chamber being adapted to increase while the beam path dimension of the second chamber decreases and in response to movement of at least one window, whereby the volume of the first chamber remains proportional to the increase in the beam path dimension of the first chamber, and the sum of the beam path dimensions of the first and second chambers remains constant,

c. the chambers arranged in such relation that a predetermined quantity of a first liquid in the first chamber may be diluted by introduction into the first chamber of a quantity of auxiliary liquid accompanied by movement of said one window toward the second chamber containing second liquid, the refractive index of the liquid in the first chamber being kept substantially equal to the refractive index of the second liquid so long as said beam path dimension of the first chamber is an appreciable part of said sum.



3,707,332
DRILLING FIXTURE FOR A DIMINUTIVE ELONGATED DRILL

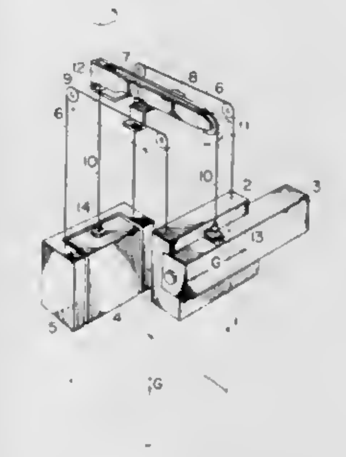
Fred K. Wolf, 3562 W. 147th Street, Cleveland, Ohio
Filed May 18, 1970, Ser. No. 38,404
Int. Cl. B23b *49/00*
U.S. Cl. 408—143 **20 Claims**



Drilling fixture for a diminutive, elongated drill, including a rotary driven drill holder for rotating said drill relative to a work-piece and reciprocable means for providing a relative reciprocal movement in an axial drilling direction between said drill and said work-piece. Stabilizing means is provided to stabilize the elongated drill against a whipping motion and comprises at least first and second drill support means mounted in axial alignment with respect to each other between said drill holder and said work piece for radially supporting said elongated drill along its axis. At least one of said drill support means is movable along the axis of the drill to vary the axial spacing between said drill support means.

3,707,333
HEADSTOCK BALANCING CONSTRUCTION FOR MACHINE TOOLS

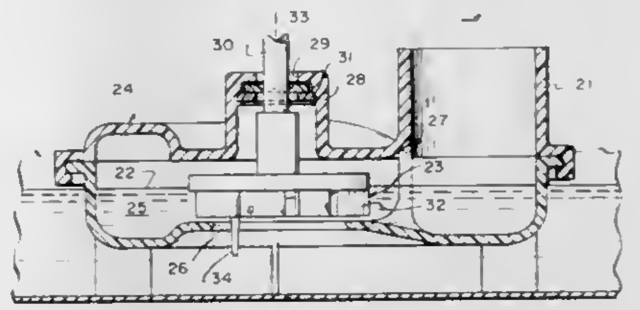
Tetsuo Kitamura, and Akira Tamai, both of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed July 13, 1970, Ser. No. 54,150
Int. Cl. B23b *47/26*
U.S. Cl. 408—235 **8 Claims**



The headstock of a machine tool, and the saddle supporting the headstock, are independently connected to respective counter weights by flexible connectors such as ropes, chains, or the like. A column is interposed between the headstock and saddle assembly and the counter weights, and the assembly and the counter weights are movable along opposite surfaces of the column. An arm is supported at the top of the column and has a tubular pivot at one end and which has a vertical axis, and bearing means are provided between the top of the column and an intermediate portion of the arm. The arm carries two pulleys, one at each end, over which the connecting element for the headstock extends. A first joint connects one end of the connecting element to the counter weight and can perform correction movements in one direction, and a second joint connects the opposite end of the connecting element to the headstock and can perform correction movements in three dimensions.

3,707,334
WATER PUMP WITH AIR LOCK BREAKING MEANS

Leonard W. Ohlsson, St. Paul, and Edward J. Von Arb, North St. Paul, both of Minn., assignors to Whirlpool Corporation
Filed Jan. 12, 1971, Ser. No. 105,834
Int. Cl. F03b *13/00;* **B01f** *5/16;* **F04b** *17/00*
U.S. Cl. 415—121 **7 Claims**

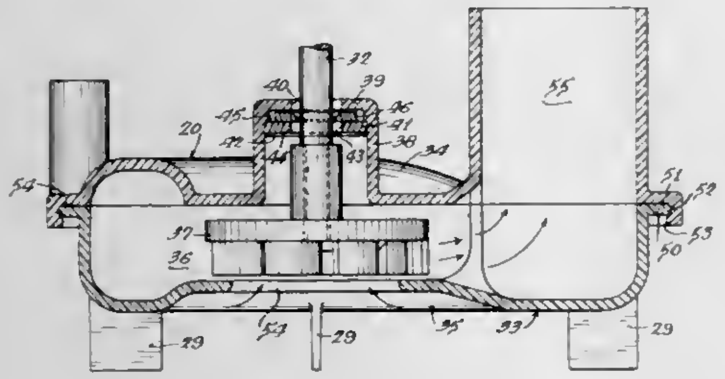


A water pump such as for use with a commercial ice maker wherein the pump is normally submerged but the operation of which is controlled in response to a condition of the system independent of the water level at the pump whereby air bubbles may form at the pump inlet due to a low level of water upon initiation of the pump operation. A breakup means is mounted on the impeller of the pump to project through the inlet to the pump for breaking up air bubbles that so form. The breakup means may comprise a pin member formed integrally with the impeller.

3,707,335
WATER PUMP

Walter C. Barnard, White Bear Lake, Minn., assignor to Whirlpool Corporation

Continuation of Ser. No. 813,536, April 4, 1969, abandoned.
This application Jan. 25, 1971, Ser. No. 109,687
Int. Cl. F01d *11/08;* **F16k** *41/00;* **F04d** *3/00*
U.S. Cl. 415—170 A **2 Claims**

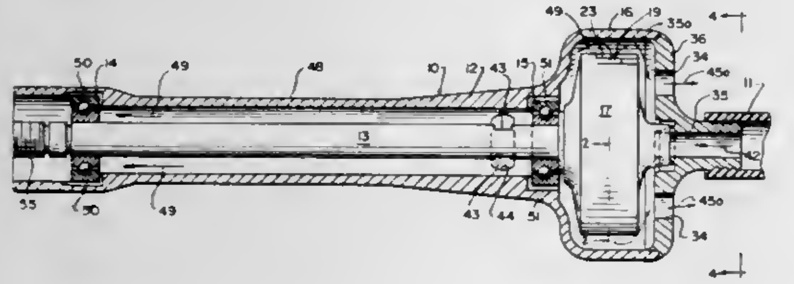


A water pump for a commercial ice maker comprising a high capacity pump with a relatively large water flow rate and having an improved seal for sealing a motor shaft where it enters the pump chamber to avoid substantial leakage and resulting loss in pumping pressure.

3,707,336
FLUID ENGINE

James V. Theis, Jr., Park Forest; John B. McCord, Evanston, and Harry H. Holly, Olympia Fields, all of Ill., assignors to Hollymatic Corporation

Filed Nov. 27, 1970, Ser. No. 93,288
Int. Cl. B63b *1/16;* **F01d** *3/00;* **F04d** *7/00*
U.S. Cl. 416—186 **3 Claims**

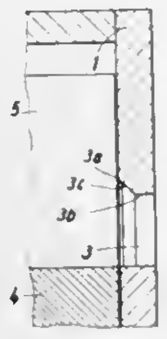


A pressurized fluid engine comprising a rotor rotatable about a central axis of rotation and within a casing, the rotor having a hollow interior bounded on substantially its entire inner periphery by at least one inclined surface substantially parallel to and facing the axis having a leading end with respect to the direction of rotation closer to the axis than its trailing end in order that outward fluid pressure on the surface or surfaces exerts a mechanical leverage inducing the rotation. The fluid on the interior of the rotor after applying this pressure on the inclined surfaces escapes freely through an exit that is substantially free of any fluid compressing flow restrictions.

3,707,337
LIQUID SEAL COMPRESSORS

Udo Segebrecht, Ellerbrook, Germany, assignor to Siemen & Hinsch mbH, Itzeboe/Holstein, Germany

Filed Feb. 23, 1971, Ser. No. 118,104
Int. Cl. F04c *19/00*
U.S. Cl. 417—68 **4 Claims**

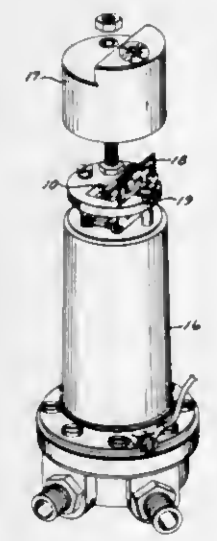


A liquid seal compressor has a vaned impeller which runs on one side of a distribution plate so that the cellular chambers between the vanes sweep a zone on said plate. Inlet and outlet apertures for working fluid and sealing liquid are formed within said zone in said plate. The edge between the radially outer boundary of the outlet aperture and the side of said plate facing the impeller is rounded or bevelled and preferably a narrow straight edge or chamfer is formed from said side of the plate to the start of the rounded or bevelled portion.

3,707,338
SOLENOID OPERATED PUMP

Michael H. Hilford, 511 Kings Road, Newport Beach, Calif.

Filed Jan. 29, 1971, Ser. No. 110,817
Int. Cl. F04b *35/04, 17/04;* **H02k** *33/00*
U.S. Cl. 417—416 **3 Claims**

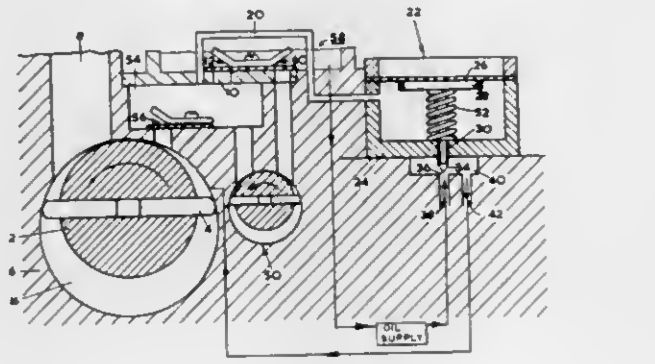


The present invention relates to an electric solenoid operated, diaphragm pump of the type having a mechanically operated electrical switch for controlling cyclical solenoid energization. Prior pumps of this class passed a large electrical current through the switch contacts, leading to premature switch failure. The present application discloses an electronic circuit that minimizes the electrical current flow through the switch contacts. It also discloses an optical arrangement for replacing the mechanically operated electrical switch.

3,707,339
VACUUM PUMPS

Leslie J. Budgen, Copthorne Bank, near Crawley, England, assignor to The British Oxygen Company Limited, London, England

Filed June 12, 1970, Ser. No. 45,879
Claims priority, application Great Britain, June 12, 1969, 29,908/69
Int. Cl. F01c *21/04;* **F04c** *27/02, 25/02*
U.S. Cl. 418—13 **10 Claims**

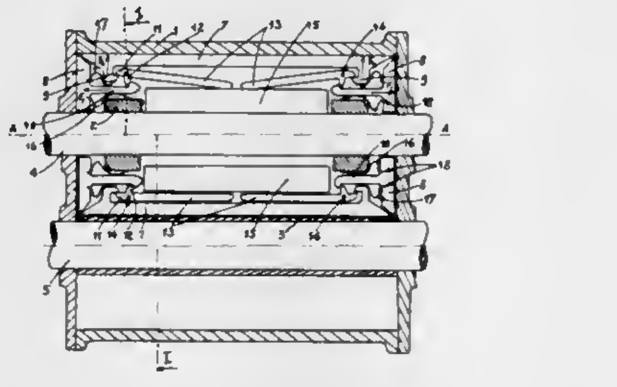


An oil sealed mechanical vacuum pump having stages has means for supplying oil to the pump through a duct that presents an impedance which is a function of the mean inlet pressure of the pumped gas except the first stage.

3,707,340
DEVICE FOR REDUCING LEAKAGE IN ROTARY ENGINES AT LOW RUNNING SPEEDS

Maurice Georges Brille, Nanterre, France, assignor to Societe Anonyme de Vehicules Industriels et d'Equipements Mecaniques, S.A.V.I.E.M., Paris, France

Filed Oct. 22, 1970, Ser. No. 82,869
Claims priority, application France, Oct. 23, 1969, 6936360
Int. Cl. F01c *19/02;* **F03c** *3/00;* **F04c** *27/00*
U.S. Cl. 418—115 **7 Claims**

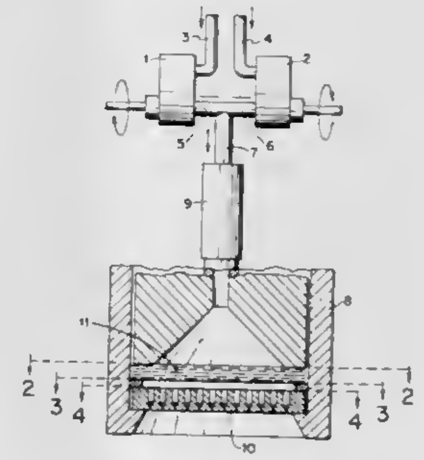


A device for reducing leakage between a rotor and a stator of a rotary engine at low running speeds is disclosed, the device comprising sealing elements at the end parts of the rotor teeth, adapted to come into frictional engagement with the internal surface of the stator at low speeds and to be disengaged in response to centrifugal forces, when the speed exceeds a predetermined value, the engine being then operated as a conventional engine of the gear type.

3,707,341
APPARATUS FOR MAKING MULTIFILAMENT YARNS

Wilhelmus J. Footijn, and Korstiaan J. M. Van Drunen, both of Dieren, Netherlands, assignors to Akrona Incorporated, Asheville, N.C.

Division of Ser. No. 794,438, Sept. 27, 1960, Pat. No. 3,641,232, which is a division of Ser. No. 663,812, , Pat. No. 3,447,308. This application Sept. 14, 1970, Ser. No. 71,709
Claims priority, application Netherlands, Sept. 8, 1966, 6612628
Int. Cl. D01d *3/00;* **B29b** *1/04*
U.S. Cl. 425—198 **7 Claims**

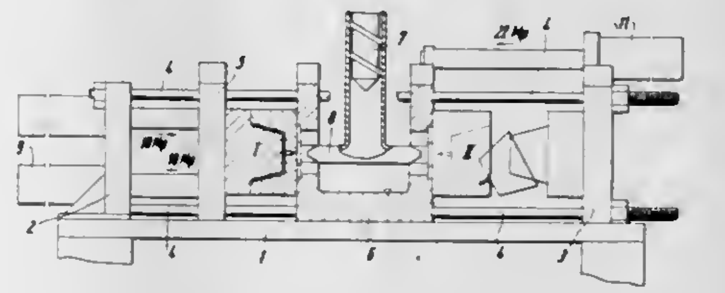


Reinforcing material for elastic articles and more particularly for automobile tires. The material is made up of multifilament synthetic linear high polymer yarns, each yarn having a plurality of filaments and each filament composed of at least two different polymers. One polymer functions as the matrix and the other polymer consists of a multiplicity of continuous cores having substantially the same length as, and being disposed uniformly throughout, the matrix. The cores are characterized by their uniformity in cross-sectional dimensions and by their substantially continuous nature. A novel apparatus is provided for making such filaments.

3,707,342
INJECTION MOLDING APPARATUS FOR FOAMED PLASTICS

Albert Lohmann, Niederkuchten, Germany, assignor to Mannesman-Meer Aktiengesellschaft, Monchengladbach, Germany

Filed Dec. 21, 1970, Ser. No. 100,234
Int. Cl. B29f *1/00*
U.S. Cl. 425—242 **11 Claims**



Two molds are spaced apart in tandem with a dual nozzle injection unit positioned therebetween to fill the two molds alternately. The cooling periods of the two closed molds overlap in time and while one mold is cooling the other one is opened, emptied of its molded part, closed again and injected with a new charge of plastic. During the cooling period of one mold the injection unit not only injects plastic into the other mold but also recharges for a new operating cycle.

3,707,343

MACHINE FOR PRODUCING ARTICLES FROM A STRIP OF EXTRUDED SYNTHETIC MATERIAL

Daniel Badoux, and Robert Carry, both of 112, rue Franklin Roosevelt, Decines, France

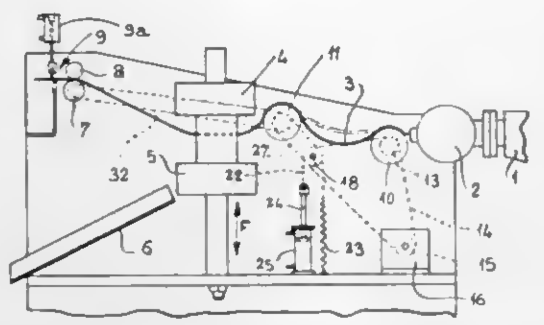
Filed Aug. 25, 1970, Ser. No. 66,727

Claims priority, application France, Aug. 26, 1969, 6929103

Int. Cl. B29f *3/00*

U.S. Cl. 425—394 **4 Claims**

A machine for producing synthetic plastics articles from a strip of synthetic plastics materials in which the strip is subjected to a stepwise action to facilitate the forming operation. In the machine there is provided an accumulation system between an extrusion die head and a shaping device. In accordance with the present invention the accumulation system is constituted by two heated spaced-apart drums for supporting the synthetics material strip with the drum nearer the extrusion die being rotated continuously and the other drum having imparted to it an abrupt angular movement synchronously with means for moving the synthetic plastics strip.



CHEMICAL

3,707,344

DIFFERENTIAL-DYEING TEXTILES

Guenter Becht, Speyer, Joachim Kunde, Frankenthal, Norman La France, Bad Duerkheim, and Karl Robert Mueller, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Rhineland-Pfalz, Germany

No Drawing. Filed Apr. 13, 1970, Ser. No. 28,081

Claims priority, application Germany, Apr. 18, 1969, P 19 19 746.7

Int. Cl. D02g *3/04;* **D06p** *3/86*

U.S. Cl. 8—21 B **8 Claims**

Textiles of at least two different polyamide yarns wherein from 10 to 90% by weight of the yarn in the textile is yarn of a polyamide which contains from 1 to 15% by weight of oxyalkylated polyamide. These textiles are dyed in contrasting shades in a single-bath piece-dyeing procedure.

3,707,345

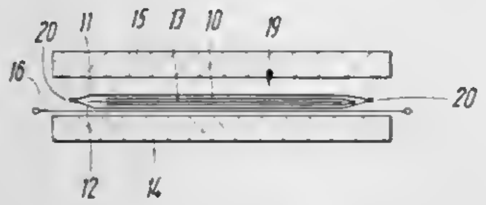
SUBLIMATORY TRANSFER DYEING IN VENTED FOIL PACKET WITH RELEASE OF TRAPPED STEAM

Herbert Kannegiesser, Vlotho (Weser), Germany, assignor to Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung, Bremen, Germany

Filed Sept. 23, 1970, Ser. No. 74,653

Int. Cl. D06p

U.S. Cl. 8—25 **2 Claims**



This invention relates to a method for the unilateral or bilateral printing of single-layer or multilayer textile pieces or textile tapes, especially those which are made wholly or partly of synthetic fibers, whereby the textile pieces or textile tapes, which are covered with dye-layered printing foils, are introduced between heated pressure means, such as pressure plates, calender rolls, or the like, and where the dye layer is transferred to the textile pieces or textile tapes by means of sublimation due to heat and pressing pressure.

3,707,346

SUBLIMATORY TRANSFER DYEING WITH 2-CYANO-1,4-DIAMINO ANTHRAQUINONES

Juergen Markert, Basel, Peter Eckert, Madgen, Aargau, and Angelo Della Casa, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

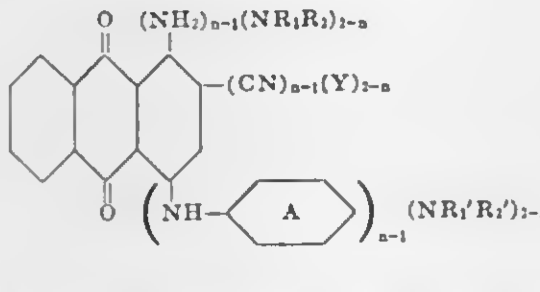
No Drawing. Filed Jan. 12, 1971, Ser. No. 105,976

Claims priority, application Switzerland, Jan. 16, 1970, 59,470

Int. Cl. D06p

U.S. Cl. 8—2.5 **7 Claims**

Non-textile sheet materials for carrying out transfer printing, characterized in that they carry a dyestuff of the formula



wherein the ring A is aromatic or saturated, R_1 is a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, R_2 represents a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, Y is a hydrogen, a bromine or a chlorine atom or a methoxy group, R_1' denotes a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, R_2' represents an alkyl group containing 1 to 6 carbon atoms, and *n* is 1 or 2, with the proviso that if Y is a hydrogen atom, the alkyl groups present must contain at least 3 carbon atoms, or a mixture of such dyestuffs and optionally other sublimable dyestuffs and/or optical brighteners.

3,707,347

STAINING PLASTIC SURFACES

Bruce M. Mueller, Ottawa Lake, Mich., assignor to Owens-Illinois, Inc.

No Drawing. Continuation of abandoned application Ser. No. 744,346, Sept. 12, 1968. This application Aug. 17, 1971, Ser. No. 172,601

Int. Cl. D06p *3/00*

U.S. Cl. 8—4 **10 Claims**

Plastic articles are provided with sub-surface markings which are scuff-proof and resistant to acid, alkali and solvent attack. Dye-bearing compositions are applied to a plastic surface in a desired pattern; surface and dye-bearing composition are then suitably processed to effectuate a diffusion of the dye into the surface and the residual composition is removed from the surface, thereby resulting in a durable and resistant sub-surface pattern.

3,707,348

CELLULOSE DYED WHILE WATER SWOLLEN IN A GLYCOL BATH WITH ANTHRAPYRIMIDINE DYE

John Blackwell, Kennett Square, Pa., and Edward Sherlock Wilks, Penns Grove, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 28, 1971, Ser. No. 157,753

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 C **5 Claims**

Water swellable cellulosic fibers, for example, cotton, or blends or mixtures thereof with synthetic fibers, for example, polyester fibers, uniformly dyed in orange to violet shades with essentially water insoluble, non-vattable, anthrapyrimidine dyes, for example, 2-phenyl-4-bromo-6-(p-toluidino)anthrapyrimidine, said dyed fibers having excellent fastness to light, washing, drycleaning and sublimation and exhibiting a reflectance color value (S') after scour of at least about 0.4.

3,707,349

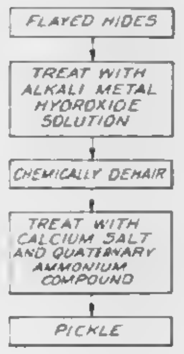
CURING AND PRETANNAGE OF HIDES

Don S. Elvrum, 6233 Saylin Lane, Annandale, Calif. 90042

Original application July 19, 1967, Ser. No. 654,432, now Patent No. 3,574,517, dated Apr. 13, 1971. Divided and this application July 2, 1970, Ser. No. 52,015

Int. Cl. C14c *1/02, 1/08*

U.S. Cl. 8—94.15 **4 Claims**


FLAYED HIDES
TREAT WITH ALKALI METAL HYDROXIDE SOLUTION
CHEMICALLY DEHAIR
TREAT WITH CALCIUM SALT AND QUATERNARY AMMONIUM COMPOUND
PICKLE

Hides may be cured and pretanned by: treating raw hides with a sodium hydroxide solution so as to react the lipid material in order to cause formation of soaps, limited attack on protein material present in the hides, and swelling of the collagen in the hides; adding sodium chloride to the sodium hydroxide solution in order to enable this salt to be taken up from the solution by the hides, causing an increase in the strength of the swollen collagen; dehairing the hides; treating the hides with sodium sulphite solution so as to add strength to the swollen collagen; treating the hides with a mixture of a quaternary ammonium salt, and a calcium salt in order to precipitate any soaps present and to place the ammonium salt within the remaining hide material and to separate fascia tissue from the remaining hide material; and pickling the hides with an acid solution so as to effect a size reduction and strengthening of the swollen collagen. If desired, the hides may be bated prior to being pickled. The so-cured hides have properties which are related to the properties of the ammonium salt. The resulting hides can be further treated in accordance with conventional tanning practices.

3,707,350

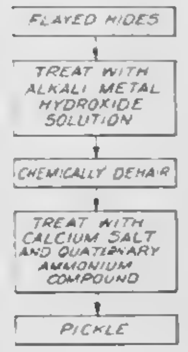
CURING AND PRETANNAGE OF HIDES

Don S. Elvrum, 6233 Saylin Lane, Annandale, Calif. 90042

Original application July 19, 1967, Ser. No. 654,432, now Patent No. 3,574,517, dated Apr. 13, 1971. Divided and this application July 2, 1970, Ser. No. 52,016

Int. Cl. C14c *1/02, 1/08*

U.S. Cl. 8—94.18 **9 Claims**


FLAYED HIDES
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3,707,351

TREATMENT FOR IMPROVING POLYPROPYLENE DYEABILITY

Jerry Michael Mecco, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 733,800, June 3, 1968, which is a continuation-in-part of application Ser. No. 509,426, Nov. 23, 1965, now abandoned. This application Apr. 17, 1970, Ser. No. 29,637

Int. Cl. D06m *11/00*

U.S. Cl. 8—100 **10 Claims**

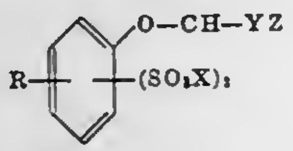
Polypropylene fibers are difficult to dye. The prior art has shown that their dyeability is improved to a certain degree by the incorporation therein of minor amounts of polymeric vinyl pyridines. It has now been found that the dyeability of the modified, i.e., vinyl pyridine-containing polypropylene, is further markedly improved by pre-treatment thereof with an aqueous composition containing from about 0.25% to about 4%, based on the weight of the fiber, of an anionic surface-active agent, such as sodium dodecyl sulfate, and sufficient acid, such as sulfuric or formic acid, to provide a pH no higher than 6 at a temperature of from about 140 to about 250° F. Thus, for example, without the pre-treatment, the modified fibers are only weakly dyeable with dyes, such as Solvent Red 106, a spirit dye, Acid Yellow 42, and acid dye, Rhodamine B, a basic dye, and Vat Jade Green, a vat dye; however, with the pre-treatment the fibers are strongly dyeable with these dyes.

3,707,352

LINEAR ALKYL HYDROCARBYLOXYBENZENE DISULFONATES

Gar Lok Woo, Tiburon, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed Aug. 21, 1970, Ser. No. 66,088
Int. Cl. B08b *3/00*
U.S. Cl. 8—137 **5 Claims**

Detergent active materials capable of heavy duty washing in the absence of phosphates comprising linear alkyl hydrocarbyloxybenzene disulfonates of the formula

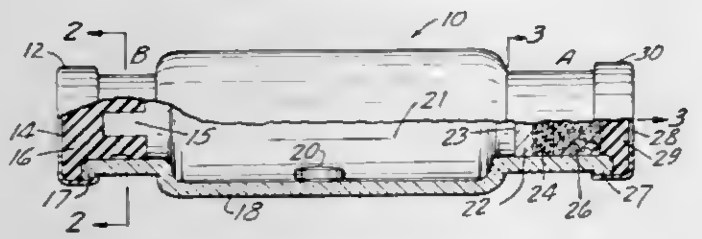


in which R is linear alkyl of 10 to 24 carbon atoms, X is H or a water-soluble salt-forming cation, Z is H, or an alkyl group of 1 to 6 carbon atoms and Y is H, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, or aralkyl of 7 to 10 carbon atoms, Y and Z may be a polymethylene chain of 2 to 7 carbon atoms, the sum of the aliphatic carbon atoms in R and —CH—YZ is from 17 to 25, and for this purpose an aromatic carbon atom is considered equal to ⅔ aliphatic carbon atom.

3,707,353

RADIOACTIVE LABELING KIT

David O. Knblatowicz, Arden Hills, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Panl, Minn.
Filed Mar. 26, 1970, Ser. No. 22,765
Int. Cl. G01n *23/00;* **G21b** *5/02*
U.S. Cl. 23—230 B **17 Claims**

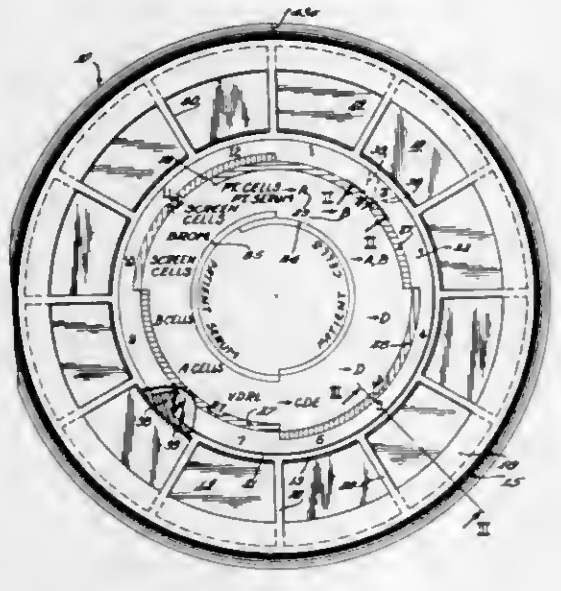


A single-unit labeling kit for radioactively labeling biodegradable microparticles for medical diagnosis and the like comprises, generally, a container having at least one open end; a porous filter plate mounted within the container separating the container into first and second compartments; a plurality of biodegradable microparticles in the first compartment; a solid source of hydrogen ion in the second compartment; a reagent tablet in the first compartment, the tablet comprising a reducing reagent and a non-reactive, non-toxic wetting agent to aid in forming a suspension of the microparticles when a liquid is introduced into the container; and means to temporarily seal the open end of the container, such means capable of receiving a syringe needle for placing a liquid in the container and for the removal of radioactively labeled microparticles. The microparticles are labeled by introducing a solution containing radioactive technetium into the end of the container carrying the solid source of hydrogen ion, acidifying the solution by passing it through the solid source of hydrogen ion and through the porous filter plate into the first compartment, agitating the acidified solution to suspend the microparticles and dissolve the reagent tablet, heating the container to complete the labeling reaction, cooling the container, and removing the supernatant containing unreacted radioactive elements and spent reagents, leaving the labeled microparticles behind on the porous filter plate which may thereafter be removed for use.

3,707,354

MEANS FOR MIXING AND CENTRIFUGATION

Harold S. Goodman, 1300 Lincoln Ave. S., Highland Park, Ill. 60035
Filed June 16, 1970, Ser. No. 46,630
Int. Cl. B04b *5/02, 9/00;* **G01n** *33/16*
U.S. Cl. 23—253 R **19 Claims**

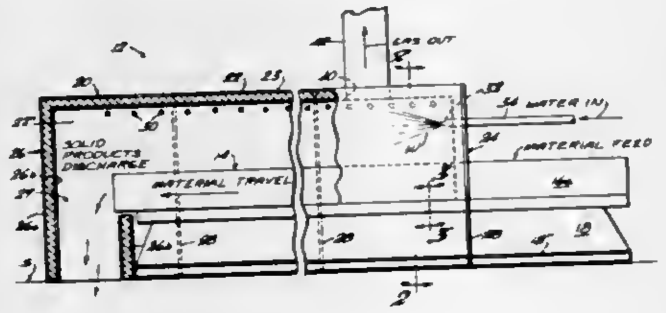


Materials in liquid medium are placed in a rotary tray which is actuated to agitate the medium and mix the materials, preceded by incubation if desired, and the tray rotated to centrifugate matter from the medium. An upwardly opening receptacle in the tray has a perimeter providing an inwardly opening pocket to receive the centrifuged matter. A plurality of vertical partitions may divide the receptacle into individual wells or compartments for concurrently performing a number of separate or related tests such as in semi-automatic blood grouping and typing procedures and compatibility or cross-typing tests. For disposability the trays are adapted to be made in the form of low cost disposable plastic disks. As a blood typing device, selected wells in the disks may be provided with predispensed typing reagents such as sera. Well-identifying indicia may be carried on the respective disks.

3,707,355

REACTOR APPARATUS

Fred T. Anderson, St. Petersburg, Fla., assignor to Gray Manofacturing Company, New York, N.Y.
Filed Dec. 11, 1970, Ser. No. 97,094
Int. Cl. C10b *7/12*
U.S. Cl. 23—277 R **4 Claims**

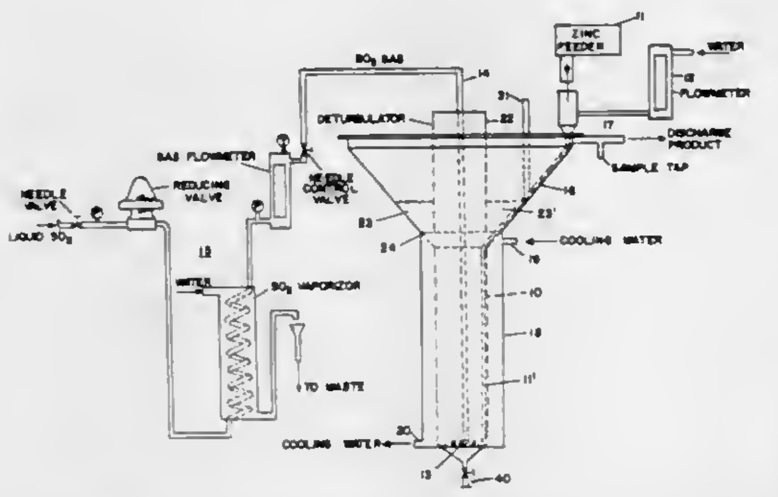


The apparatus includes a vibrating conveyor for conducting the waste material horizontally through a combustion chamber heated by electrical resistance elements. Steam barrier means is provided for excluding oxygen from the combustion chamber, affording pyrolysis decomposition of the waste material.

3,707,356

APPARATUS FOR DETURBULATING TURBULENT SOLUTIONS

George A. De Witt, Ducktown, Tenn., assignor to Cities Service Company, New York, N.Y.
Filed Dec. 16, 1970, Ser. No. 98,515
Int. Cl. B01j *1/00;* **C01b** *17/98*
U.S. Cl. 23—285 **4 Claims**

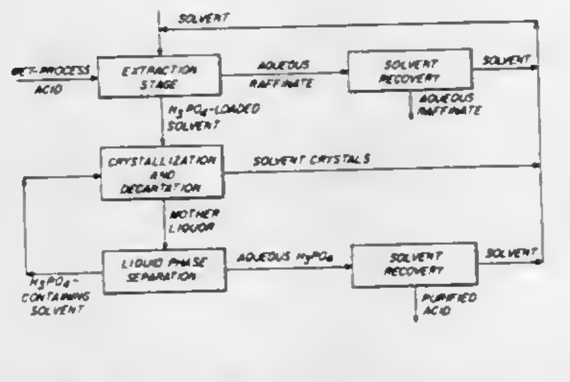


An apparatus for deturbulating turbulent solutions is provided comprising reactor, deturbulator and clarifier sections. The apparatus is useful in making zinc hydrosulfite solutions having a concentration greater than about 100 grams per liter of zinc hydrosulfite.

3,707,357

WET-PROCESS PHOSPHORIC ACID EXTRACTION INCLUDING SEPARATING SOLVENT FROM EXTRACT BY FREEZING SOLVENT

Peter T. Chiang, Atlanta, Ga., assignor to United States Steel Corporation
Filed Mar. 23, 1971, Ser. No. 127,269
Int. Cl. B01d *9/04, 11/04;* **G01b** *25/22*
U.S. Cl. 23—312 P **10 Claims**



Phosphoric acid is selectively extracted from impure wet-process phosphoric acid and then stripped from the solvent extract by crystallization of the solvent with or without the addition of water.

3,707,358

CRYSTAL SUPPORT FOR A SEMICONDUCTOR CRYSTAL

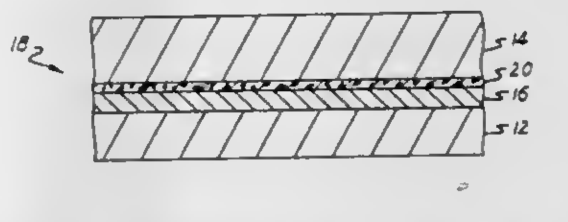
Annegien Massellnk, Martinus Antonius Maria Bakker, and Bauke Visser, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Filed June 24, 1970, Ser. No. 49,500
Claims priority, application Netherlands, June 27, 1969, 6909889; Jan. 24, 1970, 7001030
Int. Cl. B23p *3/00*
U.S. Cl. 29—195 **3 Claims**

A crystal support for a semiconductor crystal, preferably consisting of iron or an iron alloy which is coated with a gold layer to which the crystal is secured by means of solder. An intermediate layer of a metal which crystallizes in a hexagonal densest packing, particularly cobalt is provided between the metal of the crystal support and the gold layer.

3,707,359

COMPOSITE THERMOSTATIC METAL LAMINATE

Robert F. Hanley, Pawtucket, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Nov. 17, 1970, Ser. No. 90,323
Int. Cl. B32b *15/00*
U.S. Cl. 29—195.5 **11 Claims**



A composite metal laminate material is disclosed which is particularly adapted for use as a thermostatic material. The composite metal laminate includes first and second outer layers each of preselected materials having substantially different coefficients of thermal expansion and an interliner material disposed intermediate the first and second outer layers and metallurgically bonded to one of the layers. In addition, a diffusion layer is defined metallurgically bonded to the interliner and to the other of the outer layers and defines the interface between the interliner and the other of the outer layers.

3,707,360

SMOKE SUPPRESSANT FUEL COMPOSITION

George W. Eckert, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 7, 1970, Ser. No. 95,937
Int. Cl. C10l *1/18, 1/22, 1/32*
U.S. Cl. 44—51 **7 Claims**

Smoke inhibited middle distillate fuel composition comprising a hydrocarbon distillate fuel in the kerosene boiling range containing an additive combination comprising:

(1) a calcium carbonate overbased calcium sulfonate,
(2) a calcium hydroxide overbased calcium sulfonate and
(3) a nitropropane.

3,707,361

GASOLINE COMPOSITIONS

Weldon G. Annable, Crystal Lake, Ill., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Continuation of application Ser. No. 430,464, Feb. 4, 1965. This application June 23, 1969, Ser. No. 838,036
Int. Cl. C10l *1/26*
U.S. Cl. 44—58 **4 Claims**

A gasoline composition containing a tetraalkyl lead compound, an alkyl aryl phosphate ester and about 0.0004 to 0.02% of the N-oleyl-1,3-propylenediamine salt of tall oil fatty acids.

3,707,362

METHOD AND COMPOSITION FOR OPTIMIZING AIR-FUEL RATIO DISTRIBUTION IN INTERNAL COMBUSTION ENGINES

Abraham A. Zimmerman and Louis E. Furlong, Elizabeth, and Hugh F. Shannon, Scotch Plains, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed Mar. 16, 1970, Ser. No. 20,083
Int. Cl. C10l *1/22*
U.S. Cl. 44—72 **14 Claims**

A tertiary amine having one long straight chain aliphatic group and two short chain alkyl groups, or a mixture of such an amine with a long straight chain primary amine, when added in minor proportion to a gasoline, will improve the distribution of the air-fuel mixture in the intake manifold of a multicylinder gasoline engine, run with the resulting blend, thereby increasing operating efficiency. Addition of the mixed amines to a gasoline also improves fuel economy as evidence by better gasoline mileage. The tertiary amine aids the solubility of the primary amine in an additive concentrate used for blending.

3,707,363
ALKYL KETO-ALKYL SULFITES AND THEIR USES

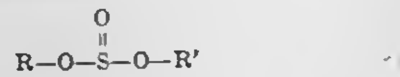
Rupert A. Covey, Wolcott, and Bogislav von Schmeling and Charles E. Crittenden, Hamden, Conn., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Original application Dec. 22, 1967, Ser. No. 692,714, now Patent No. 3,564,038, dated Feb. 16, 1971. Divided and this application May 1, 1970, Ser. No. 43,656

Int. Cl. A01n *9/14*

U.S. Cl. 71—78 **8 Claims**

Sulfite esters of the following general formula are used as chemical pruning agents:



$$R-O-\overset{\overset{\large O}{\|}}{S}-O-R'$$

wherein R is an alkyl or a haloalkyl radical having from 1 to 18 carbon atoms and R′ is a ketoalkyl group having 3 to 10 carbon atoms and their halo-substituted derivatives.

3,707,364
BENZOISOTHIAZOLE HERBICIDES

Friedrich Becke, Heidelberg, Adolf Fischer, Mutterstadt, and Helmut Hagen, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

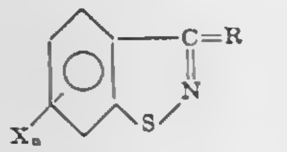
No Drawing. Filed Mar. 11, 1970, Ser. No. 18,689

Claims priority, application Germany, Mar. 26, 1969, P 19 15 387.8

Int. Cl. A01n *9/12*

U.S. Cl. 71—90 **1 Claim**

Herbicides containing a compound having the formula



where X and R each denotes halogen or a nitro, thiocyano, amino, cyano or aliphatic radical, an alkylamino, acylamino, haloacylamino, alkoxy or a substituted ureido radical, R may also denote hydrogen or an aryl, aralkyl or cycloaliphatic radical, and *n* denotes one of the integers 0, 1, 2 and 3, and a process for controlling the growth of unwanted plants with these compounds.

3,707,365
SYNERGISTIC HERBICIDE COMBINATION OF CYCLOHEXENONE DIMERS WITH HERBICIDES

Harold A. Kaufman, Piscataway, and Roger P. Napier, Somerville, N.J., assignors to Mobil Oil Corporation

No Drawing. Continuation-in-part of application Ser. No. 819,109, Apr. 24, 1969. This application Mar. 31, 1970, Ser. No. 24,326

Int. Cl. A01n *9/22*

U.S. Cl. 71—93 **2 Claims**

The dimer of 2-cyclohexen-1-one and its substituted derivatives are synergists that enhance the activity of herbicides, such as 2,4,5 - trichlorophenoxybenzoic acid (2,4,5–T), 2,4–D, and triazines (Atrazine).

3,707,366
PRE-EMERGENT CHEMICAL METHOD OF COMBATING UNWANTED VEGETATION

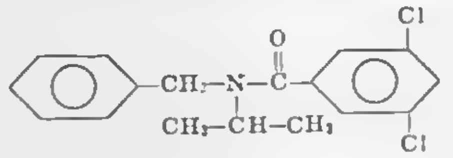
Roger P. Cahoy, Overland Park, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 9,419, Feb. 6, 1970. This application Nov. 9, 1970, Ser. No. 88,166

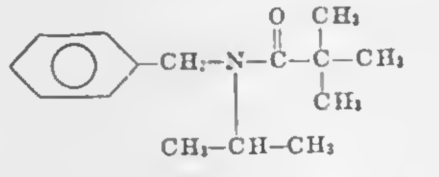
Int. Cl. A01n *9/20*

U.S. Cl. 71—118 **8 Claims**

Undesired vegetation such as crabgrass, downey brome, giant foxtail, yellow foxtail, barnyard grass, flax and wild oats are combated by pre-emergent application of at least one compound belonging to a class of substituted N-benzyl amides of alkanoic and benzoic acids, particularly in the presence of seeds of such crops as cotton and soybeans. Illustrative of compounds which are very effective against several species of grasses as well as some broadleaf weeds in the presence of soybeans and cotton are two with the following structural formulas:



and



3,707,367
METHOD FOR FOAMING METALS

Johan Bjorksten, Madison, and Edward J. Rock, Blue Mounds, Wis.; said Rock assignor to Bjorksten, Inc.

Filed May 3, 1971, Ser. No. 139,606

Int. Cl. B22d *25/00, 25/06*

U.S. Cl. 75—20 F **12 Claims**

Fiber reinforced foamed metal is produced by feeding to a foaming vessel a composition of reinforcing fibers, a foaming agent and a metal melting below the gas release temperature of this agent. This composition can be prepared and fed continuously from a compounding vessel, preferably connected with the foaming vessel, or the components can be added separately and directly in batch operation. In the foaming vessel they are combined with the remaining components of the final composition and brought to foaming temperature. All mixing after the fibers are added is done with rollers with ample clearances, as otherwise the fibers will be damaged. Rollers with both axial and planetary motion are preferred.

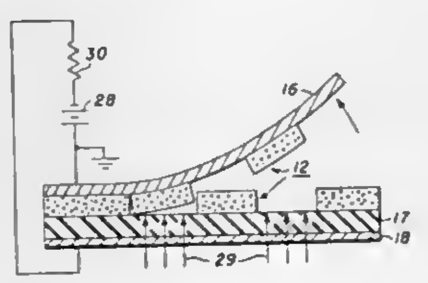
3,707,368
MANIFOLD IMAGING PROCESS

Warren G. Van Dorn, 300 Northridge Road, Columbus, Ohio 43214

Continuation-in-part of application Ser. No. 452,641, May 3, 1965. This application Feb. 26, 1968, Ser. No. 708,380

Int. Cl. G03g *13/22*

U.S. Cl. 96—1 R **16 Claims**



A manifold imaging system wherein a cohesively weak photoresponsive imaging layer is sandwiched between two sheets. The imaging layer is exposed to a pattern of actinic electromagnetic radiation and an electric field providing upon separation of the sheets a positive image on one sheet and a negative image on the other.

3,707,369
PHOTOCONDUCTIVE ELEMENTS CONTAINING 2-METHYL-3,3-DIMETHYL INDOLE DERIVATIVES

Hisatake Ono, Syu Watari, and Chiaki Osada, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

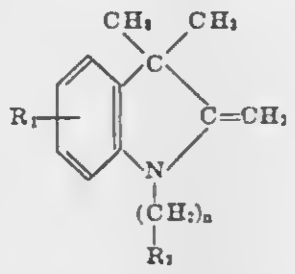
No Drawing. Filed Aug. 20, 1970, Ser. No. 65,728

Claims priority, application Japan, Aug. 20, 1969, 44/65,829

Int. Cl. G03g *5/00*

U.S. Cl. 96—1.5 **11 Claims**

An electrophotographic element comprising a conducting support coated with an insulating binder having dispersed therein a photoconductive indoline compound having the general formula:



(wherein, R_1 is H, an alkyl having 1–4 carbon atoms, a halogen, —NO_2, —OR_3 or $COOR_3$ (R_3 being an alkyl having 1–4 carbon atoms), R_2 is H, OH, CN or a phenyl and *n* is 1–4).

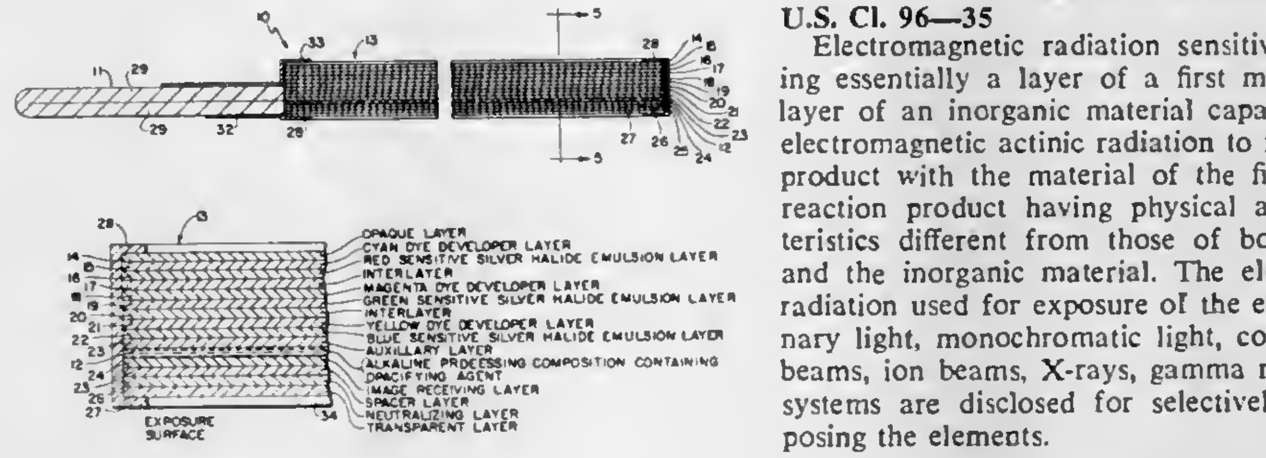
3,707,370
COLOR DIFFUSION TRANSFER FILM UNITS COMPRISING A LAYER WHICH CONTAINS A SYNTHETIC POLYMER-BENZENOID SILVER HALIDE DEVELOPING AGENT COMPLEX AND PROCESS FOR THEIR USE

Dimite J. Rasmussen, Concord, and Peter H. Roth, Needham, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 19, 1971, Ser. No. 135,210

Int. Cl. G03c *7/00, 5/54, 1/48*

U.S. Cl. 96—3 **25 Claims**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OPAQUE LAYER
CYAN DYE DEVELOPER LAYER
RED SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE SENSITIVE SILVER HALIDE EMULSION LAYER
AUXILLARY LAYER
ALKALINE PROCESSING COMPOSITION CONTAINING OPACIFYING AGENT
IMAGE RECEIVING LAYER
SPACER LAYER
NEUTRALIZING LAYER
TRANSPARENT LAYER
EXPOSURE SURFACE
34

The present invention relates to photography and, more particularly, to diffusion transfer process photographic film units which comprise a photosensitive element adapted to provide, by diffusion transfer photographic processing, selective dye image recordation of incident actinic radiation as a functon of the point-to-point degree of photosenstive element exposure, which film unit includes a plurality of essential layers including a photosensitive silver halide layer having associated therewith dye developer, i.e., a dye which is a silver halide developing agent, which is diffusible during processing as a function of the point-to- point degree of silver halide layer exposure to incident actinic radiation and a layer adapted to receive image-forming material diffusing thereto, at least one of the layers of the film unit comprising a particulate dispersion of a synthetic polymer-silver halide developing agent complex dissociable as a function of pH to provide a processing composition soluble silver halide developing agent; and to specified diffusion transfer processes employing such film units.

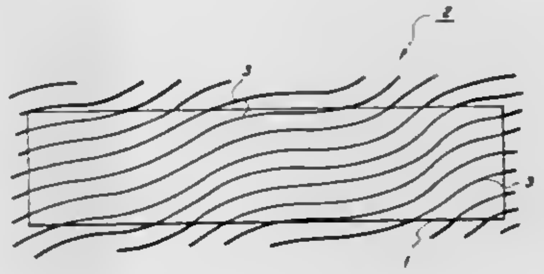
3,707,371
PHOTOSENSITIVE ELEMENT COMPRISING A POLYMER MATRIX INCLUDING STYRENE, AURAMINE O, AND A PROXIDE AND THE USE THEREOF IN VOLUME RECORDING

Victor A. Files, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 14, 1970, Ser. No. 97,865

Int. Cl. G03c *5/04, 1/72, 1/68*

U.S. Cl. 96—27 H **18 Claims**



Refractive index changes are made within the volume of a photosensitive member that absorbs incident radiation to yield the change in refractive index and bleaches to a non-absorbing condition to allow writing radiation to penetrate further into the volume of the member.

3,707,372
ELECTROMAGNETIC RADIATION SENSITIVE ELEMENTS

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of abandoned application Ser. No. 706,423, Feb. 19, 1968. This application Aug. 18, 1969, Ser. No. 850,972

Int. Cl. G03c *5/00*

U.S. Cl. 96—35 **7 Claims**

Electromagnetic radiation sensitive elements comprising essentially a layer of a first material and a second layer of an inorganic material capable when exposed to electromagnetic actinic radiation to form an interreaction product with the material of the first layer, such interreaction product having physical and chemical characteristics different from those of both the first material and the inorganic material. The electromagnetic actinic radiation used for exposure of the elements may be ordinary light, monochromatic light, coherent light, electron beams, ion beams, X-rays, gamma rays, etc., and diverse systems are disclosed for selectively and discretely exposing the elements.

3,707,373
LITHOGRAPHIC PLATE DEVELOPERS

Lawrence E. Martinson, Frederick J. Rauner, and Richard E. Gilson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,969

Int. Cl. G03c *5/00*

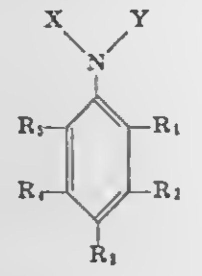
U.S. Cl. 96—35.1 **11 Claims**

A composition for developing presensitized lithographic printing plates having pigmented photohardenable polymer coatings is described which comprises a solvent for the polymer composition which does not appreciably swell the photohardened polymer and an acid which prevents formation of stain and scum on the hydrophilic areas of the plate.

3,707,374
PHOTOGRAPHIC SILVER-BLEACHING COMPOSITION

Carol R. Van Der Voorn and Roland G. Willis, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Aug. 17, 1970, Ser. No. 64,625
Int. Cl. G03c *5/32, 7/16*
U.S. Cl. 96—60 **16 Claims**

A composition for bleaching photographic silver which is rapid acting and suitable for use in either color or black-and-white processing comprises a dilute aqueous solution of (1) a persulfate salt or a nitrosodisulfonate salt and (2) an aromatic amine typically of the formula:

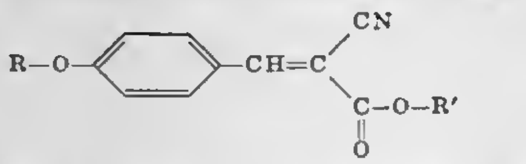


where X and Y are hydrogen or lower alkyl and R_1, R_2, R_3, R_4 and R_5 are hydrogen, amino, hydroxyl, lower alkyl, lower monoalkylamino or lower dialkylamino except that at least one of R_1 to R_5 is a substituent other than hydrogen.

3,707,375
COLOR PHOTOGRAPHIC LIGHT SENSITIVE MATERIALS HAVING IMPROVED LIGHT FASTNESS

Reiichi Ohi, Tokiharu Kondo, Kazuo Shirasu, and Yoshiaki Ono, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan
Filed Oct. 7, 1970, Ser. No. 78,710
Claims priority, application Japan, Oct. 7, 1969, 44/80,154
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 R **10 Claims**

A color photographic light sensitive material comprising a support and a photographic layer containing a compound represented by the following formula:



wherein R and R′, which may be the same or different, represent an alkyl group having from 1 to 20 carbon atoms, the sum of the carbon atoms of said R and R′ being at least 5.

3,707,376
PROCESS OF SENSITIZING SILVER HALIDE EMULSION WITH POLY(ALKYLENE OXIDE) AND SULFUR COMPOUNDS

Albert Louis Van Stappen, Rumson, N.J., Karl Schwarz, am Taubhaus, Germany, and Hans Weber, deceased, by Charlotte Weber, Neu-Isenberg, Germany, and Inge Lau, Brussels, Belgium, inheritors; said Van Stappen and said Schwarz assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 23, 1970, Ser. No. 92,254
Claims priority, application Germany, Nov. 21, 1969, P 19 58 467.9
Int. Cl. G03c *1/28*
U.S. Cl. 96—108 **6 Claims**

Process for improving the sensitivity/fog ratio of photographic silver halide emulsions sensitized with poly(alkylene oxide) compounds and sulfur sensitizers by adding the sulfur sensitizer during or immediately after silver halide precipitation. Gelatin emulsions and sodium and ammonium thiosulfate are preferred. Full sensitization with the poly(alkylene oxides) is attained without increasing development fog.

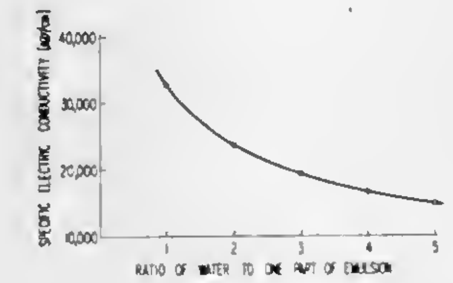
3,707,377
PHOTOTHERMIC DRY SILVER COATINGS STABILIZED WITH HALOGEN-CONTAINING ORGANIC OXIDIZING AGENTS

George Van Dyke Tiers and Joseph A. Wiese, Jr., St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Filed Feb. 2, 1971, Ser. No. 112,038
Int. Cl. G03c *1/04*
U.S. Cl. 96—114.1 **8 Claims**

Light-sensitive heat-developable "dry silver" sheet materials are stabilized against background discoloration under use conditions by incorporation of selected halogen-containing organic oxidizing agents, e.g. tetrabromobutane.

3,707,378
PROCESS FOR THE FLOCCULATION OF PHOTOGRAPHIC GELATINO SILVER HALIDE EMULSIONS

Motohiro Ujihara and Itsuo Fujii, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan
Continuation-in-part of abandoned application Ser. No. 643,349, June 5, 1967. This application May 14, 1971, Ser. No. 143,341
Int. Cl. G03c *1/02*
U.S. Cl. 96—114.8 **11 Claims**



A process for flocculating a photographic gelatino silver halide emulsion by adding a flocculating agent to the emulsion to initiate flocculation at pH 3.0–4.2, adding wash water to the emulsion while maintaining the pH at 3.0–4.2, and subjecting the mixture to a mild centrifugal separation at 5° C.–25° C. to provide an emulsion directly suitable for redispersion without strong adhesion of the emulsion to the wall of the separator.

3,707,379
PROCESS FOR THE FORMATION OF PHOTOGRAPHIC IMAGES

Yoshihide Hayakawa and Yasuhiro Noguchi, Fujimiya-shi, Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan
Filed May 16, 1969, Ser. No. 825,347
Claims priority, application Japan, May 16, 1968, 43/33,031
Int. Cl. G03c *1/68*
U.S. Cl. 96—115 **36 Claims**

A polymer image is formed on a photographic film on those areas which have been exposed and developed, the image proportional to the amount of exposure. The polymer image may then be dyed. The image is developed from a latent image in a photographic emulsion by developing the emulsion, in the presence of a vinyl or vinylidene

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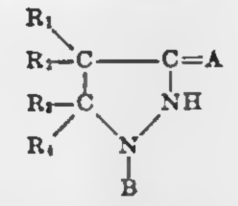
monomer, with a reducing agent capable of developing the silver halide emulsion layer and at the same time initiating polymerization, said agent selected from resorcinols, m-aminophenols, naphthols, pyrazoline-5-ones and phenols, and a reducing agent of the general formula



wherein A represents an oxygen atom or an imino group, B represents a phenyl group, R_1, R_2 and R_3 each represents a hydrogen atom or an alkyl group having 1–6 carbon atoms, and R_4 represents a hydrogen atom, an alkyl group having 1–6 carbon atoms, an aryl group, or a carboxyl group. By the use of the compound of the general fomula in combination with the reducing agent capable of initiating polymerization, the developing speed is increased and the sensitivity of the photographic emulsion is also increased.

3,707,380
METHOD AND APPARATUS OF TEXTURING PROTEIN

Herbert N. Dunning, Minneapolis, Palmer K. Strommer, Osseo, and Glenn J. Van Hulle, Minneapolis, Minn., assignors to General Mills, Inc.
Filed Oct. 27, 1970, Ser. No. 84,385
Int. Cl. A23j *1/14*
U.S. Cl. 99—17 **7 Claims**

A method for texturing particulate protein material by which the protein material is fed into an elongated treating chamber which is under pressure having an inlet at one end and an outlet at the other end and then subjecting the protein material to a steam flow from the direction of the inlet to propel the material through the elongated chamber and out the outlet, wherein the outlet opening is adjustably controlled in accordance with the amount of pressure in the chamber. Apparatus can be employed in carrying out this process.

3,707,381
TREATMENT OF RAW PROTEIN

Kenneth Henry Sharp, 3 Cedar, Southdale Road, Southdale, Johannesburg, Republic of South Africa
No Drawing. Filed Mar. 12, 1970, Ser. No. 19,111
Claims priority, application Republic of South Africa, Apr. 29, 1969, 69/2,915
Int. Cl. A23j *1/04*
U.S. Cl. 99—18 **8 Claims**

The invention concerns a process for treating a raw protein source, for example fish, to obtain a dry protein concentrate of high biological value. The protein concentrate is ground up, soaked in a weak formaldehyde in water solution, then dried. The product is a concentrate which lacks the offensive odour of many fish meals. Further it is fit for human consumption and can be stored for long periods in a packet on a shelf, i.e. without freezing.

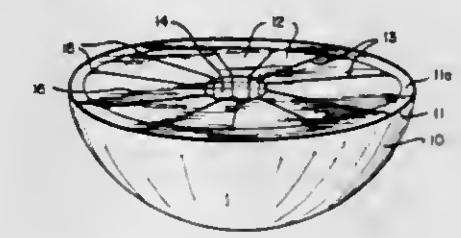
3,707,382
PRODUCTION OF COCOA LIQUOR

Walter Rostagno, Corseaux, Switzerland, assignor to Societe d'Assistance Technique Pour Produits Nestle S.A., Lausanne, Switzerland
Filed July 30, 1970, Ser. No. 59,474
Claims priority, application Great Britain, Mar. 5, 1970, 10,710/70
Int. Cl. A23g *1/00*
U.S. Cl. 99—26 **24 Claims**

Cocoa liquor is prepared by heating ground fermented cocoa beans from a temperature of 40 to 80° C. to a temperature of 100 to 160° C. for 2 to 120 seconds, thereby to roast said liquor, followed by cooling to below 80° C. An alkali and/or a flavour precursor such as an amino acid, vitamin B_1 or fructose may be added before heating.

3,707,383
PREPARED CITRUS FRUIT HALVES AND METHOD OF MAKING THE SAME

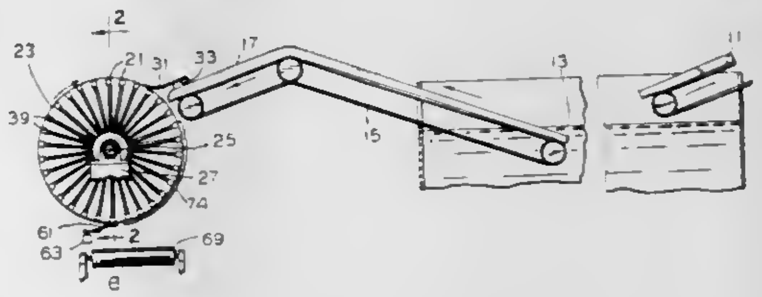
Don S. Bryan, P.O. Box 154, Bartow, Fla. 33830
Filed Jan. 2, 1970, Ser. No. 129
Int. Cl. A23l *1/00;* **A23p** *1/04;* **A23b** *7/16*
U.S. Cl. 99—100 **11 Claims**



A prepared, edible citrus half of increased shelf life is provided comprising a citrus half including the rind, said citrus half having a cut face and a sealing coating on said cut face preferably comprising an edible hydrophilic colloid.

3,707,384
BLANCHING CORN BY INTERNAL FLUID INJECTION

William F. Filz, Portland, Oreg., assignor to North Pacific Canners & Packers, Inc., Portland, Oreg.
Filed Oct. 26, 1970, Ser. No. 83,767
Int. Cl. A23l *1/00*
U.S. Cl. 99—103 **3 Claims**



The method of uniformly blanching an ear of corn by blanching the kernels by an exterior operation and independently blanching the pith. A corn ear blanching apparatus having means for blanching the kernels by an exterior operation, and an arrangement for inserting a hollow perforated needle into the pith to inject hot fluid into the pith to independently stop the enzymic activity thereof.

3,707,385
METHOD OF PRODUCING FLAME AND FIRE RESISTANT COMPOSITIONS CONTAINING SILICEOUS MATERIALS

Stefan Kraemer, Essen, and Alois Seidl, Thurnstein, Germany, assignors to Wasag Chemie GmbH, Munich, Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 801,759, Feb. 24, 1969. This application Apr. 2, 1971, Ser. No. 130,775
Claims priority, application Germany, Mar. 6, 1968, P 16 96 636.2
Int. Cl. C09d *5/14, 5/16;* **C09k** *3/28*
U.S. Cl. 106—15 FP **12 Claims**

A method for producing coating compositions having fireproofing agents and paint binders is accomplished by forming a solution containing alkali metal silicate, inorganic fibrous silicate, or finely powdered silicate, and water, and heating the solution to drive off the free water phase and forming a dried mixture comprising a fireproofing agent. A foaming agent may also be added to the solution. The fireproofing agents are preferably comminuted to a size below 1 mm., preferably between 1 and 50μ and are then mixed as a filler with paint and mortar binders.

3,707,386

BONDING OR IMPREGNATING COMPOSITION

Fredrik Wilhelm Anton Kurz, Nysatravagen 12, Lidiogo, Sweden

No Drawing. Continuation-in-part of abandoned application Ser. No. 548,424, May 9, 1966. This application Apr. 28, 1970, Ser. No. 32,710

Claims priority, application Sweden, May 11, 1965, 6,157/65

Int. Cl. C09d *1/00*

U.S. Cl. 106—84 **8 Claims**

The bonding action and moisture resistance of water-glass bonding compositions including silicon or metal silicides are improved by addition thereto about 1–35 parts by weight of oxidic metallic compounds to 100 parts by weight of water-glass. The additive metal compounds have a particle size below 100 microns, preferably less than 40 microns, and preferably have a smooth, dense surface.

3,707,387

AIR-CURING RESIN COMPOSITION

Satoru Enomoto, Hisayuki Wada, Mikio Fujioka, and Masao Koguro, Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Nov. 20, 1970, Ser. No. 91,601

Claims priority, application Japan, Nov. 20, 1969, 44/92,649

Int. Cl. C08b *17/28*

U.S. Cl. 106—265 **6 Claims**

Air-curing resin composition comprising a mixture of 100 parts by weight of an air-curing resin selected from drying oil or an oil-modified alkyd resin, and from 5 to 250 parts by weight of a propylated polycyclic aromatic compound obtained by introducing from 1 to 5 propyl groups on the average per molecule of a polycyclic aromatic compound of an average molecular weight of 200 to 600 is disclosed. The resin composition gives rise to a cured product having improved water resistance and is suitably used as paints, varnishes and like coating materials and sealants.

3,707,388

ASPHALTIC COMPOSITIONS

Robert N. Kinnaird, Jr., Yonkers, N.Y., assignor to Mobil Oil Corporation

No Drawing. Continuation of application Ser. No. 793,616, Jan. 23, 1969, which is a continuation-in-part of application Ser. No. 468,127, June 29, 1965, both now abandoned. This application Jan. 18, 1971, Ser. No. 107,438

Int. Cl. C08b *13/00;* **C09d** *3/24*

U.S. Cl. 106—273 **4 Claims**

Asphaltic compositions are provided which are obtained by polymerizing a charge-stock comprising a petroleum asphalt, derived from the thermal processing of petroleum hydrocarbons, having a specific gravity of at least about 1.1 and a benzene-insolubles content from about 0 to about 12 percent by weight, in the presence of oxygen at a rate from about 0.4 c.f.m./bbl. to about 2.7 c.f.m./bbl. and at a temperature in the range from about 700° F. to about 850° F. A finished petroleum asphalt is produced having increased specific gravity and a benzene-insolubles content from about 15 to about 35 percent by weight, and can be employed as a binder for carbon particles in electrodes.

3,707,389

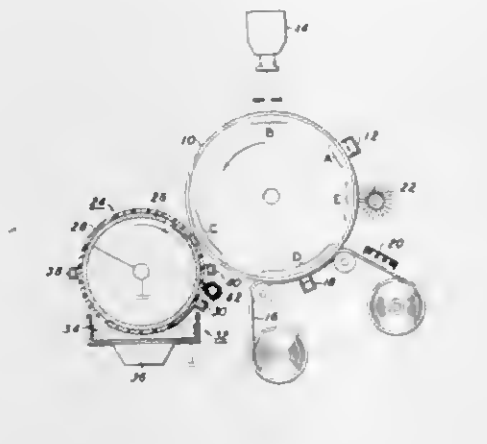
LATENT ELECTROSTATIC IMAGE DEVELOPMENT

John Maksymiak, Penfield, and James W. Smith, Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 6, 1971, Ser. No. 104,365

Int. Cl. C03g *13/08, 13/22, 15/08*

U.S. Cl. 117—17.5 **2 Claims**



Method for development of a latent electrostatic image employing a donor member adapted to retain toner on its surface and having a number of processing stations arranged around its periphery The donor member has a corona-chargeable dielectric surface and is positioned so that a portion of its periphery passes through toner in a vibrating reservoir. The reservoir is maintained at a potential lower than the charged donor member. The toner is triboelectrically charged in the vibrating reservoir via a coating on the inside of the reservoir capable of so charging the toner and said toner is attracted to the dielectric surface of the donor which is corona charged oppositely to that of the toner.

3,707,390

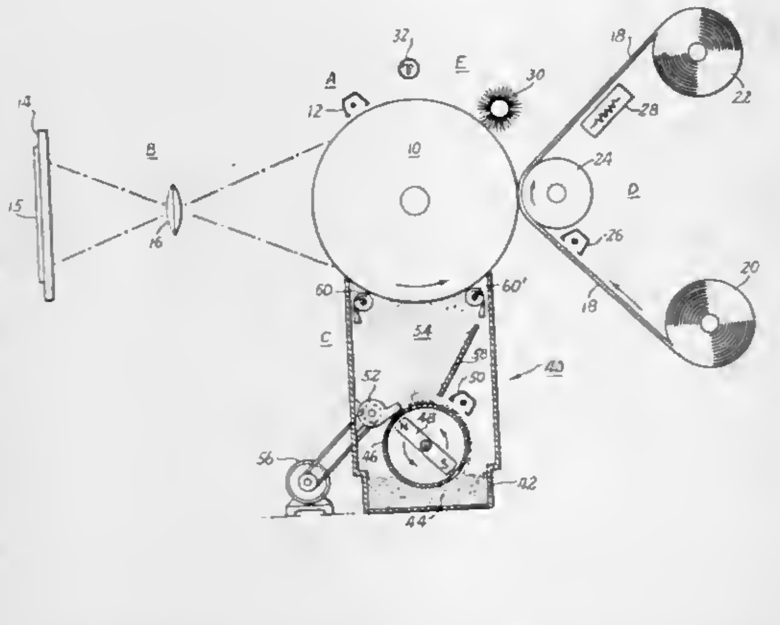
METHOD FOR DEVELOPING ELECTROSTATIC LATENT IMAGES

William A. Sullivan, Jr., Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Jan. 12, 1971, Ser. No. 105,887

Int. Cl. C03g *13/08, 15/08*

U.S. Cl. 117—17.5 **3 Claims**



A method is provided for the development of electrostatic latent images formed on a support member. Magnetic toner particles are magnetically drawn over a non-magnetic surface, while on said surface a charge is applied to the toner particles which is opposite in polarity to that of the electrostatic latent image. A stream of gaseous material is directed against the charged toner particles carried on the non-magnetic surface to form a suspension of said particles in said gaseous material. This suspension, or powder cloud, is contacted with said electrostatic latent image to thereby develop said image with said toner particles.

3,707,391

IMAGING PROCESS

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of application Ser. No. 483,675, Aug. 30, 1965, now Patent No. 3,656,990, which is a continuation-in-part of application Ser. No. 403,002, Oct. 12, 1964, now abandoned, and a continuation-in-part of application Ser. No. 460,377, June 1, 1965, now Patent No. 3,520,681, which in turn is a continuation-in-part of said application Ser. No. 403,002. This application June 4, 1971, Ser. No. 150,106

The portion of the term of the patent subsequent to July 14, 1987, has been disclaimed

Int. Cl. G03g *13/00, 5/02*

U.S. Cl. 117—17.5 **25 Claims**

An imaging member comprising a fracturable layer contacting a solvent soluble layer overlying a substrate, said fracturable layer spaced apart from said substrate is imaged by forming an electrostatic image on said member and then contacting said member with a solvent for said solvent soluble layer to form an imagewise pattern of material from said fracturable layer on said substrate.

3,707,392

METHOD OF SENSITIZATION OF AN ELECTROPHOTOGRAPHIC MATERIAL

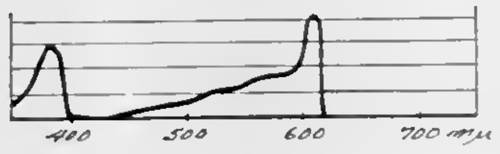
Satoru Honjo, Seiichi Taguchi, Masaaki Takimoto, and Hajime Miyatsuka, Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 21, 1970, Ser. No. 4,711

Claims priority, application Japan, Jan. 21, 1969, 44/4,248

Int. Cl. G03g *5/00, 7/00;* **G03c** *1/00*

U.S. Cl. 117—201 **5 Claims**



A method of forming an electrophotographic light-sensitive coating on a support by coating a homogeneous coating mixture comprising photoconductive zinc oxde adsorbing one or more kind of sensitizing dye selected from the group comprising cyanine and merocyanine, said dye having a substantially planar molecular structure and being capable of forming a J-aggregate when adsorbed on zinc oxide surface, exhibiting a sharp spectral absorption due to said aggregate, and an organic solvent solution of a water-insoluble electrically insulating film-forming resinous binder, said zinc oxide being dispersed in said solution, which is characterized by that said coating mixture contains 1% to 30% water based on the weight of zinc oxide incorporated therein, so as to give rise to a stable J-aggregate on the electrophotographic light-sensitive coating finally obtained from said mixture.

3,707,393

COATED PAPER SHEET AND METHOD FOR MAKING

John William McDonald, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 23, 1971, Ser. No. 118,161

Int. Cl. B32b *29/00*

U.S. Cl. 117—76 P **24 Claims**

A sheet material having heat seal properties is provided by precoating a paper substrate with a mixture comprising (A) a copolymer of ethylene and an alpha, beta ethylenically unsaturated carboxylic acid in which the carboxylic acid groups are partially neutralized, and (B) a copolymer of ethylene and a vinyl alkanoate and from 0 to about 10% of an alpha, beta ethylenically unsaturated carboxylic acid, and applying a top coating of polyvinylidene chloride.

3,707,394

DYEING OF ANODISED ALUMINIUM

John Joseph Clementson and Dennis Ward Glen, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Oct. 19, 1970, Ser. No. 82,213

Claims priority, application Great Britain, Oct. 27, 1969, 52,449/69

Int. Cl. C23f *5/04, 7/06*

U.S. Cl. 117—127 **8 Claims**

A process for dyeing anodised aluminium which comprises immersing freshly anodised aluminium in a dyebath comprising a boiling solution of a dyestuff in a halogenated hydrocarbon solvent or a boiling emulsion of a dyestuff, in a halogenated hydrocarbon solvent for example an emulsion of an aqueous solution of the dyestuff in the halogenated hydrocarbon solvent.

3,707,395

PROCESS FOR THE PRODUCTION OF NONWOVEN FABRICS CONTAINING BINDERS

Hanns Jenny, Aarau, and Georges Kieslinger, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed July 22, 1970, Ser. No. 57,314

Claims priority, application Switzerland, July 28, 1969, 11,457/69; Aug. 15, 1969, 12,412/69; Sept. 23, 1969, 14,315/69

Int. Cl. D06m *15/52, 15/60*

U.S. Cl. 117—33.5 T **18 Claims**

Production of nonwoven fabrics by application on a nonwoven of an aqueous binder preparation, which contains an emulsified binder and a cationic additive (obtained by reticulation of polyamines or polyamide-amines with bifunctional alkylating or acylating agents), and condensation, the so produced nonwoven fabrics being particularly suitable for brightening, dyeing and printing processes using anionic dyes and anionic fluorescent brightening agents.

3,707,396

METHOD OF PREVENTING GELLING OF PHOSPHOR COMPOSITION PRIOR TO APPLICATION TO CATHODE RAY TUBE FACEPLATE

Himanshu M. Patel, Pine City, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 7, 1967, Ser. No. 688,896
Int. Cl. H01j *31/20*
U.S. Cl. 117—33.5 C **2 Claims**

The invention relates to color television tubes and more particularly to screen structures and the method of manufacture of screens incorporating certain oxide phosphors such as yttrium or gadolinium oxide activated with europium.

More particularly, the invention is directed to the provision of a protective coating on the phosphor particles in which a photosensitized polyvinyl alcohol binder is used to prevent gelling prior to application by the slurry process.

3,707,397

PROCESS FOR PROVIDING UNIFORM ORGANOPOLYSILOXANE COATINGS ON POLYCARBONATE AND ACRYLIC SURFACES

Donald W. Gagnon, Sylvania, Ohio, assignor to Owens-Illinois, Inc.
No Drawing. Filed Feb. 26, 1971, Ser. No. 119,344
Int. Cl. B44d *1/14;* **B32b** *27/30*
U.S. Cl. 117—72 **11 Claims**

Process, and the article produced thereby, for providing a uniformly and tenaciously adhered, hard, acetone-resistant and mar-resistant coating on articles having a solid polycarbonate or acrylic surface. The process includes priming the polymeric surface with an adhesion promoting, thermosettable acrylic by forming a thin film thereon, then coating the primed surface with a solution of a precured solvent-soluble, further-curable organopolysiloxane in an organic solvent and thereafter evaporating the solvent and finally curing the organopolysiloxane to a thermoset condition. The solvent-soluble, further-curable organopolysiloxane is produced by heating methyltrialkoxysilane, phenyltrialkoxysilane or mixtures thereof and water in the presence of an effective catalytic amount of a hydrolysis catalyst, e.g., HCl, at a sufficient temperature and for a time sufficient to form a partial condensation product, concentrating this product by heating to remove some alkanol by-product and water and thereafter precuring the product by heating below the gel point thereof.

3,707,398

METHOD OF PREPARING A PRE-COAT FILTER

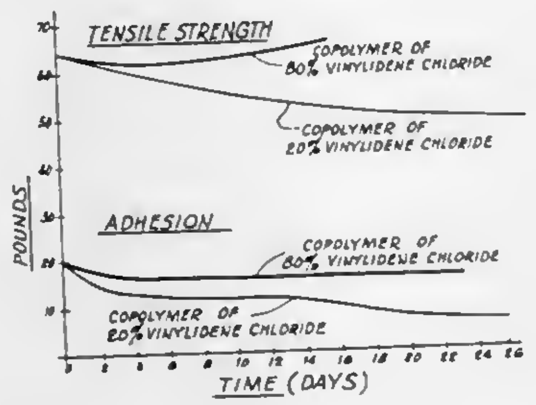
David Charlesworth, Vernham Dean, England, assignor to Stella-Meta Filters Limited, Laverstoke, near Whitchurch, Hampshire, England
No Drawing. Filed Mar. 8, 1971, Ser. No. 122,172
Claims priority, application Great Britain, Mar. 6, 1970, 10,968/70, 11,458/70
Int. Cl. B01d *37/02;* **B44d** *1/16*
U.S. Cl. 117—72 **9 Claims**

The invention provides a method of preparing a precoat filter for use in applications where silica-containing filter media cannot be employed. In the method a precoat filter is provided with a first layer of a finely-divided non-fibrous inert material and a second layer of a fibrous filter medium. In operation of the filter the non-fibrous inert material prevents fouling of the filter by the fibrous filter medium.

3,707,399

GLASS FIBER REINFORCED ELASTOMERS

William E. Uffner, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed Apr. 23, 1971, Ser. No. 136,698
Int. Cl. C03c *25/02*
U.S. Cl. 117—72 **21 Claims**

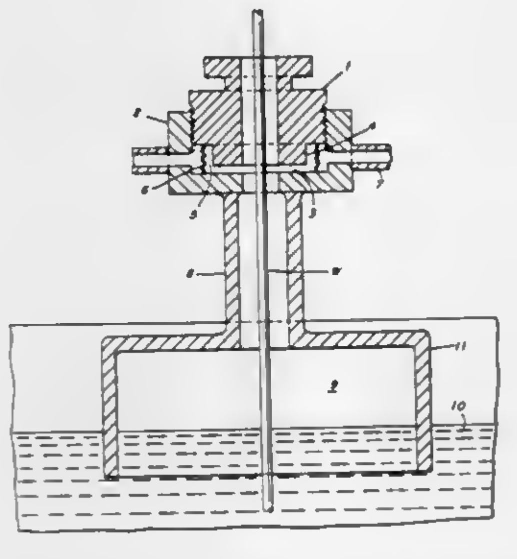


This invention is addressed to the improvement in the bonding relationship of glass fibers with elastomeric materials in which the glass fibers are coated, or glass fiber bundles are impregnated, with a composition containing resorcinol-aldehyde resin, a butadiene-styrene-vinyl pyridine terpolymer, a copolymer containing at least 60% vinylidene chloride and an incompatible wax.

3,707,400

METHOD OF GAS WIPING WIRE EMERGING FROM A HOT-DIP COATING BATH

Mahlon A. Harvey and Charles D. Stricker, Monroeville Borough, Pa., assignors to United States Steel Corporation
Continuation-in-part of abandoned application Ser. No. 804,636, Mar. 5, 1969. This application Dec. 28, 1970, Ser. No. 101,661
Int. Cl. B44d *1/42;* **C23c** *1/00*
U.S. Cl. 117—102 L **6 Claims**

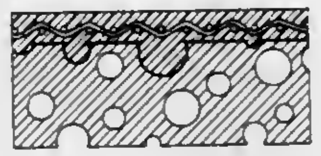


A gas jet is directed radially onto a wire in the axis of the jet to determine the thickness and smoothness of liquid coating on the wire. The quality of the coating achieved is markedly improved if the resulting downward component of the jet is confined by walls extending from the wipe region down to the bath, to cause the wiping jet to fluctuate at a much lower frequency. Where the liquid coating is an oxidizable metal such as Zn or Al, it is also desirable to employ an inert or reducing gas, to further improve coat quality.

3,707,401

PLASTIC COATED METALLIC FOAMS

Chester P. Jarema, Detroit, and Leonard M. Niebylski, Birmingham, Mich., assignors to Ethyl Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 774,756, Nov. 12, 1968, now Patent No. 3,617,364. This application June 21, 1971, Ser. No. 155,102
Int. Cl. B32b *3/26, 15/08*
U.S. Cl. 117—132 B **11 Claims**



The properties of articles fabricated from foamed metals (such as foamed aluminum) are enhanced by coating surfaces thereof with plastic materials, e.g., acrylonitrile-butadiene-styrene polymers. For example, the plastic coating improves the physical properties, and enables the article to be joined to another foamed metal article, or to a metal sheet, wire, glass, rock, or other material. The organic coat gives improved strength to such joint.

3,707,402

METHOD OF MANUFACTURING ELECTRONIC RECORDING MATERIAL

Nario Yamaguchi, Sakae Shimizu, and Kazuo Tubuko, Tokyo, and Kishichiro Kondo and Hiroo Iwata, Nagoya-shi, Japan, assignors to Kabushiki Kaisha Ricoh and Toa Gosei Chemical Industry Co., Ltd., both of Tokyo, Japan
No Drawing. Filed May 28, 1969, Ser. No. 828,776
Claims priority, application Japan, June 8, 1968, 43/39,348
Int. Cl. B44d *1/18*
U.S. Cl. 117—201 **4 Claims**

A method of manufacturing an electronic recording material, which comprises the step of forming on a support a recording layer or a photoconductive layer consisting of a highly insulating resin or a material composed of said highly insulating resin and a photoconductive substance contained therein, said resin being a resin emulsion of vinyl copolymers having an epoxide radical or a hydroxyl group.

3,707,403

ELECTRICAL CONDUCTORS COATED WITH POLYESTERIMIDES FROM DICYANO DIAMIDE-HYDRAZINE REACTION PRODUCTS

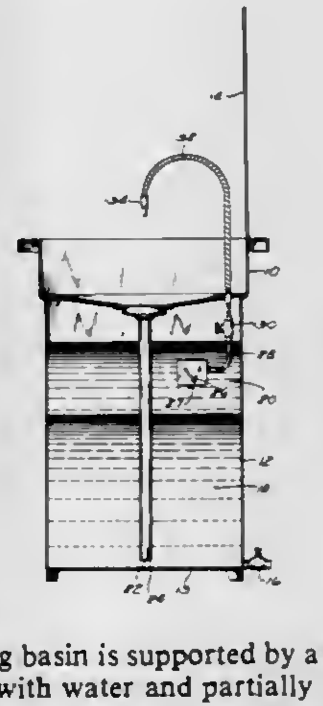
Arnold Dobbelstein, Junkersdorf Kries · Cologne, and Hans-Dieter Hille, Wuppertal-Elberfeld, Germany, and Horst Holfort, Mexico City, Mexico, assignors to Dr. Kurt Herberts & Co. vorm Otto Louis Herberts, Christbusch Wuppertal-Barmen, Germany
No Drawing. Continuation-in-part of application Ser. No. 855,039, Sept. 3, 1969. This application Mar. 29, 1971, Ser. No. 129,207
Claims priority, application Germany, July 23, 1969, P 19 37 311.6
Int. Cl. H01b *3/42*
U.S. Cl. 117—218 **9 Claims**

Disclosed are electrical conductors insulated with polyesterimide resins containing 5-membered imide rings. The resins are formed from polyhydric alcohols, polyvalent aromatic carboxylic acids and polyvalent amino compounds, optionally in admixture with other aliphatic and/or aromatic polyvalent carboxylic acids. A portion of the polyvalent amino compounds is the reaction product of dicyano diamide with hydrazine. The electrical conductors include an outer coating of a polyamideimide resin.

3,707,404

PARTS WASHER AND METHOD OF SOLVENT CLEANING

Clarence C. Carlson, Milwaukee, and Gordon L. Duquaine, Hubertus, Wis., assignors to Build-All Fabricating, Inc., Menomonee Falls, Wis.
Filed May 12, 1971, Ser. No. 142,449
Int. Cl. B08b *7/04;* **C23g** *1/36*
U.S. Cl. 134—10 **10 Claims**

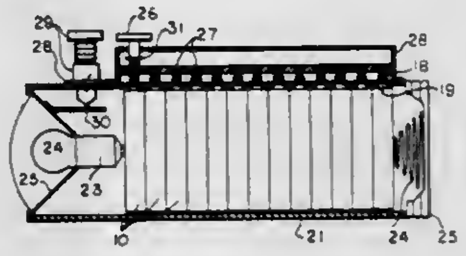


A parts washing basin is supported by a fluid tank which is partially filled with water and partially with parts washing solvent floating above the water. The drain from the basin extends to the bottom of the tank. A pump immersed in the solvent supplies solvent to a nozzle for washing the parts. Solvent collected by the drain forms a column sufficiently tall to force solvent to the bottom of the drain to bubble upwardly through the water, substantially cleaning it of foreign matter washed from the parts by the solvent.

3,707,405

SEQUENTIALLY ENERGIZED BATTERY

John C. Bogue and Robert I. Sarbacher, Santa Monica, Calif., assignors to John C. Bogue, Santa Monica, Calif.
Filed July 8, 1970, Ser. No. 53,096
Int. Cl. H01m *1/04*
U.S. Cl. 136—173 **11 Claims**



A sequentially energized battery, particularly adapted for intermittent use, has an extremely long standby life and will supply power intermittently over its energy capability without deterioration of the unused energy contained within it. A series of mechanically actuated electrochemical reserve cells are controlled by a selective activation device, so that each reserve cell of the series is activated only after the preceding cell has substantially spent its useful life. In applications where a relatively small amount of energy is needed intermittently, as with flashlights, it is only necessary to energize as many cells of the sequential battery as are required for the particular use.

3,707,406

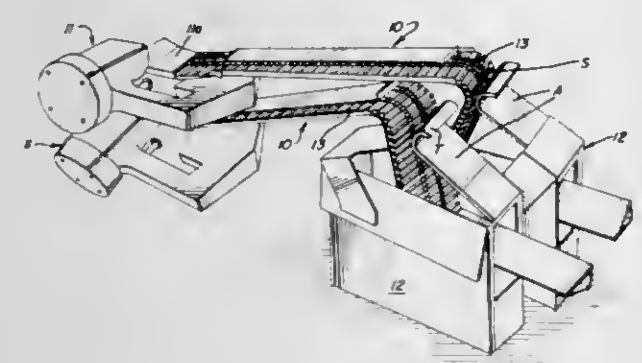
FASTENER GUIDING DEVICE

Garry R. Perkins, Cary, Ill., assignor to Spotnails, Inc., Rolling Meadows, Ill.

Filed Oct. 19, 1970, Ser. No. 81,768

Int. Cl. B25c *1/04*

U.S. Cl. 227—130 **13 Claims**



A device is provided for use in guiding a flexible, continuous strip of collated fasteners from a bulk storage container to a high speed power-actuated driving tool spaced from the container. In addition to guiding the collated fasteners from the container to the tool, the device simultaneously orients each fastener into proper position so that it can be readily moved into firing position within the tool, notwithstanding that the axis of the fastener, when being driven by the tool into a workpiece, is angularly disposed relative to the axis of the fastener when the latter was being withdrawn from the container.

3,707,407

MULTI-STAGE FORMING OPERATIONS

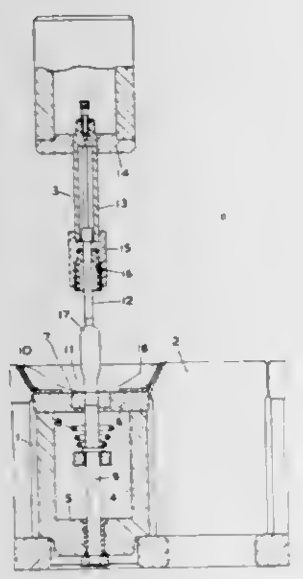
Erich R. Spielmann, Loughton, England, assignor to The British Oxygen Company Limited

Continuation of application Ser. No. 649,226, June 27, 1967. This application Apr. 21, 1970, Ser. No. 28,279

Claims priority, application Great Britain, June 28, 1966, 28,893/66

Int. Cl. C21d *7/14*

U.S. Cl. 148—12 **4 Claims**



A high speed multi-stage forming operation with interstage heat annealing which includes the steps of immersing, at least part of a formed workpiece in coolant liquid, heating said part while immersed until it reaches the annealing temperature, and moving the workpiece while still in the coolant liquid towards the next forming stage with the heated part remaining immersed in the liquid for a time sufficient to cool the heated part below the temperature at which significant oxidation can occur.

3,707,408

METHOD FOR IMPROVING STEEL FOR CARBONATED BEVERAGE CONTAINERS

Robert M. Hudson, Churchill Borough, Allegheny County, and Clair J. Warning, Plum Borough, Allegheny County, Pa., assignors to United States Steel Corporation

No Drawing. Filed Aug. 3, 1971, Ser. No. 168,725

Int. Cl. C21d *1/74*

U.S. Cl. 148—12.1 **8 Claims**

A method of manufacturing tinplate or other coated sheet steels for carbonated beverage containers wherein the sheet steel, following the conventional cold rolling procedure, is immersed in an aqueous solution of ferrous sulfate and sulfuric acid, dried and then annealed in a reducing atmosphere containing hydrogen.

3,707,409

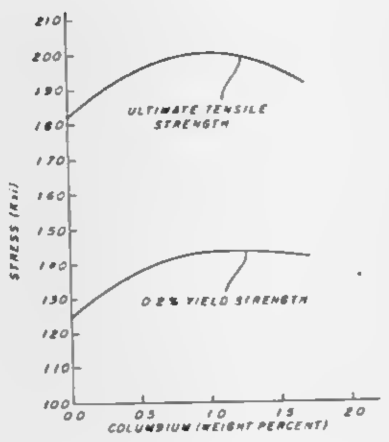
NICKEL BASE ALLOY

William J. Boesch, Utica, and Falih N. Darmara and Francis J. Warmuth, New Hartford, N.Y., assignors to Special Metals Corporation, New Hartford, N.Y.

Filed July 17, 1970, Ser. No. 55,796

Int. Cl. C22c *19/00*

U.S. Cl. 148—32.5 **10 Claims**



A nickel base alloy containing, in weight percent, from 0.2 to 1.2% columbium, from 10 to 15% cobalt, from 1.2 to 2.0% aluminum, from 2 to 3.5% titanium, from 0.10 to 2.0% iron, from 0.0025 to 0.0125% boron, from 0.05 to 0.2% zirconium, from 15 to 19% chromium, up to 0.15% carbon, from 3 to 5% molybdenum, up to 0.1% cerium, up to 0.5% vanadium, up to 0.02% of at least one metal from Group II–A of the Periodic Table, balance essentially nickel, wherein the aluminum and titanium are present in amounts such that their sum is at least 3.6% and such that the titanium to aluminum ratio is less than 2.0.

3,707,410

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICES

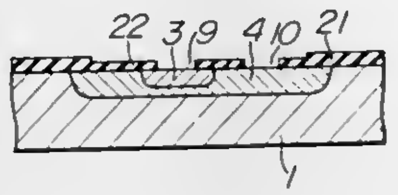
Shoji Tauchi, Kokubunji-shi, Ichiro Miwa, Kodaira-shi, and Makoto Homma, Chiba-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 27, 1966, Ser. No. 568,310

Claims priority, application Japan, July 30, 1965, 40/45,906

Int. Cl. H01l *7/44*

U.S. Cl. 148—187 **11 Claims**



Method of manufacture of semiconductor devices having a planar surface including introducing a first impurity through a mask into a substrate to form a first doped area and introducing a second impurity through the mask into a selected portion of the substrate to a depth greater than the depth of the first doped area so as to underlie said area, said second impurity having a diffusion constant which is greater than that of said first impurity in the substrate.

3,707,411

PRIMER COMPOSITION FOR SOLID PROPELLANT CHARGES

Heinz Gawlick, Furth, Gunther Marondel, Erlangen, Werner Siegelin, Stein, and Heinz Ratz, Troisdorf, Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

No Drawing. Filed Oct. 24, 1969, Ser. No. 869,382

Int. Cl. C06c *3/10*

U.S. Cl. 149—14 **12 Claims**

A primer composition for solid propellant charges comprising a mixture of nitrocellulose and 5–80% by weight, preferably 5–50%, of a percussion-sensitive diazo, triazole or tetrazole derivative, for example, 5-aminotetrazole, diazodinitrophenol or tetrazene. Up to about 40% by weight of nitro compounds, such as penthrite and nitromannite, can be added to vary and improve the brisance of the mixture as desired. The composition finds particular use in the recess of annular caseless propellant cartridges, for example, in stud driving tools.

3,707,412

METHOD OF MANUFACTURING LIQUID PHASE FOR EXPLOSIVE SLURRIES

Archibald H. Adams, Weir, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

No Drawing. Filed Mar. 13, 1970, Ser. No. 19,473

Int. Cl. C06b *1/04*

U.S. Cl. 149—46 **3 Claims**

A liquid phase which is useful as a base for slurry explosives is made by reacting ammonium nitrate with formaldehyde in aqueous solution and dissolving additional unreacted ammonium nitrate in the aqueous solution, followed by addition of sodium hydroxide, which serves the threefold purpose of adding sodium nitrate to the mixture, raising the pH to a value between 4 and 7 and increasing the temperature to facilitate further mixing with other ingredients of the slurry explosive compositions.

3,707,413

ROCKET OXIDIZER COMPOSITION

Donald Pilipovich, Canoga Park, Calif., assignor to North American Rockwell Corporation

No Drawing. Filed Apr. 3, 1968, Ser. No. 718,989

Int. Cl. C06b *15/00*

U.S. Cl. 149—109 **2 Claims**

A liquid rocket oxidizer whose freezing point is below −65° F. comprising ClF_3O and from 14 to 40 weight percent ClF_5.

3,707,414

NOVEL COMPOSITE STRUCTURE FROM RESOLE RESINS AND INORGANIC NODULES

Marco Wismer, Gibsonia, and Joseph F. Bosso, Lower Burrell, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Jan. 8, 1968, Ser. No. 696,103

Int. Cl. C08g *53/10*

U.S. Cl. 156—78 **3 Claims**

This invention relates to composites of inorganic cellular nodules in foamed phenolplast resins. These compositions are useful as thermal insulation in a variety of applications, including building materials such as slab-stock insulation.

3,707,415

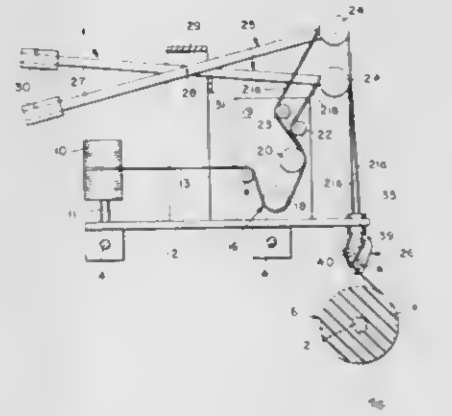
FILAMENT WINDING

Arthur D. Golladay and Kevin E. Moran, Cumberland, Md., assignors to Hercules Incorporated, Wilmington, Del.

Original application Sept. 20, 1968, Ser. No. 761,277, now Patent No. 3,565,726, dated Feb. 23, 1971. Divided and this application Oct. 9, 1970, Ser. No. 79,697

Int. Cl. B65h *81/08*

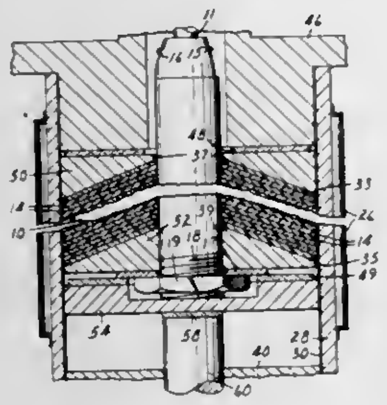
U.S. Cl. 156—169 **3 Claims**



This invention relates to filament winding and particularly to winding pre-impregnated tape-like filamentary material on non-cylindrical surfaces, and comprises a cutter for splitting the tape endwise into a plurality of filamentary elements and means for effecting a take-up action individually upon each element, thereby reducing the shingling effect inherent in winding a tape on a curved surface.

3,707,416
SKEWED BILLETS FOR MAKING LOUVERED FILMS

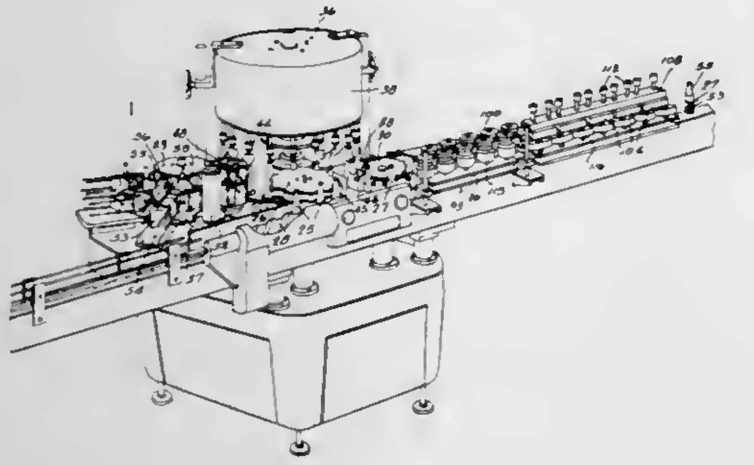
Edward J. Stevens, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 30, 1970, Ser. No. 85,492
Int. Cl. B32b *31/00;* **B44f** *1/00*
U.S. Cl. 156—196 8 Claims



Method and apparatus are described for forming a skewed billet from coated film mounted around a shaft and deformed so that the transverse coatings assume conical forms with angles of 5° to 50°.

3,707,417
METHOD AND APPARATUS FOR FOIL WRAPPING BOTTLE NECKS

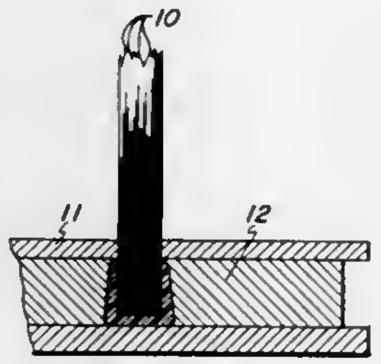
Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany
Original application June 25, 1969, Ser. No. 836,285, now Patent No. 3,567,551, dated Mar. 2, 1971. Divided and this application Oct. 19, 1970, Ser. No. 81,732
Int. Cl. B65c *3/18, 3/22*
U.S. Cl. 156—212 3 Claims



Method and apparatus for foil wrapping bottle necks and the like with precut foil wrappers stored in a magazine and comprising advancing unwrapped bottles along a path, successively feeding individual foil wrappers from the magazine toward a bottle station along said path, applying a leading portion of the wrapper to the bottle neck, rolling the wrapper around the bottle neck to wrap the wrapper around the neck and applying the trailing portion of the wrapper to the bottle neck, exposing a top margin of the wrapper upwardly beyond the top of the bottle while rolling it onto the bottle neck, pressing the exposed top margin of the wrapper inwardly in folds, and flattening the inwardly pressed and folded wrapper margin against the bottle top. The conveyor consists of individual bottle turntables and clamping stems for holding the bottle in vertical orientation while it is rotated against flaps, pads, and brushes, etc., to smooth the wrapper onto the bottle. An infeed star wheel has spaced plates with peripheral pockets which are aligned vertically and which hold the bottle in vertical orientation.

3,707,418
METHOD OF BINDING

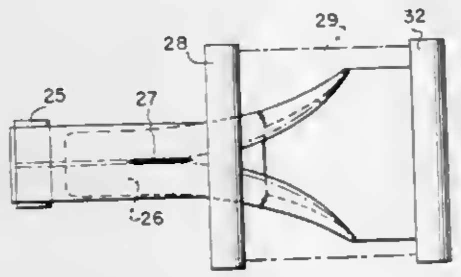
Gopal C. Bhagat, Rochester, Joseph N. May, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Oct. 16, 1970, Ser. No. 81,356
Int. Cl. C09j *5/10*
U.S. Cl. 156—245 3 Claims



A method of binding a quantity of sheets together in a stack in which individual sheets to be bound are assembled in overlying stacked relationship with each sheet having one edge thereof uniformly positioned along a common plane. A bead of molten resinous material is then applied to the edges of the sheets along the common plane. The bead of resinous material is then flared to extend from the edges in the common plane over portions of the uppermost and lowermost sheets in the stack. The resinous material is then solidified in the flared configuration to provide a binding for the sheets along the uniformly positioned edges.

3,707,419
METHOD OF TREATING TUBULAR KNITTED FABRICS

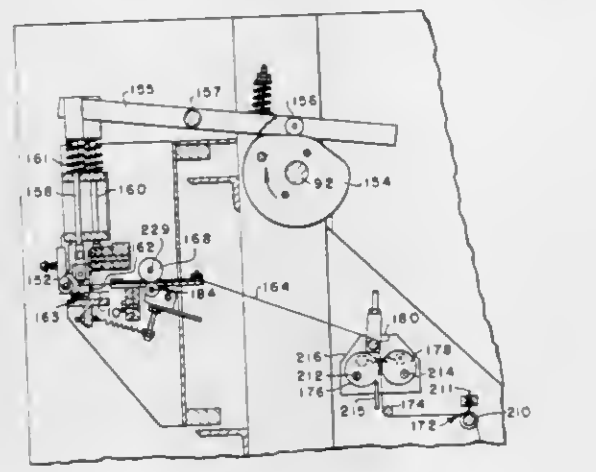
Theodore R. Coburn, Coventry, R.I., assignor to Bevis Industries, Inc., Providence, R.I.
Filed June 14, 1968, Ser. No. 737,036
Int. Cl. B32b *31/20*
U.S. Cl. 156—250 4 Claims



Method and apparatus for producing a flat knitted fabric having suitable edging to inhibit unravelling. The fabric is produced from tubular knitted fabric by securing a strip of thermoplastic film longitudinally to the outside portion of the fabric and then slitting the fabric along that portion thereof covered by the film.

3,707,420
PULL TAB DEVICE

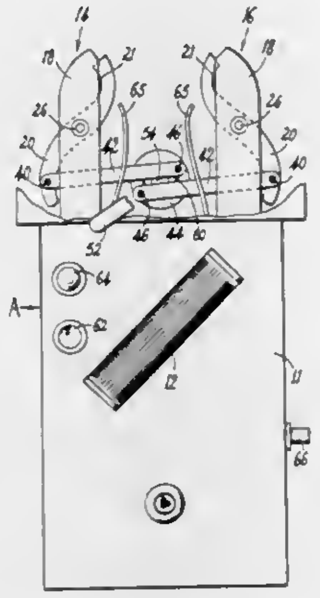
William O. Young, Jr., and Walter J. Quattlebaum, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Jan. 7, 1971, Ser. No. 104,647
Int. Cl. B32b *31/00;* **C09j** *5/04*
U.S. Cl. 156—314 12 Claims



Apparatus to meter a supply of pull tabs to a heat sealing unit for the purpose of heat sealing such pull tabs over an opening in a web of material which has been previously punched therein.

3,707,421
CONNECTING APPARATUS

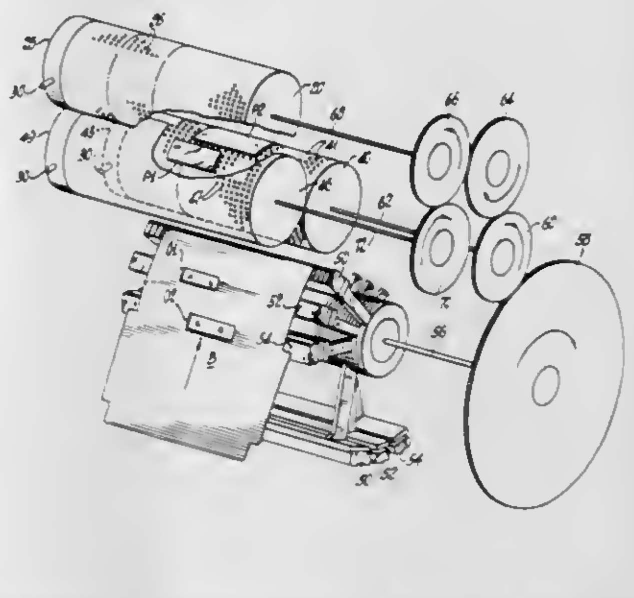
John George Leonard Kendall, Slough, and Derek Ladkin, Leicester, England, assignors to Bitumen Industries Limited, Buckingham, England
Filed Oct. 12, 1970, Ser. No. 80,053
Int. Cl. B29b *3/00*
U.S. Cl. 156—380 6 Claims



Electrical connecting apparatus in the form of a readily transportable device which includes connector jaws arranged to be operated in a scissor-like fashion to establish electrical connection between a source of electricity and a resistive conductor wire embedded in a sealing strip of heat curable composition.

3,707,422
PATCH CUTTING AND APPLICATION SYSTEM FOR TWO INDEPENDENTLY TIMED PATCHES ON AN ENVELOPE BLANK

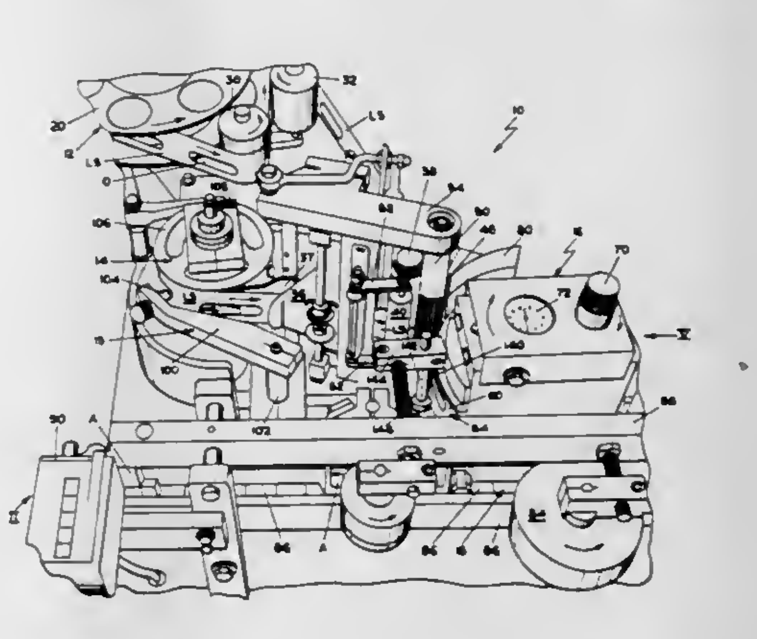
Herbert W. Helm, Hollidaysburg, Pa., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.
Filed Oct. 19, 1970, Ser. No. 82,038
Int. Cl. B31b *1/24;* **B65c** *1/02*
U.S. Cl. 156—511 6 Claims



An apparatus whereby window envelopes are provided with two or more windows having a patch cutting and application system in which the mechanism prepares and feeds independently timed window patches to the appropriate location on each of the window envelopes. The mechanism utilizes suitable independent cutting cylinders together with a patch transfer cylinder and one of the cutting cylinders transfers the cut patches to a collating cylinder.

3,707,423
LABEL MACHINE INDEXING

John R. Davies, Grand Rapids, and Kornelis Plattescborre, Grandville, Mich., assignors to Oliver Machinery Company, Grand Rapids, Mich.
Filed Jan. 7, 1971, Ser. No. 104,604
Int. Cl. B65c *9/18*
U.S. Cl. 156—517 15 Claims



This specification discloses labeling apparatus that accurately and intermittently advances a strip of integrally interconnected labels to be cut and applied to articles, by the use of indexing feed bosses that are mounted on a hub, that fit into openings in the label strip, and that have a tapered socket into which a reciprocated tapered pin interfits for label strip positioning by minor shifting of the hub.

Each label cut from the end of this accurately positioned strip is gripped by a passing vacuum head having its vacuum orifices controllably exposed as they pass a special sealing flap.

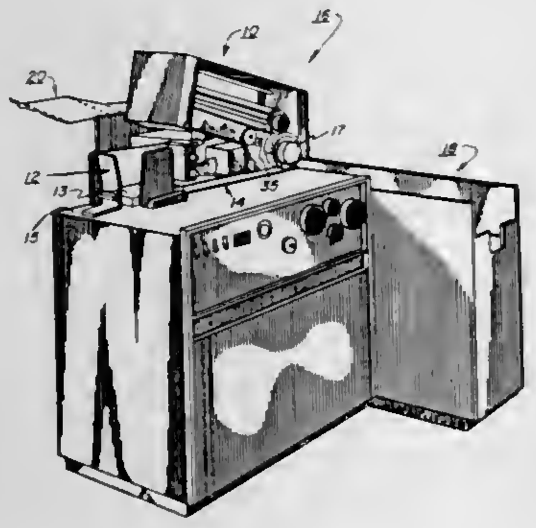
3,707,424

ADJUSTABLE LABEL FORM SLITTER FOR ADDRESSING MACHINES

Herbert C. Artelt, Jr., Wildwood, Ill., assignor to Kollsman Instrument Corporation, Syosset, N.Y.

Filed Aug. 31, 1970, Ser. No. 68,289

Int. Cl. B32b *31/18;* **B65c** *9/08, 9/26*
U.S. Cl. 156—521 **4 Claims**



An article addressing machine for use with an uncut label supply sheet. The addressing machine includes a labeling head with a label transfer wheel and transport means for supplying articles to the transfer wheel for addressing thereof. A guillotine cutter serves to cut the label sheet transversely, there being a label transport belt to carry the cut labels from the cutter to the transfer wheel. Means are provided to advance fresh label sheet to the cutter with rotary knives upstream of the cutter to preslit the label sheet transversely between the label rows before the label sheet reaches the cutter. To facilitate handling of different size and type label sheets, the rotary knives and their cooperating shears are supported for adjusting movement transverse of the label sheet, with releasable locking means being provided to maintain the knives and shears fixed in selected position.

3,707,425

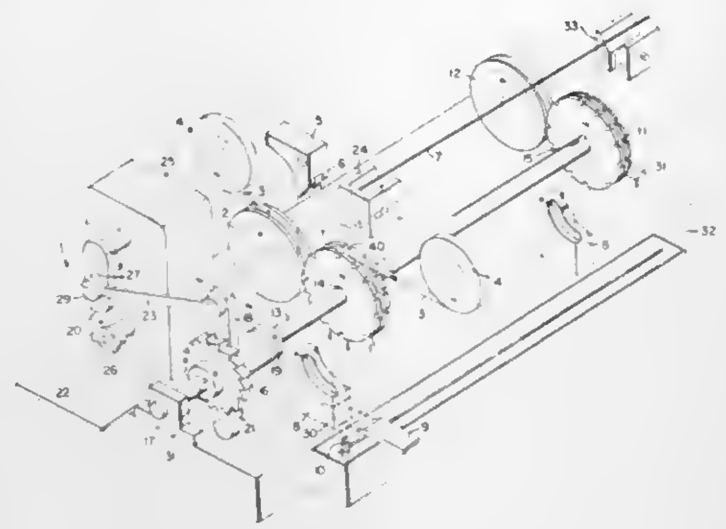
MACHINE FOR TAGGING WIRES

Victor Joseph Jamal, Ashtabula, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 22, 1970, Ser. No. 100,698

Int. Cl. B32b *31/10;* **B65c** *3/02*
U.S. Cl. 156—522 **3 Claims**

A machine for tagging bars, rods or wires of relatively small diameter with printed adhesive tapes. The machine features include a pair of cooperating flanged rollers actuated by drive mechanism perfectly sequenced to a supply source for feeding said bars, rods or wires through the machine.



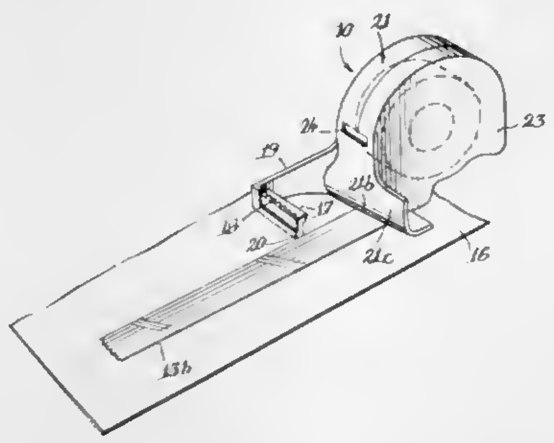
3,707,426

COMBINED TAPE DISPENSER AND APPLICATOR

Herbert D. Robison, Freehold, N.J., assignor of a fractional part interest to Edmund J. Thiele, Kenilworth, N.J.

Filed Jan. 6, 1971, Ser. No. 104,301

Int. Cl. B32b *31/18, 31/20*
U.S. Cl. 156—527 **3 Claims**

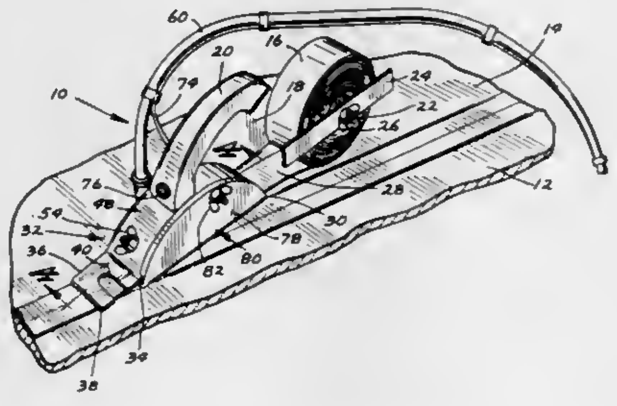


A device which includes a manually operated combined dispenser and applicator for pressure sensitive tape and consists of a housing having a support for a roll of said tape. The leading end of the tape, when suitably threaded in the structure, is looped by a guide for slideable engagement on the nontacky side with an outside runner plate and continues for terminal engagement on the tacky side with a outside spaced and offset adhesion plate carrying a cutter for the terminal end of the tape. A cycle of operation is accomplished by setting the apparatus down and by having the runner plate in alignment and engagement with the surface to receive the tape whereby adhesion takes place between the tacky side of the tape on the outside of the runner plate and said surfaces. Thereafter, the apparatus is moved rearwardly to disengage the leading end from the cutter and the adhesion plate and then advanced forwardly for pullout of the tape and application of said tape by the runner plate on the applied surfaces. Near the end of the tape application area, the apparatus is lifted from said surfaces and sufficient free tape is pulled from the roll to enable the adhesion plate and cutter to the introduced under the tape for cutting the terminal end thereof and then applying the freed end of the tape by hand to the end of the surfaces of application.

3,707,427

DISPENSING GUN FOR WALLBOARD TAPE AND JOINT COMPOUND

Elwyn J. Erickson, 266 1st St. SW., Wells, Minn. 56097
Filed Mar. 15, 1971, Ser. No. 124,016
Int. Cl. B05b *9/04;* **B05c** *5/02*
U.S. Cl. 156—575 **5 Claims**



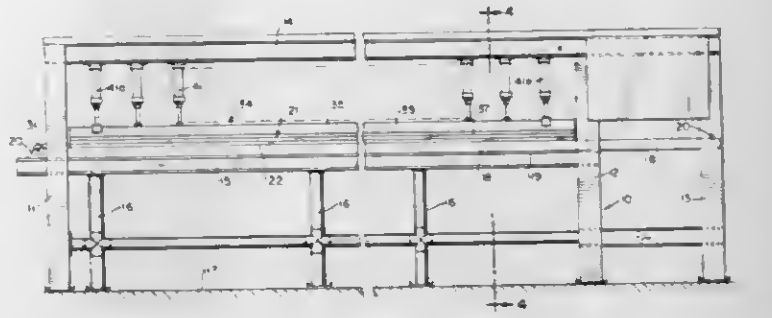
A dispensing gun has a hand held unit having a dispensing chamber through which wallboard tape is passed from a roll of tape. The tape enters an inlet opening in the chamber which is effectively the width of the tape and passes therethrough to an outlet opening which is associated with a tear off blade so that the operator may apply pressure through the hand held unit to the blade so that the tape is properly applied to the wallboard. The dispensing chamber contains a quantity of compound over which the wallboard contacting side of the tape passes. The compound is replenished when the operator actuates a switch on the handle of the device which causes a pressure pump to feed compound through a hose and admit the compound to the bottom of the dispensing chamber. The compound in the chamber forms a mound over which the tape must pass in a curved path thereby insuring the tape contacts and is covered with the compound thoroughly.

3,707,428

SEALING APPARATUS FOR MANUFACTURING ROLLER COVERINGS, VESSEL LINERS AND THE LIKE

Robert Roberts, Wilmington, Del., assignor to Fluorodynamics, Inc., Newark, Del.
Filed July 24, 1970, Ser. No. 58,052
Int. Cl. B30b *15/34*
U.S. Cl. 156—583 **9 Claims**

The application is directed to a bar sealer apparatus for making elongated heat-fused seams between two sections of thermoplastic material, especially high molecular weight, high viscosity materials such as fluorinated ethylene polymers (e.g., Teflon FEP). The apparatus of the invention is designed especially for use in connection with the manufacture of heat shrinkable tubular roller coverings, vessel liners, and the like by securing together, by heat fusion, the opposite ends of webs of thermoplastic covering material. The heat-fused joints required for the purposes contemplated are of great length and are required to be of exceptional uniformity throughout. The new apparatus accommodates these severe requirements by, among other things, incorporating special provisions for the application of uniform pressures throughout the entire area of fusion. Novel arrangements are provided for the accommodation of extraordinary expansion and contraction in certain elements of the apparatus, particularly the heating element. The basic features of the new apparatus may be incorporated to advantage in the construction of an inplant sealing apparatus, or in an in situ apparatus which enables the fusion to be made while the covering material is installed on the roller to be covered. The invention is useful to great advantage in the joining of webs of substantial thickness (e.g., 20 to 90 mils).



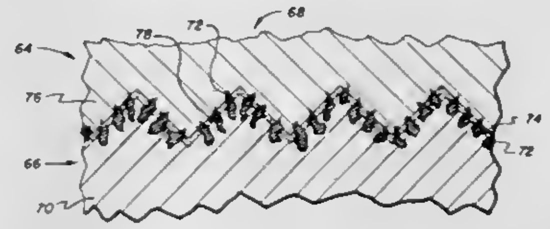
ERRATUM

For Class 161—90 see:
Patent No. 3,707,120

3,707,429

THERMOELECTRIC ELEMENT

Richard C. Saunders, Simi, Calif., assignor to North American Rockwell Corporation
Filed Jan. 20, 1970, Ser. No. 4,377
Int. Cl. H01v *1/04, 1/18*
U.S. Cl. 161—116 **5 Claims**



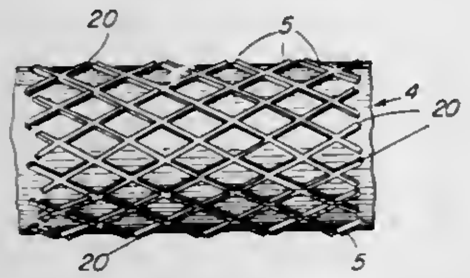
A thermoelectric element consisting of an end-grooved thermoelectric body having conductive granules firmly embedded in at least one end thereof is formed by placing conductive granules on a non-reactive grooved surface, placing either a preformed thermoelectric body or preferably a moldable thermoelectric powder on top of these granules, and applying heat and pressure thereto. Preferably the grooves are V-shaped and in a concentric circular pattern.

A unitary thermoelectric device is formed by bonding the thermoelectric element to a conductive body, a barrier layer being present between facing surfaces of the thermoelectric and conductive bodies. Upon applying pressure to the assembly, the conductive granules pierce the barrier layer and form interlocking low resistance conductive paths between the bodies.

Series-connected thermoelectric modules are formed by bonding in a single operation alternate N- and P-type thermoelectric elements grooved at both ends and containing conductive granules firmly embedded in the grooves to a conductive body at one end and to separate conductive bodies at the other end of the elements. A barrier layer which is present between the facing surfaces of the thermoelectric and conductive bodies is pierced by the conductive granules which form interlocking low resistance conductive paths between the bodies.

3,707,430
SELECTIVELY DISPERSIBLE SANITARY STRUCTURES

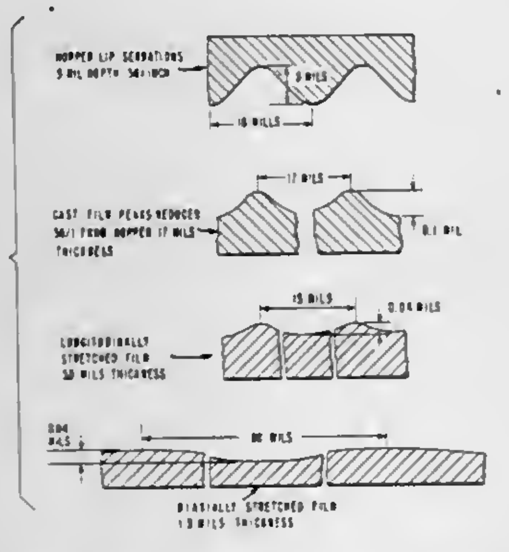
John R. Costanza, North Plainfield, and Bruce M. Elsen, Bloomfield, N.J., assignors to Celanese Corporation, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 699,711, Jan. 22, 1968. This application June 12, 1970, Ser. No. 45,923
Int. Cl. B32b *3/30*
U.S. Cl. 161—123 **8 Claims**



Toilet-flushable sanitary products capable of absorbing body-discharge such as diapers and sanitary napkins are disclosed which have excellent dry and wet strength and which comprise a scrim or paper of biodegradable fibers such as cellulosic fibers, and padding of water-dispersible absorbent material. The structures have a series of channels containing a selectively soluble resin which bonds the staple fibers to each other and to the absorbent material and possesses certain critical characteristics including the fact that it is stable to body-discharge but capable of being degraded in a toilet system upon the addition of a suitable substance.

3,707,431
FILM STRUCTURE HAVING UNDULATING SURFACE

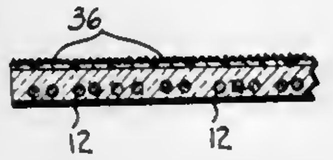
Harold Barnard Whitfield, Jr., Circleville, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of abandoned application Ser. No. 782,686, Dec. 10, 1968. This application Jan. 19, 1971, Ser. No. 108,160
Int. Cl. B32b *3/00*
U.S. Cl. 161—123 **7 Claims**



A thermoplastic film oriented by biaxial stretching having a nominal thickness of 5 mils or less and transversely repeating undulations that form ridges and valleys extending longitudinally along the length of the film wherein the ratio of the wavelength to amplitude of the undulations is about 500–2000:1 and the amplitude is not greater than about 10% of the thickness of the film. These films have significantly improved winding characteristics and are particularly useful as a base film for manufacturing magnetic recording tapes.

3,707,432
REINFORCED FIBROUS FELTS FOR ROOFING SHINGLE MANUFACTURE

Raymond Le Rae Corbin, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.
Filed May 7, 1971, Ser. No. 141,309
Int. Cl. B32b *11/10*
U.S. Cl. 161—141 **14 Claims**



A glass fiber felt is reinforced with longitudinally extending glass fiber strands applied in parallel from about ⅛ to about 1 inch apart so as to provide increased tensile strength evenly distributed throughout the felt. Each shingle's length is cut from the felt transversely of the direction of felt travel so that the reinforcing strands extend from the head portion into the butt portion of the shingle. The strand arrangement permits faster saturation and coating of thinner felts and increases the tear resistance of the shingles.

3,707,433
INSULATING MATERIAL

Philip J. Clough, Cape Elizabeth, Maine, and Robert W. Steeves, Nahant, Mass., assignors to King-Seeley Thermos Co., Ann Arbor, Mich.
Continuation-in-part of abandoned application Ser. No. 722,226, Apr. 18, 1968, which is a continuation-in-part of abandoned application Ser. No. 482,473, Aug. 25, 1965. This application May 18, 1970, Ser. No. 38,211
Int. Cl. B32b *3/12, 15/08*
U.S. Cl. 161—143 **26 Claims**

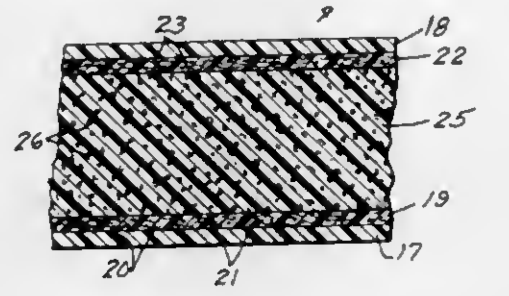
Insulating material of two layers of plastic film sandwiched around a reinforcement of fibers and containing vacuum deposited metal within the sandwich. The film is selected to provide a transmission in excess of 80% for infra-red radiation in the range of 80,000–90,000 angstroms. The laminate as a whole has a very low apparent K conductivity factor.

3,707,434
RIGIDIFIED RESINOUS LAMINATE

Vance A. Stayner, Wauconda, Ill., assignor to Federal-Huber Corp., Chicago, Ill.
Continuation-in-part of applications Ser. No. 700,212, Jan. 24, 1968 and Ser. No. 739,429, June 24, 1968. This application Nov. 30, 1970, Ser. No. 93,733
Int. Cl. B32b *17/04, 19/02*
U.S. Cl. 161—161 **10 Claims**

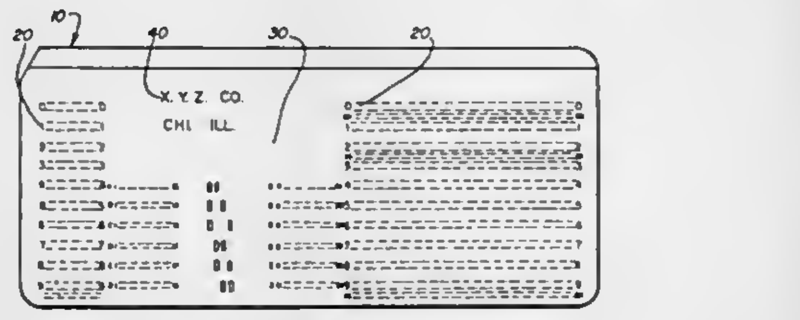
Rigidified plastic laminate having general utility as a sandwich panel, including an outer sheet of an acrylic resin, a layer of polyester resin bonded to the acrylic sheet, the layer containing glass fibers and solid inert

spheres distributed therethrough, with a co-mingled layer of a polyester resin bonded to the first layer, the second layer being a syntactic layer of a polyester resin containing hollow plastic spheres in a stressed condition.



3,707,435
ADDRESSING METHODS AND MATERIAL

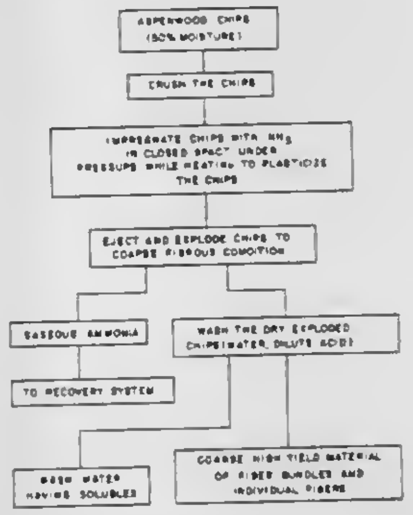
Ronald I. Morley, Berkeley, Calif., Raymond W. Biernat, St. Paul, Minn., and Arnold J. Smidt-Hayer, Falls Church, Va., assignors to Dymo Industries, Inc., Berkeley, Calif.
Original application June 5, 1967, Ser. No. 643,718, now Patent No. 3,607,527. Divided and this application Feb. 18, 1971, Ser. No. 116,562
Int. Cl. B32b *21/04*
U.S. Cl. 161—270 **8 Claims**



There is disclosed an addressing system including an addressing apparatus and addressing methods and materials use therein. A set of master cards is provided formed of porous tab card stock impregnated with a sensitizer vaporizable at 100° C. to 160° C. and having a selected area on one face thereof for the address in infrared absorbing ink; as disclosed, the master card is made by passing the porous tab card stock through a bath containing the sensitizer and a solvent therefor, after which the solvent is evaporated. The set of master cards is then employed to provide a master tape that is a strip of non-porous release material that is oleophobic and transparent to infrared radiation, and carrying thereon reverse reading copies of the addresses in the form of bodies of partially fused toner applied to one side of the master tape; the addresses are transferred from the master cards to the master tape utilizing an apparatus and method wherein a printing station is provided having a first source of infrared radiation thereat, first feed mechanism for feeding the master cards sequentially to the printing station and a second feed mechanism for feeding the master tape to the printing station to position a predetermined portion of the master tape immediately adjacent to the address on a master card positioned at then printing station, thereafter operating the first source of infrared radiation to vaporize from the master card sensitizer in areas corresponding to the address thereon onto the one surface of the master tape, applying a toner to the master tape to adhere toner to the sensitizer in areas corresponding to the address, and thereafter exposing the master tape carrying the powdered toner to a second source of infrared radiation for at least partially fusing the toner to provide a reverse reading copy of the address on the master tape. The toner comprises a vehicle body of wood rosin and polymerized resin, modifiers of polyamide resin and a hydrocarbon resin and pigment of carbon black. The master tape with the addresses thereon in partially fused toner is then fed to an addressing station where an envelope or other article to be addressed is placed with the surface thereof against the partially fused toner on a section of the master tape after which heat and pressure are applied thereto to transfer the bodies of toner to the envelope and fully to fuse the toner to provide on the envelope bodies of fully fused toner in areas corresponding to the address on a master card.

3,707,436
EXPLODING OF AMMONIA IMPREGNATED WOOD CHIPS

James J. O'Connor, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Continuation-in-part of abandoned application Ser. No. 641,858, May 29, 1967. This application Mar. 22, 1971, Ser. No. 126,629
Int. Cl. D21c *9/00*
U.S. Cl. 162—9 **16 Claims**


ASPENWOOD CHIPS (50% MOISTURE)
CRUSH THE CHIPS
IMPREGNATE CHIPS WITH NH3 IN CLOSED SPACE UNDER PRESSURE WHILE HEATING TO PLASTICIZE THE CHIPS
EJECT AND EXPLODE CHIPS TO COARSE FIBROUS CONDITION
GASEOUS AMMONIA
WASH THE DRY EXPLODED CHIPS (WATER, DILUTE ACID)
TO RECOVERY SYSTEM
WASH WATER HAVING SOLUBLES
COARSE HIGH YIELD MATERIAL OF FIBER BUNDLES AND INDIVIDUAL FIBERS

A process of manufacturing pulp including the steps of impregnating a mass of lignocellulosic chips with anhydrous ammonia, heating, without added steam, the impregnated chips within a closed space under pressure and suddenly releasing the pressure to cause ejection of the impregnated chips from the space and explosive removal of ammonia with accompanying deformation and disintegration of the chips to a fibrous condition in which the fibers are flexible, kinked, twisted and curled. The fibers are of a relatively light color, unfibrillated, contain substantially all of the cellulose, hemicellulose and lignin of the original material, are readily delignified and are bleachable to a high brightness.

3,707,437
PULPING AND BLEACHING OF WOOD CHIPS IN A SINGLE STAGE WITH TERTIARY BUTYL HYDROPEROXIDE

Robert M. Lincoln, Moylan, and Joseph A. Meyers III, Springfield, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa.
No Drawing. Filed July 24, 1970, Ser. No. 58,198
The portion of the term of the patent subsequent to Feb. 29, 1989, has been disclaimed
Int. Cl. D21c *9/16*
U.S. Cl. 162—78 **5 Claims**

Method for the pulping and bleaching of wood chips in a single stage using tertiary butyl hydroperoxide in an aqueous alkaline medium. This method prevents atmospheric pollution as well as waste water pollution.

3,707,438

METHOD FOR THE BRIGHTENING OF KRAFT PULP WITH TERTIARY BUTYL HYDROPEROXIDE

Robert M. Lincoln, Moylan, and Joseph A. Meyers III, Springfield, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed Sept. 15, 1970, Ser. No. 72,491
Int. Cl. D21c *9/16*
U.S. Cl. 162—78 **9 Claims**

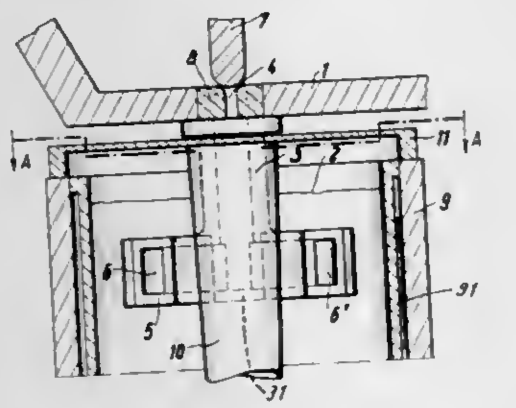
Method for replacing one or more of the chlorine or chlorine-compound bleaching steps of kraft pulp by the use of tertiary butyl hydroperoxide as a brightening agent in an alkaline medium, in particular aqueous sodium hydroxide or sodium carbonate. The amount of tertiary butyl hydroperoxide and alkaline medium required depends upon the extent of the prior bleaching of the kraft pulp.

3,707,439

DEVICE FOR CHARGING A MOLD FOR CONTINUOUS CASTING OF A HOLLOW INGOT

Hans-Peter Poeste, Heiligenhausen, and Gerd Vogt, Strump, Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed July 28, 1971, Ser. No. 166,812
Claims priority, application Germany, July 31, 1970, P 20 39 158.6
Int. Cl. B22d *11/10*
U.S. Cl. 164—281 **7 Claims**



Device for charging an annular mold and having a cooled mandrel for continuous casting of a hollow ingot, there being a ladle or distributor with bottom opening from which molten metal pours in down direction into and through a hollow member, eccentric to the mandrel. The bottom of the hollow member is closed and submerged in molten metal in the mold. A two-arm, looping channel extends laterally from the hollow member near the bottom thereof, around the mandrel, the two arms respectively having at their ends discharge openings, disposed in planes that do not intersect in the mandrel axis but therebehind, near the hollow member.

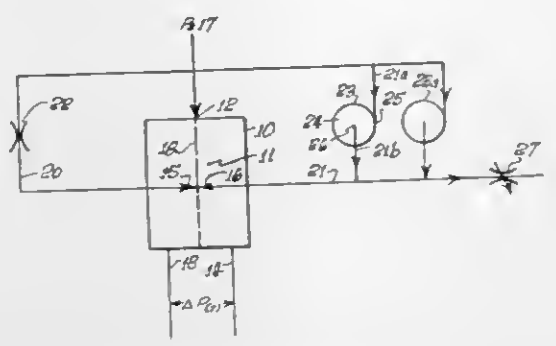
3,707,440

TEMPERATURE COMPENSATING FLUIDIC CIRCUIT

Gary L. Frederick, Tempe, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed July 15, 1970, Ser. No. 54,980
Int. Cl. F15c *1/12, 1/16*
U.S. Cl. 137—81.5 **8 Claims**

This temperature compensating fluidic circuit has a conventional proportional amplifier which includes an interaction chamber with a beam-forming inlet at one side, spaced outlet passages on the opposite side, opposed control jet nozzles at the sides of the inlet, and passages leading from a common control pressure source to the control jet nozzles. One of these passages contains a restriction of the orifice type and the other contains one or more vortex-type resistors. Since the resistance of the vortex-type resistor is due mainly to angular momentum rather than viscosity effects, to which the orifice-type restriction is particularly responsive, the vortex-type resistor is less affected by temperature change and consequently control signals bearing a predetermined relation to temperature will be applied by the control jets to the fluid beam. A differential pressure output, dependent on temperature, will thus be delivered by the amplifier.



3,707,441

METHOD OF PRODUCING L-LYSINE BY FERMENTATION

Isamu Shiio, Konosuke Sano, and Shigeru Nakamori, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Mar. 9, 1970, Ser. No. 17,863
Claims priority, application Japan, Mar. 20, 1969, 44/21,509
Int. Cl. C12d *13/06*
U.S. Cl. 195—29 **8 Claims**

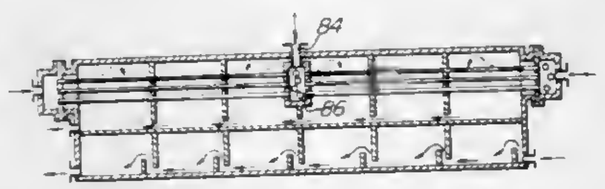
Strains of glutamic acid producing microorganisms of the genera Brevibacterium, Corynebacterium, Microbacterium, and Micrococcus which are capable of growing and forming colonies on minimal nutrient media containing 1 mg./ml. s-(2-aminomethyl)-L-cysteine monohydrochloride and 1 mg./ml. L-threonine produce L-lysine in conventional culture media in amounts large enough to warrant recovery.

3,707,442

MULTISTAGED FLASH EVAPORATOR AND A METHOD OF OPERATING THE SAME WITH SPONGE BALL DESCALING TREATMENT

Sankichi Takahashi, Katsumoto Otake, and Toshiaki Horiuchi, Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 27, 1970, Ser. No. 15,073
Claims priority, application Japan, Mar. 5, 1969, 44/17,046, 44/17,047; June 16, 1969, 44/46,860; July 18, 1969, 44/56,455, 44/56,456, 44/56,457, 44/56,458, 44/56,459, 44/56,460
Int. Cl. B01d *3/00;* **F28g**
U.S. Cl. 203—1 **15 Claims**



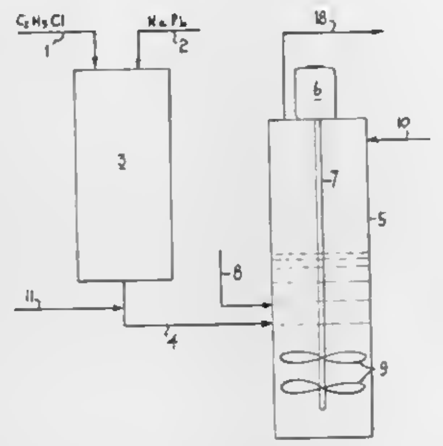
A multistaged flash evaporator for obtaining distilled water by flashing a heated brine and cooling the generated steam by the brine, wherein the brine is heated beyond a temperature of educing scale on heating surfaces but the educed scale is removed by sponge balls passed through heating tubes or by occasionally supplying brine of low temperature through the heating tubes.

3,707,443

MONTMORILLONITE CLAYS AS AIDS IN STEAM DISTILLATION OF TETRAALKYLLEAD

Thorowgood T. Broun, Jr., Beaumont, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed July 2, 1970, Ser. No. 51,776
Int. Cl. B01d *3/38*
U.S. Cl. 203—50 **11 Claims**



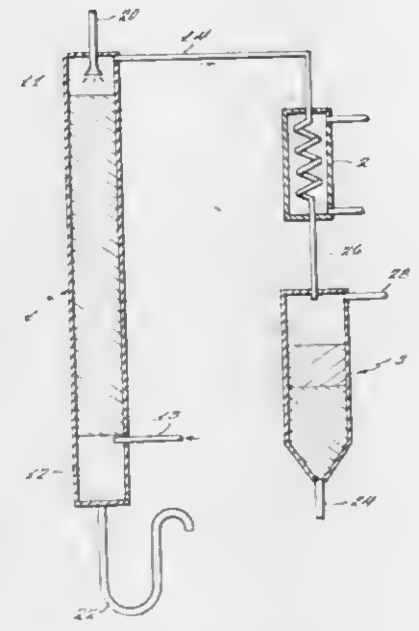
A method of dispersing lead particulates present in a reaction mass undergoing steam distillation is described. In particular the reaction mass contains tetraalkylleads, solid lead particulates, sodium halides and water. This mass is subjected to steam distillation and controlled during distillation to maintain therein a montmorillonite clay in quantities representing at least 0.0001 pound of clay per pound of lead particles present. Clays of particular note mentioned in the specification are bentonite clays and fuller's earth.

3,707,444

PROCESS FOR THE RECOVERY OF NONAQUEOUS HYDROGEN PEROXIDE

Gerd Schreyer, Gross-Auheim, Jurgen Troger, Wolfgang, Wolfgang Weigert, Offenbach am Main, and Otto Weiberg, Neu-Isenburg, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

Continuation-in-part of abandoned application Ser. No. 856,070, Sept. 8, 1969. This application Oct. 8, 1970, Ser. No. 79,315
Claims priority, applications Austria, Sept. 16, 1968, A 9,025/68; Germany, Oct. 10, 1969, P 19 51 211.9
Int. Cl. B01d *3/34;* **C01b** *15/07*
U.S. Cl. 203—51 **17 Claims**



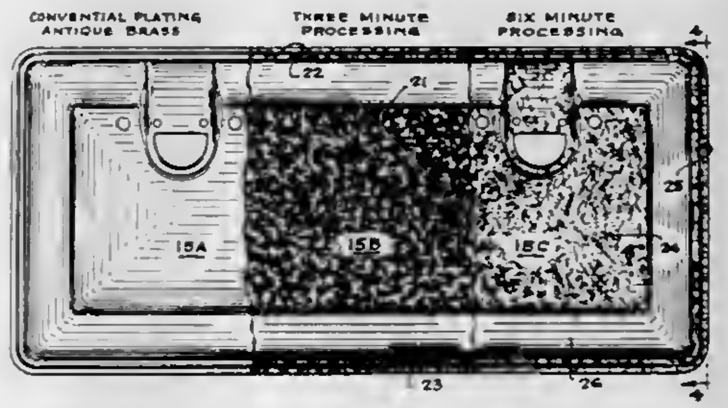
Anhydrous hydrogen peroxide solutions are prepared from a hydrogen peroxide containing working solution produced in the anthraquinone process after the oxidation step by employing a stripping distillation under reduced pressure using an organic solvent as the stripping agent.

3,707,445

METHOD OF PRODUCING A DECORATIVE FINISH ON METAL OBJECTS

Lawrence L. Green, Elmwood Park, Ill., assignor to Modern Metallics, Inc., Chicago, Ill.

Filed Apr. 29, 1971, Ser. No. 138,720
Int. Cl. B01k *1/00;* **B44c** *1/00*
U.S. Cl. 204—18 **6 Claims**



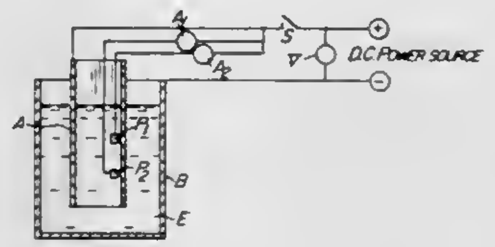
The method of forming a smooth, random marbled finish on a metal member, comprising plating the member with two superimposed contrasting layers, the outer layer being very thin, then immersing the metal member in a mass of a finishing medium comprising a multiplicity of relatively soft, erodable burnishing elements and a limited quantity of lubricant, and agitating or vibrating the finishing medium mass at a frequency of the order of 1000 to 4000 cycles per minute for a period of three to six minutes.

3,707,446

METHOD FOR MEASURING THROWING POWER

Yoshiaki Oyabu, Kyoto, Nobuo Furuno, Amagasaki, Tomosabura Kawahara, Hirakata, and Hitoshi Kawai, Neyagawa, Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Original application July 18, 1969, Ser. No. 842,888. Divided and this application Oct. 13, 1971, Ser. No. 188,879
Claims priority, application Japan, July 20, 1968, 43/51,271, 43/51,272, 43/51,273
Int. Cl. B01k *5/02;* **C23b** *13/00*
U.S. Cl. 204—1 T **4 Claims**



The present invention relates to a method for measuring a throwing power in electrodeposition coating, by providing a small electrode of metal as an anode in the neighbourhood of, but separated through an electrodeposition coating solution from, a part of a material to be coated at which part a visual estimation of coating is difficult, said small electrode having a surface area sufficiently smaller than that of the material to be coated, electrodeposition-coating the small electrode simultaneously with coating the material to be coated, and measuring the current value at a peak detected by the small anode. By this method, it becomes possible to satisfactorily coat normally inaccessible surfaces of articles without visually assessing the coating by breaking the article.

3,707,447
REMOVAL OF HYDROCOUMARIC ACID FROM ACID NICKEL PLATING BATHS CONTAINING COUMARIN

John William Alexander, Lyndhurst, Ohio, assignor to Kewanee Oil Company, Bryn Mawr, Pa.
No Drawing. Filed Feb. 16, 1971, Ser. No. 115,706
Int. Cl. B01d *15/04;* **C23b** *5/08, 5/46*
U.S. Cl. 204—49 **12 Claims**

Coumarin (1,2 benzopyrone) is commonly used as a leveler in various acid nickel electroplating baths, where, during electrolysis, the coumarin undergoes electrochemical reduction to hydrocoumaric acid (2 hydroxy phenyl B propanic acid). As the concentration of hydrocoumaric acid in the bath increases, the quality of the nickel deposit is adversely affected. The present invention deals with a method of removing the hydrocoumaric acid by passing the plating bath solution through a bed or column filled with a polymeric sorbant which selectively removes the hydrocoumaric acid and coumarin from the bath. The bed or column is then washed with an alkaline material such as Na_2CO_3 to selectively remove the hydrocoumaric acid followed by washing with a solvent such as warm water or an organic material such as a low molecular weight aliphatic alcohol, ether and ketone to dissolve and recover the coumarin. The polymeric sorbant is preferably nonionic and is typically in the form of small porous beads, each bead composed of a large number of microspheres. The method is also applicable to derivatives of coumarin and the corresponding reduction products thereof.

3,707,448
METHOD FOR EXTRACTING METAL FROM A METAL SOURCE IN AN ELECTROLYTIC CELL

Alberto E. Veloso, Quezon City, W. Rizal, Republic of the Philippines, assignor to Internationale Erfiner- und Patentanstalt Vaduz, Liechtenstein
No Drawing. Filed Oct. 20, 1970, Ser. No. 82,550
Int. Cl. C01g *1/00, 37/00;* **C01f** *7/02*
U.S. Cl. 204—96 **4 Claims**

A method of extracting metal from a metal source, such as plating, scraps or ores of tin, aluminum, zinc, lead, vanadium, chromium, manganese, molybdenum, nickel and silver, by charging the metal source into an electrolytic cell having an aqueous electrolyte containing sodium chloride and sodium carbonate, in connection with the anode of the cell, and extracting the metal from the metal source by an electrolytic reaction to form a metal salt.

3,707,449
PROCESS FOR THE PRODUCTION OF PURE AQUEOUS POTASSIUM AS SODIUM HEXACYANOFERRATE (III) SOLUTION

Helmut Reinhardt, Weiss, and Karl Trebinger and Gottfried Kallrath, Wesseling, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Continuation-in-part of application Ser. No. 129,173, Mar. 29, 1971. This application May 17, 1971, Ser. No. 144,289
Claims priority, application Germany, Apr. 9, 1970, P 20 16 848.3; May 3, 1971, P 21 21 647.7
Int. Cl. C01c *3/12*
U.S. Cl. 204—91 **7 Claims**

Pure aqueous solution of potassium hexacyanoferrate (III), sodium hexacyanoferrate (III) and sodium potassium hexacyanoferrate (III) are prepared by oxidation of the corresponding hexacyanoferrate (II) solutions with acids containing the group $[Fe(CN)_6]$ and an oxidizing agent having an oxidation potential greater than +0.46 volt.

3,707,450
COATING FOR CATHODICALLY PROTECTED STRUCTURES

Herbert E. Townsend, Hellertown, Pa., assignor to Bethlehem Steel Corporation
No Drawing. Filed Aug. 5, 1970, Ser. No. 61,475
Int. Cl. C23f *13/00*
U.S. Cl. 204—147 **7 Claims**

A cathodically protected metal article, such as a pipeline, tank, or vessel, is covered with a first coating of chlorinated rubber, and a second, outer coating of a bituminous material wherein either or both coatings contain a dispersion of not less than 5% by weight of calcium carbonate. The thus coated article exhibits improved corrosion resistance.

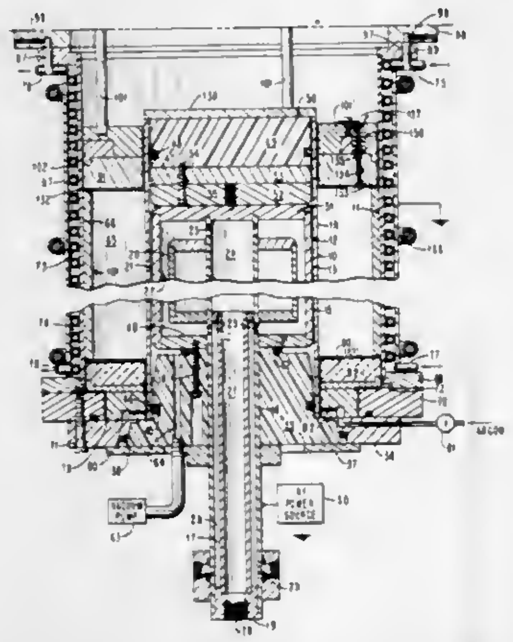
3,707,451
METHOD OF PREPARING PROSTANOIC ACID DERIVATIVES

Jehan F. Bagli, Valois Gardens, Quebec, and Tibor Bogri, Montreal, Quebec, Canada, assignors to Ayerst, McKenna & Harrison, Limited, St. Laurent, Quebec, Canada
No Drawing. Original application Oct. 22, 1968, Ser. No. 769,750. Divided and this application Jan. 20, 1971, Ser. No. 108,208
Int. Cl. B01j *1/10*
U.S. Cl. 204—158 R **1 Claim**

There are disclosed herein 9,15-dioxoprostanoic acid, lower alkyl esters thereof, and homologs thereof, a process to prepare those compounds, as well as a process for preparing 9,15-dihydroxyprostanoic acid, lower alkyl esters thereof, and homologs thereof. The compounds possess hypotensive and antihypertensive activities, and methods for their use are also disclosed.

3,707,452
ELONGATED ELECTRODE AND TARGET ARRANGEMENT FOR AN RF SPUTTERING APPARATUS AND METHOD OF SPUTTERING

William Carl Lester, Hopewell Junction, Carlo Nuccio, Poughkeepsie, and Ernest S. Ward, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 22, 1970, Ser. No. 4,825
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 **36 Claims**

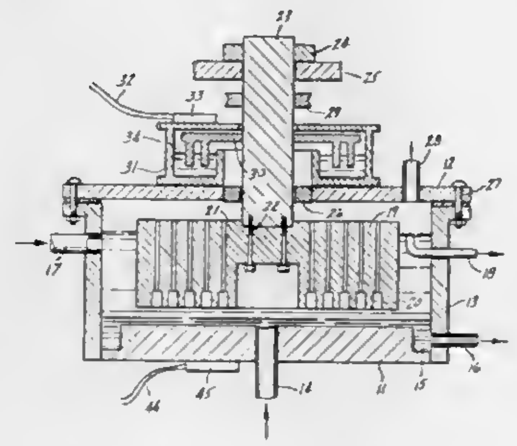


An RF sputtering apparatus has an elongated hollow cylindrical target surrounding an elongated cylindrical

cathode to shield the cathode from a partially evacuated chamber in which the target is disposed. An elongated hollow cylindrical anode is disposed in surrounding relation to the target. The target is spaced from the cathode so that cooling of the target may occur by dielectric coolant flowing therebetween with the dielectric coolant also transferring RF power to the target from the cathode when RF power is applied between the cathode and the anode. In an extension to continuous mode deposition (as opposed to batch mode deposition), substrates can have varying thicknesses of material deposited thereon from the target under the same sputtering conditions by moving each substrate into the chamber for support on the inner surface of the anode, rotating the anode about the target at a constant velocity, and then removing each substrate after a period of time. The amount of time that each of the substrates is supported on the anode determines the thickness of the deposited material on the substrate.

3,707,453
MERCURY CELL HAVING ROTATING ANODES

Roy M. Cooper, Groton, Conn., assignor to Olin Corporation
Continuation of application Ser. No. 820,459, Apr. 30, 1969, now Patent No. 3,580,833. This application May 6, 1971, Ser. No. 140,821
Int. Cl. B01k *3/04;* **C22d** *1/04*
U.S. Cl. 204—212 **9 Claims**

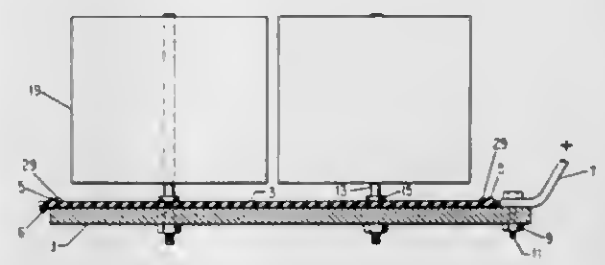


A new rotary anode, mercury cathode electrolytic cell for the manufacture of chlorine and caustic alkalies from aqueous alkali metal chloride brines provides the advantages of high current density, high current efficiency, low floor space and low cost per ton of product.

3,707,454
ANODE AND BASE ASSEMBLY FOR ELECTROLYTIC CELLS

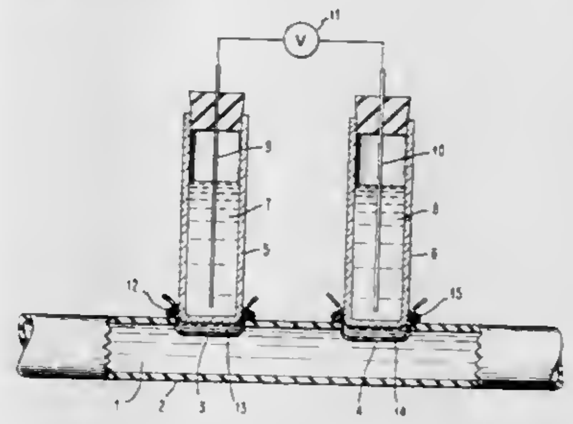
Richard E. Loftfield, Chardon, Ohio, and Henry W. Laub, Houston, Tex., assignors to Diamond Shamrock Corporation, Cleveland, Ohio
Continuation-in-part of application Ser. No. 763,121, Sept. 27, 1968, now Patent No. 3,591,483. This application June 28, 1971, Ser. No. 157,313
The portion of the term of the patent subsequent to July 6, 1988, has been disclaimed
Int. Cl. B01k *3/04;* **C22d** *1/02*
U.S. Cl. 204—242 **5 Claims**

An anode and cell base assembly is provided which features the use of dimensionally stable anodes. It is characterized in having a cell base which serves as a rigid support for the anodes, as a conductor for distributing current to the anodes and as a rigid support for the cell can. Furthermore a sheet of electrically nonconductive material covers the entire cell base and serves to insulate the contact between the cell can and the cell base and also provides a hydraulic seal to prevent leakage of electrolyte.



3,707,455
MEASURING SYSTEM

Donald B. Derr, Peekskill, Gordon W. Neff, Mahopac, and Carlos J. Sambucetti, Mohegan Lake, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 15, 1968, Ser. No. 744,951
Int. Cl. G01n *27/26, 27/40*
U.S. Cl. 204—195 P **6 Claims**

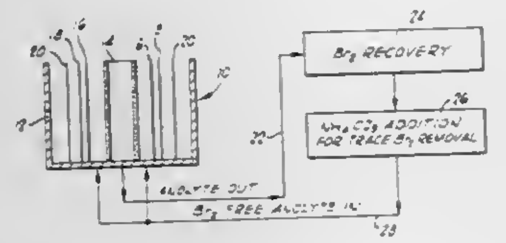


A differential ion sensitive measuring system is provided to measure the concentration of particular constituents of a fluid. A pair of identical ion sensitive electrodes or probes are used to provide the differential measurement. One of the electrodes is surrounded with a reagent selected to react with the molecules of the fluid constituent under test. Upon contact with the fluid to be analyzed each electrode responds in the same manner to ions in the fluid so as to yield a zero voltage difference from the effects thereof. However, at the electrode surrounded with the reagent the latter reacts with molecules of the constituents under test to produce an ion change thereat not seen by the other electrode. The magnitude of the ion change is indicative of the concentration of the constituent under test.

3,707,456
ELECTROCHEMICAL CELL

Edward H. McDonald and William P. Banks, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
Filed Oct. 16, 1970, Ser. No. 81,318
Int. Cl. B01k *3/00, 3/10*
U.S. Cl. 204—237 **18 Claims**

An electrochemical cell for use in preparing tetraethyl lead, and including an anode, a lead cathode spaced from the anode, a semi-permeable, ion-exchange membrane between the cathode and anode, and a permeable shield interposed between the anode and the ion-exchange membrane to retard the diffusion of bromine to the membrane and thereby reduce attack of bromine on the membrane. The shield may be constructed of a material which is reactive with bromine to further and more completely block the passage of bromine into the catholyte. Bromine is preferably further removed from the anolyte solution by either sweeping the solution with a gas reactive with bromine or by removing the anolyte solution from the anode chamber of the cell, chemically removing the bromine and then recirculating the bromine-free anolyte to the cell.



ERRATUM

For Class 204—250 see:
Patent No. 3,707,467

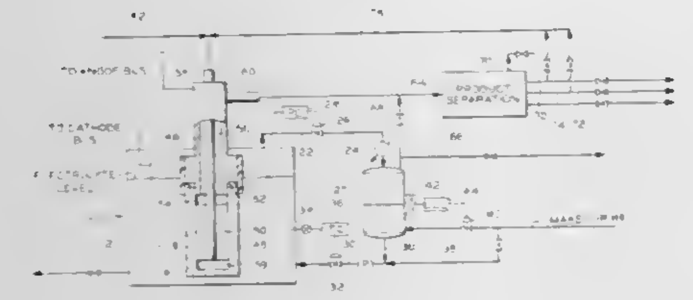
3,707,457
APPARATUS FOR CONTROLLING THE TEMPERATURE OF THE ELECTROLYTE IN AN ELECTROLYTIC CELL

Lyte W. Pollock, Bartlesville, Okla., assignor to Phillips Petroleum Company

Original application Oct. 7, 1968, Ser. No. 765,301, now Patent No. 3,582,482. Divided and this application Feb. 19, 1971, Ser. No. 116,815

Int. Cl. B01k *3/00*

U.S. Cl. 204—278 **5 Claims**



Electrochemical conversion apparatus comprising a combination of elements for controlling the temperature of the electrolyte in an electrolytic cell, including pressure control means for the cell to control the pressure on the cell and hence the boiling point of the electrolyte.

3,707,458
ELECTRIC TREATER WITH PROTECTED INSULATORS

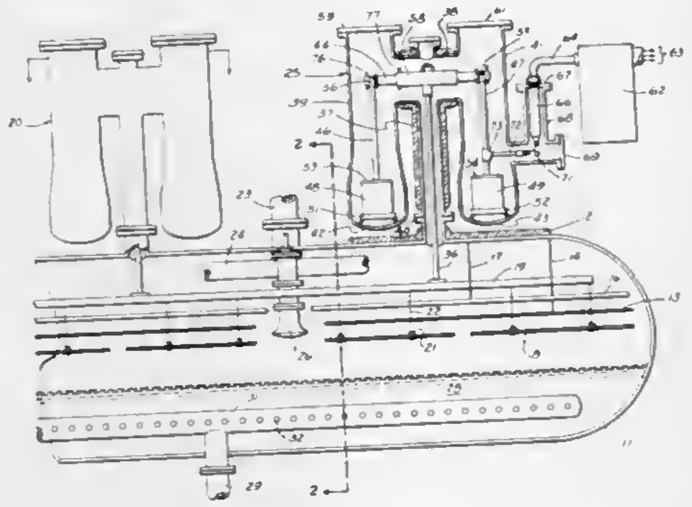
Delber W. Turner, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Nov. 26, 1971, Ser. No. 202,213

Int. Cl. B01d *13/02*

U.S. Cl. 204—308 **15 Claims**

A system for electrically treating emulsions in a vessel containing inlets and outlets, and an electric field formed by an energized electrode connected to an external transformer. A first conduit extends upwardly from the vessel to a branch conduit which connects to a pair of arm conduits extending downwardly to closed ends. A support rod extends in the first conduit from the energized electrode and connects through a horizontal support rod to an arm support rod in each conduit. Each arm support rod is secured to the top of a cylindrical insulator resting within a socket upon the closed end of the arm conduit. Heat exchanger means are associated with the arm conduits at a position space from the branch conduit. The heat exchanger means create a temperature gradient between the insulators and the interior of the vessel. The liquid in the vessel can be at elevated temperatures (e.g., 500° F.) while the insulators remain at relatively low temperatures (e.g., 100° F.) during electrical resolution of emulsions.



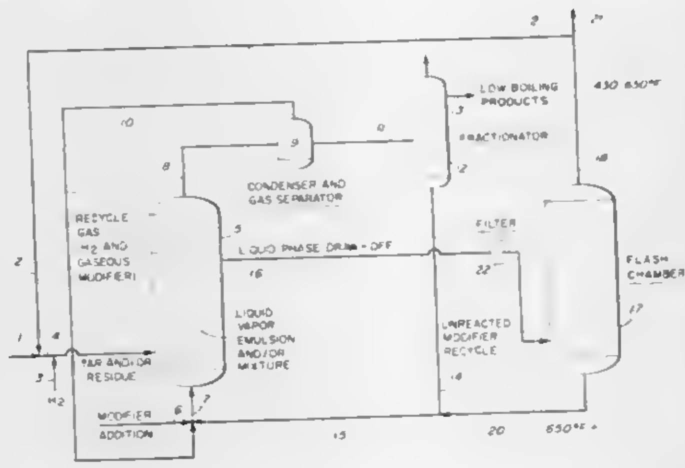
3,707,459
CRACKING HYDROCARBON RESIDUA

Ralph B. Mason, Denham Springs, and Glen P. Hamner, Baton Rouge, La., assignors to Esso Research and Engineering Company

Continuation-in-part of abandoned application Ser. No. 839,220, July 7, 1969. This application Apr. 17, 1970, Ser. No. 29,629

Int. Cl. C10g *9/00, 13/00, 37/02*

U.S. Cl. 208—76 **26 Claims**



LOW BOILING PRODUCTS
430-650°F
FRACTIONATOR
CONDENSER AND GAS SEPARATOR
RECYCLE GAS H2 AND GASEOUS MODIFIER
LIQUID PHASE DRAW-OFF
FILTER
FLASH CHAMBER
LIQUID VAPOR EMULSION AND/OR MIXTURE
UNREACTED MODIFIER RECYCLE
TAR AND/OR RESIDUE
H2
MODIFIER ADDITION
650°F+

Hydrocarbon residua boiling mostly 1000° F. and above are depolymerized in the presence or absence of hydrogen in one or more stages under liquid phase conditions to obtain a product which is predominantly an aromatic gas oil and eminently suitable either as a solvent or as feed to hydrocracking operations. Although the upper boiling limit of this gas oil may be in the range of 600 to 1000° F., the process is illustrated by two schemes, one in which the gas oil is separated into fractions boiling 430–650° F., 650–1000° F. and 1000° F.+ and the other in which the gas oil is separated into 430–650° F. and 650° F.+ fractions. In each scheme an amount of the low-boiling fraction is recycled so that the feed mixture to the reaction zone contains 20 to 50% of the low-boiling fraction while the high boiling fraction is recycled at a rate such that the amount present in the feed mixture to the reactor is equal to the amount in the make product thus resulting in balanced conditions. 1–25% of an acyclic hydrocarbon modifier and/or a mild alkali is added to the reaction mixture to act as a free-radical acceptor. When a hydrocarbon is used it has a residence time of one hour or less as compared to 1 to 6 hours for the residua-recycle mixture.

3,707,460
NAPHTHA HYDROFORMING PROCESS

Ralph J. Bertolacini, Chesterton, and Richard D. Petersen, Valparaiso, Ind., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 858,119, Sept. 15, 1969, which is a continuation-in-part of abandoned application Ser. No. 788,671, Nov. 7, 1968, which in turn is a continuation-in-part of abandoned application Ser. No. 512,268, Dec. 6, 1965. This application Mar. 19, 1971, Ser. No. 126,366

Int. Cl. C10g *35/08, 39/00*

U.S. Cl. 208—65 **33 Claims**

The process comprises contacting naphtha and hydrogen with a first catalyst under hydroforming conditions and finally with a second catalyst under hydroforming conditions. The first catalyst comprises a Group VIII metal, a halide, and alumina. The second catalyst comprises a Group VIII metal, mordenite, and alumina. The second catalyst may be characterized further by 0.1 to 1.2 wt. percent chloride.

3,707,461
HYDROCRACKING PROCESS USING A COAL-DERIVED ASH

John G. Gatsis, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Dec. 18, 1970, Ser. No. 99,677

Int. Cl. C10g *13/02*

U.S. Cl. 208—111 **7 Claims**

A process for hydrocracking heavy hydrocarbonaceous oils utilizing a coal-derived ash as a catalyst. The process is particularly applicable to the hydrocracking of oils derived from the solvent extraction of coal.

3,707,462
CONVERSION OF HEAVY PETROLEUM FEEDSTOCKS

Gerald Moss, Oxford, England, assignor to Esso Research and Engineering Company

Filed Jan. 25, 1971, Ser. No. 109,124

Claims priority, application Great Britain, Jan. 27, 1970, 3,824/70

Int. Cl. C10g *9/28*

U.S. Cl. 208—127 **14 Claims**

A modified fluid coking process in which particles comprising CaO replace the coke in the coker, and the coke deposited on the particles is burned off in the burner. Sulphur from the coke is fixed in the particles mainly as CaS. Some of the particles pass indirectly back to the coker via a regenerator in which they are contacted with oxygen with the release of SO_2 in useful concentrations.

3,707,463
FCC CATALYST SECTION CONTROL

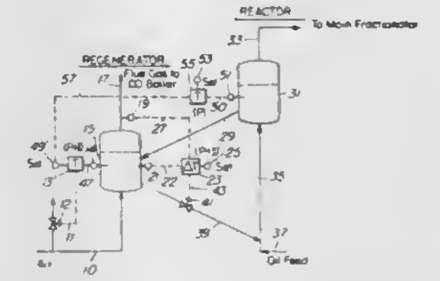
Michael D. Harter, Cranbury, and Benedict MacFarlane and Vern W. Weekman, Jr., Cherry Hill, N.J., assignors to Mobil Oil Corporation

Filed Dec. 7, 1970, Ser. No. 95,641

Int. Cl. C10g *13/18*

U.S. Cl. 208—164 **9 Claims**

The specific disclosure provides for controlling a catalyst section of a fluid catalytic cracking system by adjusting the flow rate of an oxygen-containing gas to a regenerator in response to deviation of the regenerator dense bed temperature from a predetermined dense bed temperature, and by adjusting the predetermined regenerator dense bed temperature in response to deviation of the reactor temperature from a predetermined reactor temperature. Further, the regenerated catalyst flow rate is adjusted in response to deviation of a measured temperature difference between the regenerator dense bed and the regenerator flue gas from a predetermined regenerator dense bed and regenerator flue gas temperature difference. Alternatively, the regenerated catalyst flow rate is adjusted in response to deviation of a measured amount of oxygen in the regenerator flue gas from a predetermined amount of oxygen in the regenerator flue gas.



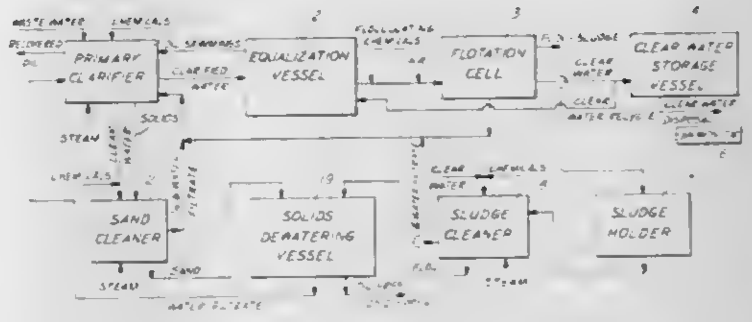
3,707,464
PROCESS FOR CLARIFYING AN OIL-SOLIDS CONTAMINATED AQUEOUS STREAM

William F. Burns and Robert B. Martin, Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.

Filed July 15, 1971, Ser. No. 163,184

Int. Cl. B01d *17/02*

U.S. Cl. 210—44 **11 Claims**



A process for clarifying an oil-solids contaminated aqueous stream such as may arise from the operation of a railroad equipment servicing facility. A primary clarifier gravitationally separates the stream into settled solids, a merchantable oil product and a clarified water stream. The clarified water stream is treated by creating a flocculation product for removing solids and oil therefrom to produce a clear water stream delivered to a subsequent utilization. Settled solids may be returned to the primary clarifier. The flocculation product is accumulated in a sludge cleaner to be periodically converted into water and oil phases. The oil phase is returned into the primary clarifier. The water phase is reformed into an oil-free flocculation product and separated from a water filtrate returned into the pimary clarifier. Solids from the primary clarifier are accumulated in a sand cleaner to be periodically cleaned to separate oil-free solids from a solids-free water-continuous filtrate returned to the primary clarifier. The reformed flocculation product and oil-free solids are separated in a solids dewatering vessel from a water filtrate returned into the primary clarifier. The relatively water-free solids are then delivered to a subsequent utilization such as land fill.

3,707,465
CLARIFICATION OF AQUEOUS SUSPENSIONS WITH OXYAMINATED POLYACRYLAMIDE FLOCCULATING AGENTS

Elmar Reinwald, Dusseldorf-Wersten, and Joachim Galinke, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany
No Drawing. Filed Apr. 21, 1971, Ser. No. 136,206
Claims priority, application Germany, Oct. 31, 1970,
P 20 53 675.8
Int. Cl. B01d *21/01*
U.S. Cl. 210—52 **10 Claims**

A process of clarification of aqueous suspensions consisting of contacting an aqueous suspension with an oxyaminated polyacrylamide in order to form a floc and separating clarified water from said floc.

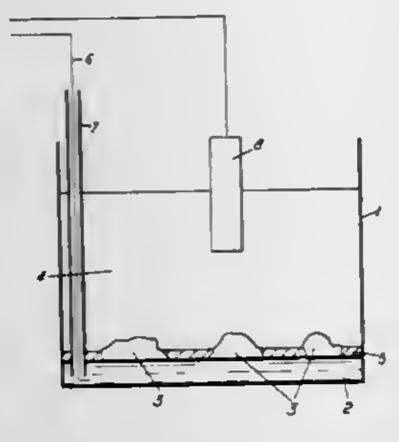
3,707,466
CLARIFICATION OF AQUEOUS SUSPENSIONS WITH OXYALKYLATED POLYACRYLAMIDE FLOCCULATING AGENTS

Elmar Reinwald, Dusseldorf-Wersten, and Joachim Galinke, Dusseldorf-Holthausen, Germany, assignors to Hendel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany
No Drawing. Filed Apr. 21, 1971, Ser. No. 136,205
Claims priority, application Germany, Apr. 29, 1970,
P 20 21 006.4
Int. Cl. B01d *21/01*
U.S. Cl. 210—52 **10 Claims**

A process of clarification of aqueous suspensions consisting of contacting an aqueous suspension with an oxyalkylated polyacrylamide in order to form a floc and separating clarified water from said floc.

3,707,467
ELECTROLYTIC CELL

Henry Thomas Joseph Chilton, Llangollen, and Gwilym Ivor Lumley, Wrexham, Wales, assignors to Monsanto Chemicals Limited, London, England
Filed Aug. 13, 1969, Ser. No. 849,673
Claims priority, application Great Britain, Aug. 16, 1968,
39,248/68
Int. Cl. B01k *3/00;* **C22d** *1/04*
U.S. Cl. 204—250 **6 Claims**



An electrolytic cell for use in a process where an electrode material is consumed has at least one piece of the consumable electrode material in electrical contact with a liquid metal and in electrolytic contact with an electrolyte, an insulating liquid layer between the liquid metal and the electrolyte, a second electrode in electrolytic contact with the electrolyte, and electrical connections to the liquid metal and to the second electrode.

ERRATA

For Classes 252—33 through 252—554 see:
Patents Nos. 3,707,498 through 3,707,512, inclusive

3,707,468
3,3a - DIHYDROPYRROLO[1,2-a]QUINAZOLINE-1,5(2H,4H)-DIONES AND RELATED INTERMEDIATES

Stanley C. Bell, Penn Valley, and George T. Conklin, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 689,007, Dec. 8, 1967. This application June 15, 1970, Ser. No. 46,523
Int. Cl. C07d *51/48*
U.S. Cl. 260—256.4 Q **6 Claims**

This invention concerns 1,2,3,3a - tetrahydro-1-iminopyrrolo[1,2 - a]quinazolin-5(4H)-ones and 3,3a-dihydropyrrolo[1,2 - a]quinazoline - 1,5(2H,4H) - diones. The former compounds are useful intermediates in the preparation of the latter which are pharmacologically active as anti-edema agents.

3,707,469
2,9-BIS-TRIFLUOROMETHYLQUINACRIDONE AND INTERMEDIATE THEREFOR

Edward E. Jaffe, Union, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Sept. 22, 1970, Ser. No. 74,535
Int. Cl. C07d *37/18*
U.S. Cl. 260—279 R **4 Claims**

The novel quinacridone pigment, 2,9-bis-trifluoromethylquinacridone, is prepared, as for example, by oxidation of novel intermediate 2,9-bis-trifluoromethyl-6,13-dihydroquinacridone.

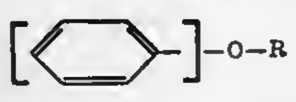
3,707,470
PROCESS FOR REMOVING PHENOLIC HYDROXYL GROUP FROM PHENOLIC COMPOUNDS

Yoshiro Sawa, Ashiya, Ryozo Maeda, Osaka, and Junji Irisawa, Nishinomiya, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan
No Drawing. Filed June 22, 1970, Ser. No. 48,509
Int. Cl. C07d *43/32*
U.S. Cl. 260—285 **14 Claims**

Phenolic hydroxyl group of phenolic compounds is removed by reacting a phenolic compound including phenol, cresol, naphthol, guaiacol, thymol, morphinan series phenol, steroidal phenol and salts thereof with a compound represented by the formula:

$$R—X$$

wherein R is 2-pyridyl, 2-pyrimidyl, 2-quinolyl, 1-isoquinolyl, or 3-isoquinolyl and X is halogen to give an ethereal compound represented by the partial formula:

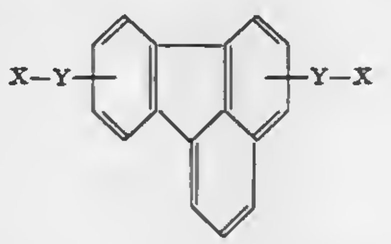


wherein R is as above and hydrogenating the ethereal compound over palladium catalyst in an inert solvent in the range of temperature from 15 to 100° C. to substitute the ether group (R—O—) with hydrogen. The process proceeds economically in a short period with high yields.

3,707,471
FLUORANTHENE BIS-BASIC ETHERS AND THIOETHERS

William L. Albrecht and Robert W. Fleming, Cincinnati, Ohio, assignors to Richardson-Merrell, Inc., New York, N.Y.
No Drawing. Filed Apr. 27, 1970, Ser. No. 32,456
Int. Cl. C07d *29/28*
U.S. Cl. 260—293.62 **10 Claims**

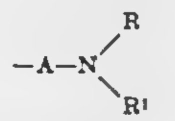
The novel bis-basic ethers and thioethers of fluoranthene of the present invention have useful antiviral activity. These new compounds are represented by the following formula:



Formula 2

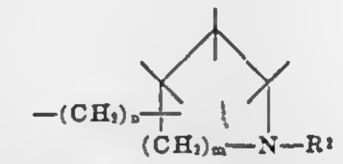
wherein each Y is oxygen or divalent sulfur; and each X is

(A) the group



wherein each A is a straight or branched alkylene chain having from 2 to 8 carbon atoms; R and R^1 are individually hydrogen, (lower)alkyl having from 1 to 6 carbon atoms, cycloalkyl of from 3 to 6 carbon atoms, alkenyl of from 3 to 6 carbon atoms and having the vinyl unsaturation in other than the 1-position of the alkenyl group; or each set of R and R^1 taken together with the nitrogen atom to which they are attached is a saturated monocyclic heterocyclic group such as pyrrolidino, piperidino, morpholino or N-(lower)alkylpiperazino; or

(B) the group



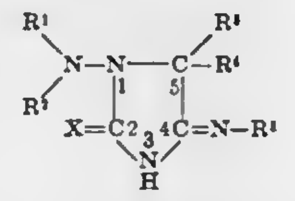
wherein *n* is a whole integer from 0 to 2, *m* is 1 or 2, and R^2 is hydrogen, (lower)alkyl of from 1 to 6 carbon atoms, or alkenyl of from 3 to 6 carbon atoms and having the vinyl unsaturation in other than the 1-position of the alkenyl group.

This invention also includes pharmaceutically acceptable acid addition salts of the bases represented by Formula I. These new compounds may be prepared by several different methods which are described.

3,707,472
DERIVATIVES OF IMIDAZOLIDIN-2-ONES AND -2-THIONES

Amedeo Failli, Montreal, Quebec, and Manfred Gotz, Hudson, Quebec, Canada, assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed July 17, 1970, Ser. No. 55,952
Int. Cl. C07d *49/30, 57/00*
U.S. Cl. 260—293.7 **13 Claims**

There are disclosed herein derivatives of imidazolidin-2-ones and -2-thiones of the Formula I



and their acid addition salts with pharmacologically acceptable acids, in which R^1 is hydrogen or lower alkyl; R^2 is lower alkyl, nitrothiazolyl, or nitrofuryl; or R^1 and R^2 together with the nitrogen to which they are attached are a heterocyclic group containing 4–6 carbon atoms, or 4 carbon atoms and an additional nitrogen atom which may optionally be substituted with a lower alkyl group, or 4 carbon atoms and an oxygen atom, R^3 is hydrogen or lower alkyl; R^4 is lower alkyl or aralkyl, or R^3 and R^4 together with the carbon atom 5 of the imidazolidine ring to which they are attached are a carbocyclic ring containing 5–6 carbon atoms attached in spiro fashion to said imidazolidine ring; R^5 is lower alkyl or cycloalkyl containing from 5–6 carbon atoms; and X is an oxygen or a sulfur atom. The compounds of this invention possess positive inotropic activity and are useful as cardiac stimulants.

3,707,473
2-SUBSTITUTED-p-NITRO-ANILINES

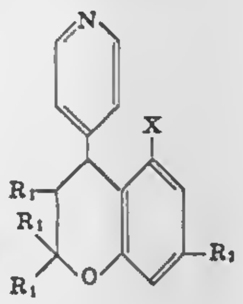
Rodney Ian Fryer, North Caldwell, Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application Apr. 11, 1967, Ser. No. 629,921. Divided and this application Sept. 30, 1970, Ser. No. 76,989
Int. Cl. C07d *29/28*
U.S. Cl. 260—293.76 **10 Claims**

Novel 2-substituted-p-nitro-anilines and a method for their preparation are disclosed. These compounds are useful as intermediates in the preparation of pharmacologically useful 2,3-dihydro-3-(N-substituted carbamoyl)-7-nitro-1,4-benzodiazepines.

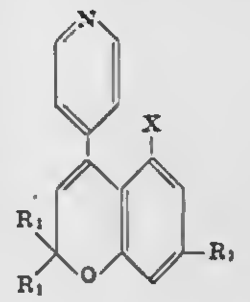
3,707,474
CERTAIN 4-(4-PYRIDYL)-5-HYDROXY-COUMARIN INTERMEDIATES

Raj K. Razdan, Belmont, Mass., and William R. Thompson, Ithaca, N.Y., assignors to Beecham Group Limited, Brentford, England
No Drawing. Application May 11, 1970, Ser. No. 36,466, which is a continuation-in-part of abandoned application Ser. No. 1,543, Jan. 8, 1970, which in turn is a continuation-in-part of abandoned application Ser. No. 866,743, Oct. 15, 1969, which also in turn is a continuation-in-part of abandoned application Ser. No. 630,-808, Apr. 14, 1967. Divided and this application June 26, 1970, Ser. No. 59,854
Int. Cl. C07d *31/34*
U.S. Cl. 260—295 F **14 Claims**

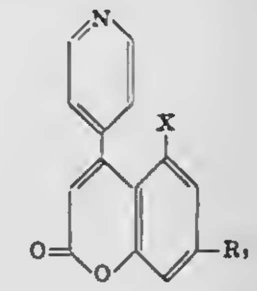
Novel chemical compounds and non-toxic acid addition salts thereof are disclosed wherein the compounds have the formulas:



I



II



III

in which

- R_1 is lower alkyl baving 1 to 6 carbon atoms,
- R_2 is alkyl having 1 to 20 carbon atoms or cycloalkyl-lower-alkyl, the cycloalkyl part baving 3 to 8 carbon atoms, and
- X is OH or a pharmaceutically acceptable salt including an alkali metal salt, or an ether or ester of the OH-group, exclusive of amino acid esters.

Compounds I and II possess beneficial pharmacodynamic activity with respect to the cardiovascular and central nervous system, and compounds III are intermediates for use in the preparation of compounds I and II.

3,707,475

ANTIINFLAMMATORY IMIDAZOLES

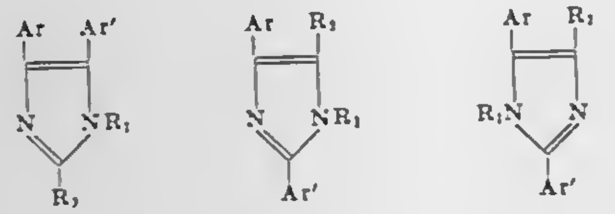
Joseph George Lombardino, Niantic, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 16, 1970, Ser. No. 90,077

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 **17 Claims**

A novel class of antiinflammatory agents of the formulae



where Ar and Ar' are each furyl, thienyl, pyridyl, phenyl or substituted phenyl; R_1 is hydrogen, alkyl or alkenyl; R_2 is trifluoromethyl, alkyl, furyl, thienyl, pyridyl, phenyl or substituted phenyl and their pharmaceutically acceptable acid addition salts, as well as methods for their synthesis, are described.

3,707,476

3-ALKANOL DERIVATIVES OF 4H[1]BENZOPYRANO[3,4-d]ISOXAZOLES

Jules Freedman, Thiensville, Wis., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 670,775, Sept. 26, 1970. This application Oct. 30, 1970, Ser. No. 85,799

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H **5 Claims**

The compounds are derivatives of 3-alkanol-4H[1]benzopyrano[3,4-d]isoxazoles useful in the preparation of wood preservatives, mothproofing agents, pickling inhibitors and pharmaceutical agents. Representative of the compounds disclosed is 4H[1]benzopyrano[3,4 - d]isoxazole-3-methanol.

3,707,477

1,1,1-TRICHLORO-2-AMIDO-2-AMINO-ETHANES

Walter Ost, Klaus Thomas, and Dietrich Jerchel, Ingelheim am Rhein, Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhein, Germany

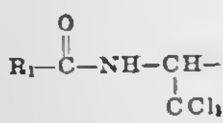
No Drawing. Filed Sept. 10, 1970, Ser. No. 71,262

Claims priority, application Germany, Sept. 11, 1969, P 19 46 112.2

Int. Cl. C07d *49/18, 49/36*

U.S. Cl. 260—309 **2 Claims**

Compounds of the formula



$$R_1-\overset{\overset{\large O}{\|}}{C}-NH-\underset{\underset{\large CCl_3}{|}}{CH}-R_2$$

wherein

- R_1 is hydrogen; alkyl of 1 to 17 carbon atoms; mono-, di- or tri-halo-substituted alkyl of 1 to 17 carbon atoms; alkenyl of 2 to 17 carbon atoms; alkoxy of 1 to 2 carbon atoms; phenyl; 2,4-dichlorophenoxymethyl; or α-(2,4-dichlorophenoxy)-ethyl; and
- R_2 is disubstituted acyclic amino or optionally substituted monocyclic or bicyclic heterocyclic amino;

the compounds are useful as contact or systemic biocidal or biostatic agents, especially against mildew and various other fungi.

3,707,478

5-AROYL-2-(β-R_3-ETHYL)-1-LOWERALKYL-PYRROLES

John Robert Carson, Norristown, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed June 15, 1970, Ser. No. 46,522

Int. Cl. C07d *27/26*

U.S. Cl. 260—326.3 **9 Claims**

Compounds of the class of 5-aroyl-2-(β-R_3-ethyl)-1-loweralkyl-pyrroles useful as anti-inflammatory agents, said R_3 being various amino and amido functions.

3,707,479

3-AMINO-TETRAHYDRO THIOPHENE-3-CARBOXYLIC ACIDS AND 4-AMINO-TETRAHYDRO THIOPYRAN-4-CARBOXYLIC ACIDS

Gerhard R. Wendt, Havertown, and Donald W. Oliver, Phoenixville, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed July 23, 1971, Ser. No. 165,711

Int. Cl. C07d *63/04, 65/02*

U.S. Cl. 260—327 TH **5 Claims**

S-oxides of 4-aminotetrahydro-2$\underline{H}$-thiopyran-4-carboxylic acid and 3-amino-tetrahydro-$\overline{3}$-thiophenecarboxylic acid are prepared. The compounds are intermediates for the synthesis of new penicillins.

3,707,480

NITROTHIOPHENE DICARBOXAMIDES

George L. Dunn, Wayne, and John R. E. Hoover, Glenside, P[illegible] assignors to Smith Kline & French Laboratories, [illegible]adelphia, Pa.

No Drawi[illegible] Original application Aug. 28, 1968, Ser. No. 755,781, [illegible]w Patent No. 3,639,613, dated Feb. 1, 1972. Divided [illegible] this application Mar. 4, 1971, Ser. No. 121,122

Int. Cl. A61k *27/00;* **C07d** *63/12, 63/16*

U.S. Cl. 260—332.2 C **1 Claim**

Anti-coccidio and growth promoting compositions comprising optionally substituted nitrothiophene sulfonamides, nitrothiophene carboxamides, and nitrothiophene dicarboxamides.

3,707,481

PROCESS FOR PREPARING CYCLIC COMPOUNDS

Joseph T. Arrigo, Mount Prospect, and Allen K. Sparks, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Nov. 4, 1969, Ser. No. 874,069

Int. Cl. C07d *7/24*

U.S. Cl. 260—343.2 R **5 Claims**

Cyclic compounds are prepared by treating an aryl-substituted unsaturated compound at reaction conditions

which include a temperature in the range of from about 50° to about 250° C. and a pressure in the range of from about atmospheric to about 500 atmospheres in the presence of a compound containing a metal selected from Group VIII of the Periodic Table.

3,707,482

CARBAMATE DERIVATIVES OF 2H-PYRAN-3(6H)-ONE

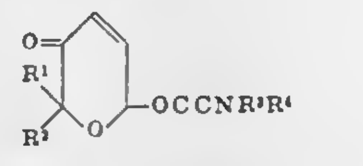
Real Laliberte, Laval, Quebec, Canada, assignor to Ayerst, McKenna and Harrison, Limited, St. Laurent, Quebec, Canada

No Drawing. Continuation-in-part of application Ser. No. 157,705, June 28, 1971, which is a division of application Ser. No. 28,540, Apr. 14, 1970. This application Nov. 2, 1971, Ser. No. 195,045

Int. Cl. C07d *7/20*

U.S Cl. 260—345.8 **24 Claims**

Carbamates of the formula



in which R^1 represents an aromatic group such as phenyl, benzyloxyphenyl, 3,4 - xylyl, α-hydroxybenzyl, diphenylmethyl, 4-biphenylyl and 4'-chloro-4-biphenylyl; R^2 represents hydrogen, lower alkyl, chloromethyl, phenyl, and benzyl; or R^1 and R^2 together represent the cyclohexane ring attached in spiral fashion to the pyranone ring in such a manner that carbon atom 2 of the pyranone ring is common to the cyclohexane ring; R^3 is lower alkyl, phenyl of p-chlorophenyl, and R^4 is hydrogen, lower alkyl, phenyl or p-chlorophenyl, with the proviso that when R^1 is α-hydroxybenzyl R^4 is hydrogen.

The compounds are useful as antibacterial, fungicidal and coccidiostatic agents, and methods for their use and processes for preparing them are also disclosed.

3,707,483

FLUORINATED MONOGLYCIDYL ETHERS

Scott A. Reines, Fort Lee, N.J., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Feb. 4, 1971, Ser. No. 112,826

Int. Cl. C07d *1/18*

U.S. Cl. 260—348 R **4 Claims**

Fluorine-substituted benzyl monoglycidyl ethers and their precursors have been prepared containing a hexafluoroisopropyl group. These compounds are useful as coupling agents for bonding fluorinated monomers to chemically active surfaces, as fluorinated surface active agents, or as viscosity reducers for fluorinated epoxy resins.

3,707,484

PROCESS FOR THE PREPARATION OF 6-AZIDO-11β-HYDROXY-4,6-PREGNADIENES AND NOVEL INTERMEDIATES PRODUCED THEREBY

Richard C. Rausser, Union, and Elliot L. Shapiro, Cedar Grove, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed June 15, 1971, Ser. No. 153,405

Int. Cl. C07c *173/10*

U.S. Cl. 260—349 **30 Claims**

An improved process for preparing pharmacologically active 6 - azido - 11β-hydroxy-4,6-pregnadiene-3,20-diones comprises preparing an 11β-acyloxy derivative of a 6α,7α-oxido-11β-hydroxy-4-pregnene-3,20-dione, said 11β-acyloxy being a member selected from the group consisting of 11β-formyloxy-, 11β-acetoxy- and 11β-halogenoacetoxy-; treating said 6α,7α-oxido-11β-acyloxy-4-pregnene-3,20-dione with an alkali metal azide in a non-reactive, organic solvent; treating the thereby formed 6β-azido-7α-hydroxy-11β-acyloxy-4-pregnene-3,20-dione or a 7α-ester thereof with concentrated hydrochloric acid in a lower alkanoic acid together with an inert solvent or, alternatively, treating a 7α-ester thereof with a tetraalkylammonium halide in an aprotic solvent, said 7α-ester being either a 7α-lower alkanoate or a 7α-hydrocarbonsulfonate; followed by hydrolysis of the 6-azido-11β-acyloxy-4,6-pregnadiene-3,20-dione thereby formed. If desired, hydrolysis of the 11-acyloxy may be carried out on the 6β-azido-7α-hydroxy-11β-acyloxy-4-pregnene-3,20-dione intermediate.

Intermediates described and claimed in this process are 6β - azido - 7α-hydroxy-11β-acyloxy-4-pregnene-3,20-diones, the 7α-esters thereof and 6-azido-11β-acyloxy-4,6-pregnadiene-3,20-diones.

3,707,485

2-(5-NITRO-FURYL-2)-5-AMINOETHOXY PYRIMIDINES

Klaus Gutsche, Rudolf Albrecht, Hans-Joachim Kebler, and Eberhard Schroder, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

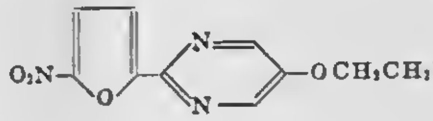
No Drawing. Filed July 16, 1970, Ser. No. 55,601

Claims priority, application Germany, July 19, 1969, P 19 37 629.5

Int. Cl. C07d *51/38*

U.S. Cl. 260—256.4 C **33 Claims**

Nitrofuryl-aminoalkoxy-pyrimidines of the formula



wherein R is a tertiary amino group and the corresponding quaternary ammonium salts have good activity against both *Trichomonas vaginalis* and *Candida albicans.*

3,707,486

TRIPHENYLMETHANE TETRAISOCYANATE DERIVATIVES

Gunter Oertel, Cologne-Flittard, Hans Holtschmidt, Leverkusen-Steinbuechel, Manfred Dollhausen, Hitdorf, and Eugen Bock, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 24, 1969, Ser. No. 879,524

Claims priority, application Germany, Dec. 4, 1968, P 18 12 565.0

Int. Cl. C09b *11/04*

U.S. Cl. 260—389 **2 Claims**

Compositions useful as adhesives having improved bonding characteristics are prepared from natural or synthetic rubber binders and a diphenylmethane tetraisocyanate derivative.

3,707,487

6-CYANO-4,6-PREGNADIENES, METHODS FOR THEIR MANUFACTURE, AND INTERMEDIATES THEREOF

Thomas L. Popper, Verona, Hershel L. Herzog, Glen Ridge, and Elliot L. Shapiro, Cedar Grove, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed Jan. 28, 1971, Ser. No. 110,742

Int. Cl. C07c *169/34*

U.S. Cl. 260—397.4 **8 Claims**

6-cyano-4,6-pregnadiene-3,20-diones having progestational activity are prepared from 6-oximinomethyl-4,6-pregnadiene-3,20-diones by treatment thereof with a dehydrating agent selected from the group consisting of phosphorus oxychloride, a lower alkanoic acid anhydride in pyridine, and a lower alkanoic acid anhydride in the presence of sodium acetate. Preferred compounds are 6-cyano-16-methylene-17α-lower alkanoyloxy-4,6 - pregnadiene-3,20-diones.

3,707,488

QUINONE-DIOL INTERMEDIATES FOR REDOX POLYMERS

Harold G. Cassidy, New Haven, Conn., Gerhard Wegner, Mainz, Germany, and Nobuo Nakabayashi, Tokyo, Japan, assignors to Research Corporation, New York, N.Y.

No Drawing. Original application Oct. 7, 1968, Ser. No. 765,612, now Patent No. 3,600,411. Divided and this application Mar. 4, 1971, Ser. No. 121,200

Int. Cl. C07c *49/64*

U.S. Cl. 260—396 R **3 Claims**

Novel redox polymers useful as antioxidants are prepared by the direct condensation of a quinone-diol with a diacyl chloride, phosgene or a diisocyanate.

3,707,489

PROCESS OF PREPARING ETHYLIDENE COMPOUNDS

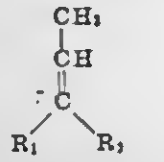
Gerhard Teichmuller, Kurt Barnikol-Oettler, and Werner Hartmann, Jena, Germany, assignors to VEB Jenapharm, Jena, Germany

No Drawing. Filed Jan. 19, 1971, Ser. No. 107,847

Int. Cl. C07c *167/20*

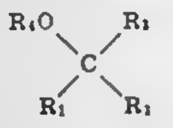
U.S. Cl. 260—397.5 **11 Claims**

Process of preparing ethylidene compounds with different fundamental or parent substances having the structural formula:



(II)

wherein R_1 and R_2 each represent a saturated or unsaturated aliphatic group which can be substituted by functional groups and wherein R_1 and R_2 taken together can form an alicyclic group such as cyclopentyl, cyclohexyl and the like, or R_1 and R_2 can be joined together to form a condensed hydroaromatic group such as a perhydroindane, cyclopentano-perhydronaphthaline or cyclopentano-perhydrophenanthrene group, whereby the C—C bounds of the parent substance are preferably unsaturated and in steroid compounds the ring of the basic structure can be joined in either the cis- or transform which comprises reacting an easily hydrolyzable derivative of vinyl and ethinyl carbinol, as for instance an ether, having the formula:



(I)

wherein R_1 and R_2 are as above defined and R_3 is vinyl or ethinyl and R_4 is a trialkylsilyl or tetrahydropyranyl group with an alkali metal in the presence of a proton donor and liquid ammonia.

These compounds are particularly adapted for use as intermediates for use in preparing highly active steroid compounds, as for example, 19-nor pregnane derivatives.

3,707,490

PROCESS FOR PREPARING 1,3,5(10),6,8-PENTAENE STEROIDS AND INTERMEDIATES

John A. Edwards, Los Altos, and Jack Ackrell, Mountain View, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Apr. 27, 1970, Ser. No. 32,367

Int. Cl. C07c *169/08*

U.S. Cl. 260—397.45 **24 Claims**

Process for preparing 1,3,5(10),8,11-pentaene and 1,3,5(10),6,8-pentaene steroids from 1,3,5(10),9(11)-tetraene steroids using a benzoquinone step followed by a dehydrogenation-hydrogenation sequence. The 1,3,5(10), 8,11-pentaenes are new and useful as estrogenic agents and intermediates. Other useful intermediates described are novel 12α-hydroxy(alkoxy)-1,3,5(10),9(11)-tetraene steroids. The overall conversion of $\Delta^{9(11)}$-estrone to equilenin is illustrated as representative of the invention.

3,707,491

INSECTICIDE WITH JUVENILE HORMONE ACTIVITY AND A PROCESS OF ITS PREPARATION

Miroslav Romanuk, Frantisek Sorm, and Karel Slama, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed Mar. 19, 1970, Ser. No. 21,219

Claims priority, application Czechoslovakia, Apr. 9, 1969, 2,503/69

Int. Cl. A01n *9/24;* **C07c** *57/02, 69/52*

U.S. Cl. 260—410.9 R **13 Claims**

Hydrocarbon carboxylic acids and esters thereof having a terminal tertiary butyl group useful for control of insects.

3,707,492

SILICONE SULFATES

Edward L. Morehouse, New City, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Application Aug. 24, 1966, Ser. No. 574,576, which is a continuation-in-part of application Ser. No. 304,988, Aug. 27, 1963. Divided and this application Apr. 6, 1970, Ser. No. 26,130

Int. Cl. C07f *7/08, 7/10*

U.S. Cl. 260—448.2 N **3 Claims**

Siloxanes containing at least 1 mole percent of a sulfatoorganoxyalkylsiloxy unit are disclosed. The siloxanes are useful as surfactants. A typical compound disclosed is

$$Me_3SiO[Me_2SiO]_9[(NH_4O_3SOCH_2)_2 \\ C(C_2H_5)CH_2{-}OC_3H_6SiMeO]_{3.6} \\ [CH_3(OC_2H_4)_7OC_3H_6SiMeO]_{3.6}SiMe_3$$

3,707,493

COMPOUND 3-(p-BROMOPHENYL)-1-METHYL-1-METHOXYUREA

Rayner S. Johnson, Carrcroft, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 301,981, Aug. 14, 1963, which is a continuation-in-part of abandoned application Ser. No. 64,254, Oct. 24, 1960, which in turn is a continuation-in-part of abandoned application Ser. No. 733,213, May 5, 1958. This application Apr. 10, 1964, Ser. No. 358,947

Int. Cl. C07c *127/18*

U.S. Cl. 260—453 R **1 Claim**

The compound 3-(p-bromophenyl) - 1 - methyl-1-methoxyurea, useful in weed control.

3,707,494

HERBICIDAL N-OCTAHYDRO-1,2,4-METHENO-PENTALENYL-(5)-UREAS

Claus Dieter Weis, Arlesheim, Basel-Land, and Jurg Rumpf, Binningen, Basel-Land, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

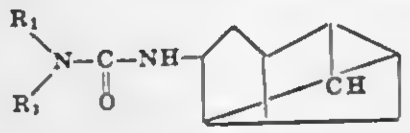
No Drawing. Original application Dec. 18, 1967, Ser. No. 691,200, now Patent No. 3,555,086, dated Jan. 12, 1971. Divided and this application Sept. 4, 1970, Ser. No. 69,890

Claims priority, application Switzerland, Dec. 22, 1966, 18,376/66

Int. Cl. C07c *119/00*

U.S. Cl. 260—453 R **2 Claims**

New herbicidal compounds of the formula



in which R_1 and R_2 represent hydrogen or certain substituents are described as particularly suitable for controlling weeds and undesirable grasses. Compositions containing these compounds as active ingredients in mixture with agriculturally acceptable carriers and a method of controlling weeds and undesirable grasses with the aid of such compounds or compositions containing them are also described, as well as novel intermediates which are methenopentalene derivatives from which the compounds of the above formula can be produced.

3,707,495

ISOCYANATE PREPARATION

Kenneth D. MacKay, Circle Pines, Edgar R. Rogier, Hopkins, and Maurice M. Kreevoy, Minneapolis, Minn., assignors to General Mills Chemicals, Inc.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,296

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 P **11 Claims**

Organic isocyanates are prepared by (1) treating an acyl halide with a metal azide in the presence of a quaternary ammonium salt to accelerate the reaction and (2) decomposing the resulting acyl azide to the organic isocyanate.

3,707,496

ORGANIC ISOCYANATE PREPARATION

Arthur J. Coury, Minneapolis, Minn., assignor to General Mills Chemicals, Inc.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,198

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 P **8 Claims**

Organic isocyanates are prepared in one step from acyl halides and metal azides using N-methyl-2-pyrrolidone as part of the reaction medium.

3,707,497

SULFONIC ACID CYANOVINYL ESTERS

Reimer Colin, Wuppertal-Elberfeld, and Paul-Ernst Frohberger, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 26, 1970, Ser. No. 50,332

Claims priority, application Germany, July 11, 1969, P 19 35 293.3

Int. Cl. C07c *143/68*

U.S. Cl. 260—456 R **6 Claims**

Alkyl, chloroalkyl or phenyl or benzyl (optionally substituted by 1 to 3 halo, lower alkyl and/or nitro substituents) sulfonic acid (optionally chloro) cyanovinyl esters, which possess fungicidal properties and which may be produced by conventional methods.

3,707,498

LUBRICATING OIL COMPOSITIONS

Daniel Milsom, Hightstown, N.J., assignor to Cities Service Oil Company

No Drawing. Filed Oct. 30, 1970, Ser. No. 85,745

Int. Cl. C10m *1/32, 1/38*

U.S. Cl. 252—33.6 **13 Claims**

Antioxidant additives for lubricating oils and lubricating oil compositions containing said antioxidant additives. The stability of lubricating oil compositions toward oxidizing conditions is markedly improved when an antioxidant additive comprising a mixture of a metal dialkyldithiocarbamate and a tertiaryalkyl primary amine is incorporated therein. The preferred additives comprise cadmium diamyldithiocarbamate or antimony dialkyldithiocarbamate plus a mixture of C_{18} to C_{22} tertiary-alkyl primary amines.

3,707,499

DIELECTRIC MATERIALS

Daniel W. Mason, West Peabody, Mass., and Henry H. Nester, deceased, late of Peabody, Mass., by Dianne L. Nester, special administratrix, Gloucester, Mass., assignors to Owens-Illinois, Inc.

No Drawing. Filed June 5, 1970, Ser. No. 43,941

Int. Cl. C04b *35/00;* **H01b** *1/06, 3/02*

U.S. Cl. 252—63.5 S **8 Claims**

A dielectric material is formulated by firing an admixture of from about 2–55% by weight zircon (zirconium silicate) and about 45–98% by weight of a lead barium borosilicate glass. In final form, the dielectric material exhibits a low K (approximately 6) and a high Q value. The paste composition is formulated by admixing the aforementioned ingredients in an organic vehicle, drying the paste and firing the paste at a temperature of from about 800–1,000° C. The paste is usually applied by a screen printing technique preferably using a mesh size in the range of about 165.

3,707,500

FUNCTIONAL FLUID COMPOSITION

Joseph J. Romano, New City, N.Y., and John J. Shatynski, Hillside, N.J., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 665,736, Sept. 6, 1967. This application Oct. 5, 1970, Ser. No. 77.675

Int. Cl. C09k *3/00*

U.S. Cl. 252—78 **6 Claims**

A functional fluid composition comprising a homogeneous mixture of materials consisting essentiallly of trialkyl phosphate, tricresyl phosphate, trixylenyl phosphate, a viscosity index improver, rust inhibitor, metal deactivator, a dye and an antifoam agent.

3,707,501

HYDRAULIC FLUIDS CONTAINING CERTAIN QUATERNARY PHOSPHONIUM SALTS OF PHOSPHORUS ACIDS

William F. Gentit, Mohegan Lake, and Fred Jaffe, Briarcliff Manor, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed June 29, 1970, Ser. No. 51,001

Int. Cl. C09k *3/00;* **C23f** *11/10*

U.S. Cl. 252—78 **17 Claims**

Data obtained in a modified Boeing wear apparatus revealed that aircraft hydraulic fluids containing a phosphate ester base stock and a small percentage of methyl trioctyl phosphonium dimethyl phosphate exhibit superior wear-erosion characteristics when compared with the same formulations containing either small percentages of water or no additive.

3,707,502

DETERGENT COMPOSITION

John Rawlinson, Lusaka, Zambia, assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Dec. 7, 1970, Ser. No. 95,942

Int. Cl. C11d *7/38*

U.S. Cl. 252—99 **6 Claims**

Detergent compositions containing sodium nitrilotriacetate, peroxy-compounds, and alkali-metal salts of mono- and dihydroxamic acids, are disclosed. The hydroxamic acid salts are effective inhibitors against the corrosion of copper and its alloys by aqueous solutions of such detergent compositions.

3,707,503

STABILIZED LIQUID DETERGENT COMPOSITION

Terrence G. Kenny, Park Ridge, N.J., assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Nov. 25, 1970, Ser. No. 92,855

Int. Cl. C11d *9/30*

U.S. Cl. 252—117 **4 Claims**

Stable controlled sudsing heavy-duty liquid detergent compositions containing anionic detergents such as biodegradable alkyl or alkaryl sulfonates and sulfates or alkylpolyethoxy sulfonates are provided by the inclusion of small amounts of an alkali metal salt of a fatty acid such as myristic or coco fatty acids or mixtures thereof, in combination with an alkanolamide such as lauric diethanolamide. The weight ratio of fatty acid to alkanolamide is about 1:2 or 1:11.

3,707,504

DETERGENT COMPOSITION CONTAINING PROTEOLYTIC ENZYME ELABORATED BY *THERMOACTINOMYCES VULGARIS* ATCC 15734

Charles E. Johnson, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 19, 1969, Ser. No. 886,793

Int. Cl. C11d *3/04, 3/06, 7/42*

U.S. Cl. 252—135 **4 Claims**

A detergent composition useful for ordinary household laundry and dishwashing applications composed of a synthetic detergent and an effective amount of a proteolytic enzyme elaborated by *Thermoactinomyces vulgaris* ATCC 15734.

3,707,505

ENZYME-CONTAINING DETERGENT COMPOSITION

Itsutoshi Maeda, Yasuichi Nomura, Kohei Hashimoto, Akira Shimizu, Koji Mitsugi, and Ryonosuke Yoshida, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Toyko, Japan

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,182

Claims priority, application Japan, Dec. 30, 1969, 45/1,752

Int. Cl. C11d *3/04*

U.S. Cl. 252—136 **7 Claims**

The enzymes present in an enzyme-bearing detergent composition are stabilized by small amounts of N-acyl amino acids whose acyl groups are derived from saturated or unsaturated fatty acids having 6 to 20 carbon atoms, and the enzymes are also stable in detergents in which the N-acyl amino acids are the primary surfactant ingredients.

3,707,506

NONIONIC DETERGENT COMPOSITIONS FOR CLEANING POLYESTER FABRICS

William Lozo, Trenton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,787

Int. Cl. C11d *1/68;* **D06l** *1/02, 1/12*

U.S. Cl. 252—139 **6 Claims**

An aqueous washing solution of water and about 0.01 to 5.0 percent by weight of a detergent composition of A about 20 to 80 percent by weight of a mixture of (1) nonionic surface active agent selected from the class consisting of primary oxyalkylated aliphatic alcohols having from about 8 to 22 carbon atoms in the aliphatic portion and about 3 to 50 oxyalkylene units in the oxyalkylene portion and (2) nonionic surface active agent selected from the class consisting of secondary oxyalkylated aliphatic alcohols having from about 8 to 22 carbon atoms in the aliphatic portion and about 3 to 50 oxyalkylene units in the oxyalkylene portion and B about 80 to 20 percent by weight kerosene.

3,707,507

MERCAPTONITRILES FOR THE REMOVAL OF TARNISH ON METALS

Ralph P. Williams, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Jan. 18, 1971, Ser. No. 107,580

Int. Cl. C11d *7/06*

U.S. Cl. 252—156 **10 Claims**

Mercaptonitriles are effective for the removal of corrosion products such as tarnish from metals other than ferro and alumino metals, such as copper, silver, tin, lead, zinc, cadmium, and alloys thereof.

3,707,508

ANTI-SOIL REDEPOSITION COMPOSITION FOR DRYCLEANING

Rodney A. Blomfield, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 4,751, Jan. 21, 1970. This application July 12, 1971, Ser. No. 161,977

Int. Cl. C09d *9/00;* **C11d** *7/22, 7/50*

U.S. Cl. 252—162 **5 Claims**

The presence of a small amount of calcium chloride in a detergent-containing drycleaning solvent will reduce the redeposition of soils onto textile fabric.

3,707,509

PROCESS FOR THE PREPARATION OF A CATALYST OF THE PLATINUM/ALUMINA TYPE FOR REFORMING AROMATIZATION AND ISOMERIZATION

Eugenia Georgescu, Ion Ghejan, Victor Bucur, Teodora Mazare, Ion Zirna, and Elena Lygia Popescu, Ploesti, Andrian Budu, Bucharest, and Bujor Olteanu, Traian Mircea Filotti, and Marius Aurel Barbul, Ploesti, Rumania, assignors to Institutul de Cercetari Pentru Prelucrarea Titeiului, Ploiesti, Rumania

No Drawing. Filed Apr. 1, 1970, Ser. No. 24,846

Claims priority, application Rumania, Apr. 8, 1969, 59,668

Int. Cl. B01j *11/78*

U.S. Cl. 252—441 **3 Claims**

A process for producing platinum-on-alumina catalyst for the reforming, aromatization and isomerization of paraffinic hydrocarbons, comprising:

(a) Treating an alumina support with chloroplatinic acid or other soluble platinum-group compound in the presence of carbonic acid;

(b) Maintaining the platinum-containing support in a reducing or inert medium at a temperature of 300 to 500° C. for 8 to 15 hours;

(c) Halogenating the catalyst in a reducing or inert medium; and

(d) Effecting an oxidizing treatment upon the catalyst.

3,707,510

CATALYST STRUCTURE FOR THE DECOMPOSITION OF HYDRAZINE AND HYDRAZINE DERIVATIVES AND METHOD FOR ITS PREPARATION

Reinhard Sasse, Neuenstadt, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Munich, Germany

No Drawing. Filed Mar. 25, 1970, Ser. No. 22,709

Claims priority, application Germany, Mar. 29, 1969, P 19 16 247.1

Int. Cl. B01j *11/06*

U.S. Cl. 252—462 **7 Claims**

A catalyst structure suitable for catalyzing the decomposition of hydrazine and hydrazine derivatives comprises a customary catalyst body which is imparted with an activating coating for increasing and inducing the catalyst activity. The activating coating comprises oxides of copper and cobalt and at least one of the oxides of thorium, cerium, or cerium-rare earth metals. The catalyst body proper may be made from cobalt-aluminum or nickel-aluminum alloy from which the aluminum has been dissolved by alkaline dissolution. Chromium-nickel steel may also be used as the catalyst body.

3,707,511

ANIONIC DETERGENT COMPOSITIONS CONTAINING FOAM BOOSTING SUCCINIC ACID DERIVATIVES

Vincent Lamberti, Upper Saddle River, N.J., Henry Lemaire, Westport, Conn., and Arno Cahn, Pearl River, N.Y., assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Original application June 13, 1967 Ser. No. 645,636. Divided and this application Sept. 3, 1970, Ser. No. 69,482

Int. Cl. C11d *1/10, 1/37, 1/83*

U.S. Cl. 252—546 **6 Claims**

This disclosure relates to water-soluble nitrogen-containing derivatives of succinic acid characterized by an alkyl or 2-alkenyl substituent containing from 10 to 16 carbon atoms therein. These compounds are useful as suds-boosters, suds-stabilizers, and as active detergents. The specification discloses the preparation of these compounds and their use in conjunction with various detergents.

3,707,512

GLYCOSE HYDROCARBON SULFONATE SURFACTANTS

Roy A. Gray, Edmund T. Kittleman, and Gardner C. Ray, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Original application Jan. 3, 1969, Ser. No. 788,958, now Patent No. 3,632,804. Divided and this application Dec. 30, 1970, Ser. No. 102,933

Int. Cl. C11d *1/12*

U.S. Cl. 252—554 **1 Claim**

The use in a synthetic detergent composition of a surface active detergent ingredient which is a glycose hydrocarbonsulfonate wherein the hydrocarbon moiety is an alkyl or cycloalkyl radical containing from 6 to 25 carbon atoms.

3,707,513

METHOD FOR PREPARING ALKYLENE OXIDE POLYMERS

Katsuji Ueno and Takao Oshima, Osaka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

No Drawing. Filed Aug. 5, 1970, Ser. No. 61,507

Claims priority, application Japan, Aug. 5, 1969, 44/62,148

Int. Cl. C08g *23/14*

U.S. Cl. 260—2 A **9 Claims**

A mono-oxirame compound polymer or copolymer is prepared by polymerizing at least one mono-oxirane compound in the presence of a ternary catalyst system comprising an organo-aluminum compound, orthophosphoric acid, and a compound represented by the general formula $M(NR_2')_3$ wherein M is phosphorus, arsenic or antimony, and R′ is a hydrocarbon radical.

3,707,514

SYNTHETIC ORGANIC PIGMENTS AND METHOD FOR THEIR PRODUCTION

Anthony E. Vassiliades, Deerfield, Shrenik Shroff, Lake Forest, and Edward F. Nauman, Chicago, Ill., assignors to Champion International Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 786,337, Dec. 23, 1968. This application Nov. 6, 1970, Ser. No. 87,654

Int. Cl. B01j *13/02;* **C08j** *1/14*

U.S. Cl. 260—2.5 F **20 Claims**

Synthetic organic pigments are provided by the activation of precursor microcapsules formed by the addition of a partially condensed formaldehyde resin to an admixture of an aqueous solution of a hydrophobic starch and an oily material and coated onto a substrate.

3,707,515

PROCESS FOR 11-CYANO-9,10-ETHENOANTHRACENES

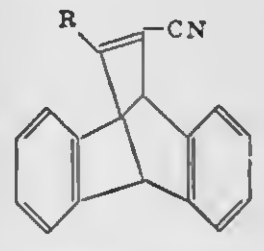
Charles Ferdinand Huebner, Chatham, N.J., assignor to Ciba-Geigy Corporation

No Drawing. Filed July 2, 1970, Ser. No. 52,109

Int. Cl. C07c *12/64*

U.S. Cl. 260—465 K **7 Claims**

Process for the preparation of 11-cyano-9,10-ethenoanthracenes, e.g. those of the formula



R=H, etherified or esterified OH, aliphatic, araliphatic or aromatic radical,

by dehydrohalogenation of the corresponding 11-halo-11-cyano-9,10-ethanoanthracenes, intermediates in the synthesis of valuable antidepressants.

3,707,516

COATING COMPOSITION OF AN ACRYLIC-EPOXY GRAFT COPOLYMER

Aloysius N. Walus, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 28, 1971, Ser. No. 138,363

Int. Cl. C08g *45/08;* **C09d** *3/52, 3/58*

U.S. Cl. 260—21 **12 Claims**

The novel coating composition consists essentially of a graft copolymer dissolved in an organic solvent wherein the backbone of the graft copolymer is of polymerized constituents of methyl methacrylate, acrylonitrile, styrene or mixtures thereof, and also can contain polymerized α,β-unsaturated acid constituents; the copolymer has grafted into the backbone through polymerized units of α,β-unsaturated carboxylic acids side chains of an epoxy ester of an epoxy resin and a drying oil and an epoxy ester of an epoxy resin, a dicarboxylic acid and an epoxy resin. The composition forms a high quality coating and is useful as a sealerless primer, as a sealer or a primer surfacer composition in the manufacture of automobiles and trucks.

3,707,517
ELIMINATION OF BROWN SCUM IN TETRAFLUOROETHYLENE POLYMER AQUEOUS DISPERSIONS

David Alan Holmes, Vienna, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Sept. 15, 1970, Ser. No. 72,500
Int. Cl. C08f *45/24*
U.S. Cl. 260—29.6 F 5 Claims

The brown scum which forms on the surface of basic aqueous dispersions of tetrafluoroethylene polymer which contain nonionic surfactant for stabilizing the dispersion can be eliminated by adding an iron-solubilizing agent such as citric acid to the dispersion.

3,707,518
ACRYLATE ADHESIVE TAPE AND COMPOSITION

Cyrus W. Bemmels, North Brunswick, and Donald F. Doehnert, Millington, N.J., assignors to Johnson & Johnson
Original application July 11, 1968, Ser. No. 744,123, now Patent No. 3,617,362, dated Nov. 2, 1971. Divided and this application Sept. 25, 1970, Ser. No. 75,659
Int. Cl. C08f *45/24, 45/34*
U.S. Cl. 260—29.6 NR 2 Claims

A self cross-linking pressure-sensitive acrylate adhesive and tape based on an adhesive copolymer of monomers comprising a major amount of a medium chain length alkyl acrylate monomer and preferably a minor amount of a cohesion inducing short chain monomer, plus a very small amount of an alkoxy silyl polymerizable cross-linking monomer and a relatively small amount, i.e., about 2-6 parts by weight of the total monomer solids, of a catalytic acid monomer selected from the group consisting of acrylic acid, methacrylic acid, and itaconic acid. The catalytic acid monomer acts as a built-in or internal catalyst which causes the adhesive copolymer to be self cross-linking. A stabilization system for this self cross-linking system also is disclosed.

3,707,519
PROCESS FOR THE MANUFACTURE OF STABILIZED POLYTETRAFLUOROETHYLENE DISPERSIONS

Helmut Hahn, Burghausen, Salzach, Germany (% Farbwerke Hoechst AG., Frankfurt am Main, Germany)
No Drawing. Continuation of abandoned application Ser. No. 767,814, Oct. 15, 1968. This application Feb. 8, 1971, Ser. No. 113,650
Claims priority, application Germany, Oct. 21, 1967, F 53,863
Int. Cl. C08f *3/24, 45/28*
U.S. Cl. 260—29.6 F 3 Claims

The present invention relates to aqueous dispersions of polytetrafluoroethylene which are stabilized by means of terpene hydrocarbons. The stabilized dispersions are obtained by polymerizing tetrafluoroethylene in the presence of 2 to 25 p.p.m., calculated on the total reaction mixture, of terpene hydrocarbons. The dispersions may contain up to 25% by weight of colloidal polytetrafluoroethylene.

3,707,520
POLYMERS OF CYCLOPENTENE OBTAINED BY POLYMERIZING TO A PREDETERMINED CONVERSION AND ADDING MONO OR DIOLEFIN THERETO

Gottfried Pampus, Leverkusen, Josef Witte, Cologne, and Günter Marwede, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 9, 1970, Ser. No. 17,926
Claims priority, application Germany, Mar. 27, 1969, P 19 15 684.4
Int. Cl. C08f *1/28, 7/02, 45/28*
U.S. Cl. 260—33.6 AQ 4 Claims

Two-stage process for producing cyclopentene polymers, wherein cyclopentene is polymerised in a solvent in the presence of a metal-organic mixed catalyst to a conversion of 40 to 90% by weight, an olefin or diolefin is added and polymerisation is completed.

3,707,521
POLYURETHANE SEALANT-PRIMER SYSTEM ISOCYANATE-REACTIVE SURFACE PRIMER COMPOSITION FOR POLYURETHANE SEALANTS

G. William De Santis, East Brunswick, N.J., assignor to Essex Chemical Corporation, Clifton, N.J.
No Drawing. Filed Mar. 5, 1970, Ser. No. 16,924
Int. Cl. C08g *51/08*
U.S. Cl. 260—37 N 4 Claims

Polyurethane sealant-primer system comprising an isocyanate-reactive surface primer composition and a moisture-curable polyurethane sealant composition; method of making cured polyurethane seals with said system; cured polyurethane seals produced thereby.

3,707,522
POLYAMIDE COMPOSITION AND PROCESS

Frank Holmes Simons, Charlotte, N.C., assignor to Fiber Industries, Inc.
Original application June 27, 1968, Ser. No. 740,762, now Patent No. 3,583,949, which is a continuation-in-part of application Ser. No. 621,867, Mar. 9, 1967, now Patent No. 3,557,544. Divided and this application Apr. 8, 1971, Ser. No. 132,304
Int. Cl. C08g *20/20, 51/04*
U.S. Cl. 260—37 N 2 Claims

Shaped articles of a poly(hexamethylene adipamide) (nylon 6,6) fiber-forming composition is described, which articles have improved physical and chemical properties. The nylon 6,6 composition is a copolymer of primarily hexamethylene adipamide and a small but effective amount of ϵ-caprolactam. The amount copolymerized with the hexamethylene diammonium adipate is less than that which substantially affects normal nylon 6,6 characteristics yet is sufficient to improve processibility through spinning, drawing and beaming, dye uniformity, and mechanical quality. The continuous polymerization of the present composition is also described as well as the method of spinning said compositions.

3,707,523
POLLUTION CONTROL IN PHOSPHATE SLIME DISPOSAL

Howard Patrick Ledden, Rowayton, Conn., and Klaus Muller, Cranbury, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Aug. 19, 1970, Ser. No. 65,284
Int. Cl. E02d *3/12*
U.S. Cl. 260—41 R 1 Claim

Presorption of small amounts of anionic polyelectrolyte flocculants such as a 35% hydrolyzed-COONa-polyacrylamide of about 15 million weight average molecular weight onto sand tailings from the processing of phosphate ore improves the subsequent settling and solidification on mixing with phosphate slimes. The rate of settling, homogeneity and filterability of the settled slime-sand layer are

improved under many conditions of slime concentration, sand to slime ratio and flocculant to slime ratio. Anionic flocculants are better than nonionics or cationics. Fly ash can be used as a siliceous substrate to replace sand, and although there are similarities to sand, the response to the cationic-anionic character of the polyelectrolyte is different.

3,707,524
SINGLE-PHASE COMPOSITES OF CHLORAL POLYMERS AND COPOLYMERS WITH ADDITION POLYMERS

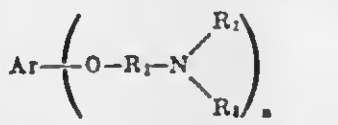
Otto F. Vogl, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of applications Ser. No. 558,631, June 20, 1966, Ser. No. 580,217, Sept. 19, 1966, Ser. No. 731,622, May 23, 1968, and Ser. No. 886,739, Dec. 19, 1969. This application June 2, 1970, Ser. No. 42,877
Int. Cl. C08f *15/12, 29/26, 45/02*
U.S. Cl. 260—41 B 20 Claims

Described are fire resistant single-phase composites of chloral homopolymers, chloral/isocyanate copolymers, and chloral/ketene copolymers with addition polymers. The products are useful as architectural panels.

3,707,525
FLAME RETARDANT EPOXY RESINS

Lucien Sobel, Paris, Ludovic Parvi, Pont-de-Claix, and Arsene Isard, Grenoble, France, assignors to Ugine Kuhlmann, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 820,310, Apr. 29, 1969. This application July 14, 1970, Ser. No. 54,869
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 EA 9 Claims

Flame retardant epoxy resins comprising a polyhalogenated aromatic amine having the general formula:



$$Ar\left(O-R_1-N\begin{matrix}R_2\\R_3\end{matrix}\right)_n$$

in which $n=1$ to 4, Ar is a polyhalogenated aromatic radical, R_1 is an aliphatic or cycloaliphatic radical and R_2 and R_3 are hydrogen or an aliphatic, or a glycidyl radical or cycloaliphatic or heterocyclic alkyl radical. The amines are prepared by reacting a polyhalogenated aromatic compound with either an alcoholate of an amino alcohol or with the amino alcohol in the presence of an alkaline agent. Glycidyl radicals are attached by reaction with epichlorohydrin or the like.

3,707,526
RESINS PRODUCED FROM THE REACTION OF EPOXIDES AND DIMETHYLOL-PROPIONIC ACID

John Allister Gannon and Arthur Allen Tracton, Toms River, N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.J.
No Drawing. Continuation-in-part of application Ser. No. 789,948, Jan. 8, 1969. This application Nov. 16, 1970, Ser. No. 90,014
Int. Cl. C08g *30/12*
U.S. Cl. 260—47 EA 16 Claims

Coating systems applicable by conventional coating techniques as well as by electrophoretic coating are provided by reacting a hydroxycarboxylic acid such as dimethylolpropionic acid with an epoxy resin and optionally any of a dibasic acid and a diol in the absence of an externally added esterification catalyst and curing the thus obtained product. A variety of coating systems is obtained including water-soluble resins obtained by neutralizing with an amine the reaction product prior to curing.

3,707,527
TRIFUNCTIONAL ISOCYANATES PREPARED FROM TRIGLYCIDYL ISOCYANURATE AND DIISOCYANATES

Manfred Budnowski, Dusseldorf-Holthausen, and Edgar Lieske, Dusseldorf, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany
No Drawing. Filed Dec. 16, 1970, Ser. No. 98,866
Claims priority, application Germany, Dec. 20, 1969, P 19 63 899.4
Int. Cl. C08g *22/22, 22/34, 45/00*
U.S. Cl. 260—77.5 NC 10 Claims

Trifunctional isocyanates prepared by the reaction of crystalline triglycidyl isocyanurate having an epoxide oxygen content in excess of 14% with 1 mol for each epoxide oxygen in said crystalline triglycidyl isocyanurate, of an organic diisocyanate free of other substituents capable of reacting with epoxide oxygen under anhydrous conditions at a temperature above 100° C. and below the decomposition temperature of the reactants. The invention also relates to the method of preparing the trifunctional isocyanates and the use of the same as hardenable compounds.

3,707,528
RECOVERY OF POLY(ARYLENE SULFIDE) REACTION SLURRY CONSTITUENTS

John M. Miles, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Jan. 12, 1971, Ser. No. 105,902
Int. Cl. C08g *23/00*
U.S. Cl. 260—79 6 Claims

An economically improved method for recovery of poly(arylene sulfide) substantially free of impurities and organic polar diluent from a reaction slurry of poly(arylene sulfide) solid polymer particles, organic polar diluent, by-product alkali metal halide, and other impurities is provided by the atmospheric adiabatic evaporation of organic polar diluent from a reaction slurry of high sensible heat content prior to processing poly(arylene sulfide) solid polymer particles to remove other impurities.

3,707,529
ELASTOMERIC VINYLIDENE FLUORIDE POLYMERS WITH 55–95 PERCENT NON-IONIC END GROUPS

Edward K. Gladding, Wilmington, and Jack L. Nyce, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Sept. 4, 1970, Ser. No. 69,900
Int. Cl. C08f *15/06, 15/40*
U.S. Cl. 260—80.77 4 Claims

An elastomeric vinylidene fluoride polymer consisting essentially of 30–70% by weight vinylidene fluoride units and 70–30% units of at least one other fluorinated ethylenically unsaturated monomer, the polymer having a 55–95 molar percent non-ionic end-group concentration and an inherent viscosity of 0.4 to 1.1 at 30° C. at a concentration of 0.1% by weight in a mixed solvent of 86.1% by weight tetrahydrofuran and 13.9% by weight dimethylformamide.

3,707,530
METHOD FOR PRODUCING POLYMERS OF ETHYLENE

Benedetto Calcagno, Milan, Paolo Colombo, Saronno, and Giovanni Livraghi, Milan, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy
No Drawing. Filed Nov. 19, 1969, Ser. No. 878,201
Claims priority, application Italy, Nov. 23, 1968, 24,086A/68
Int. Cl. C08f *1/42, 3/06*
U.S. Cl. 260—94.9 E 1 Claim

A process for the preparation of ethylene polymers which comprises contacting at temperatures between 50°

and 80° C. and a pressure ranging from below atmospheric pressure up to five atmospheres, gaseous ethylene with a catalytic solution of a member selected from the group consisting of a saturated aliphatic hydrocarbon solvent, a cyclo-aliphatic hydrocarbon solvent, and an aromatic hydrocarbon solvent, and a three-component system selected from the group consisting of:

(a) a member selected from the group consisting of vanadium oxychloride and vanadium oxyacetyl acetonate;
(b) titanium tetrachloride; and
(c) a member selected from the group consisting of an aluminum dialkylchloride of the formula AlR_2Cl, an aluminum alkyl dichloride of the formula $AlRCl_2$, and an alkyl aluminum sesquichloride of the formula $Al_2R_3Cl_3$;

wherein R represents an alkyl radical having from 1 to 10 carbon atoms, said atomic ratio between said vanadium and said titanium ranging between 0.075 and 0.3, said atomic ratio between said aluminum and said vanadium ranging between 4 and 15, and said catalytic solutions being prepared by:

(1) contacting in said hydrocarbon solvent, catalysts (a) and (b) with 20–80% by weight of the overall three-component catalytic system of catalyst (c), at a temperature of from −20° to +20° C.,
(2) ripening said solution during a period of from 1–25 hours and at a temperature of from −20° to +20° C., and
(3) adding, after the ripening period, the remaining quantity of catalyst (c) at a temperature of from 50–120° C.

3,707,531

METHOD OF COLLECTING PROTEIN SUBSTANCES HAVING BIOLOGICAL ACTIVITY WITH RESPECT TO THE NERVOUS SYSTEM COMPRISING EXTRACTION OF PROTEIN FROM SUBMAXILLARY GLANDS

Masaaki Yamamoto, Kawasaki, and Tsuneyuki Nakazawa, Omiya, Japan, assignors to Teikoku Hormone Mfg. Co., Ltd., Tokyo, Japan

Division of application Ser. No. 838,025, June 19, 1969, now Patent No. 3,549,610, which is a continuation of application Ser. No. 531,001, Mar. 1, 1966, now abandoned. This application Aug. 4, 1970, Ser. No. 60,931

Claims priority, application Japan, Mar. 3, 1965, 40/12,278

Int. Cl. C07g *7/00*

U.S. Cl. 260—112 R **3 Claims**

A process for the recovery of protein substances having a biological activity to promote the growth and development of the nervous system which comprises (a) extracting the submaxillary glands of large animals, i.e. bovine, equine and swine, with an aqueous extracting agent selected from water and saline solution; (b) adding to the extracted solution sulfosalicylic acid or sodium salt to form a solution having a concentration of 1–2% and adjusting the pH of the solution to 3.0–4.0 and collecting the resulting precipitates; (c) dissolving such collected precipitates in an aqueous solution; and (d) subjecting the aqueous solution formed in (c) to fractional precipitation with acetone or alcohol in a concentration of 40–50% and collecting the fractional precipitates containing the protein substance. A protein substance (S) and a protein substance (F) can be further produced by acrinol precipitation of the redissolved protein substance.

3,707,532

AZO DYESTUFFS CONTAINING A BENZTHIAZOLYL GROUP

Klaus Artz, Muttenz, and Visvanathan Ramanathan and Peter Moser, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

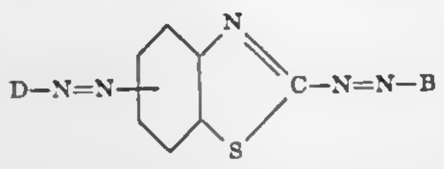
No Drawing. Filed Dec. 23, 1969, Ser. No. 887,727

Claims priority, application Switzerland, Jan. 3, 1969, 11/69; June 11, 1969, 8,897/69

Int. Cl. C09b *31/04*

U.S. Cl. 260—158 **3 Claims**

Azo dyestuffs that are free from acidic groups imparting solubility in water and that correspond to the formula



in which D represents a benzene residue that may be substituted or the residue of a coupling component, and B represents the residue of a coupling component free from acidic groups imparting solubility in water.

3,707,533

PHENYL-AZO-PHENYL DISPERSE DYES

Raymond Joseph Pohl, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 31, 1967, Ser. No. 612,791

Int. Cl. C07c *107/06;* **C09b** *29/08*

U.S. Cl. 260—207 **10 Claims**

This invention is directed to monoazo disperse dyes, process and polyester fibers dyed therewith, as hereinafter described, which dyes exhibit significantly desirable light fastness, bloom, temperature sensitivity, scourability, crock-, wash-, ozone-, and gas-fume fastness. Further, the dyes of this invention achieve superior sublimation and superior perspiration fastness when applied to polyester-cellulosic blend fabrics which fabrics are subjected to durable press treatment.

3,707,534

METHOD FOR PRODUCTION OF LACTULOSE CONCENTRATE

Ernst Nitsch and Siegfried Muhlbock, Linz, Austria, assignors to Laevosan-Gesellschaft Chem. Pharm. Industrie Franck & Dr. Freudl, Linz (Danube), Austria

No Drawing. Filed Feb. 9, 1970, Ser. No. 9,978

Claims priority, application Austria, Feb. 7, 1969, A 1,256/69

Int. Cl. C07c *47/18*

U.S. Cl. 260—209 R **7 Claims**

A method of preparing a lactulose concentrate by epimerization of a hot aqueous lactose solution which comprises admixing a hot aqueous concentrated solution of lactose with between about 0.05 and 0.5 mol of at least one sulfite selected from the group consisting of alkali sulfites and alkaline earth sulfites per kg. of lactose monohydrate content of said lactose solution, and maintaining the admixture of said sulfite and said lactose solution at a temperature between about 80° C. and 110° C. to convert lactose in said lactose solution into lactulose.

3,707,535

PROCESS FOR PREPARING MONO- AND POLYGLYCOSIDES

Baak W. Lew, Ardentown, Del., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.

No Drawing. Filed July 24, 1969, Ser. No. 844,651

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R **11 Claims**

Disclosed is an improved process for the preparation of glycosides which comprises reacting a compound selected from a group consisting of monosaccharides and compounds hydrolyzable to monosaccharides with a monohydric alcohol having from 8 to 25 carbon atoms, in the presence of an acid catalyst and in the presence of a solvent which is an aliphatic ether alcohol having a boiling point at atmospheric pressure of no more than about 200° C. The glycosides produced by the improved process of the present invention may be employed for a variety of purposes such as detergents, gelling agents, lubricants, wetting agents, dyeing assistants, textile softeners, and food emulsifiers.

3,707,536

PROCESS FOR THE ISOLATION AND PURIFICATION OF S-ADENOSYL METHIONINE AND ETHIONINE AND NOVEL SULFATES THEREOF

Erich Hald and Michael Nelboeck-Hochstetter, Tutzing, Upper Bavaria, Germany, assignors to Boehringer Mannheim G.m.b.H., Mannheim-Waldhof, Germany

No Drawing. Filed Apr. 13, 1970, Ser. No. 27,994

Int. Cl. C07d *51/54*

U.S. Cl. 260—211.5 R **12 Claims**

S-adenosyl - 1 - methionine and S-adenosyl-1-ethionine are obtained from yeast in substantially pure form and in high yield by subjecting the yeast to acid digestion and cation exchange chromatography and to either one or both of the process steps of (1) picric acid precipitation and (2) boric acid addition to give a borate complex which is then chromatographed through an anion exchanger at a weakly alkaline pH, which process steps (1) and (2), if both are utilized, can be carried out in either sequence. New S-adenosyl - 1 - methionine bisulfate and S-adenosyl - 1 - ethionine of exceptional stability are also provided.

3,707,537

4-CHLORO-4,6-DIENE-6-HALO OR LOWER ALKYL STEROIDS

Richard Wrightman Kierstead, North Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 658,602, Aug. 7, 1967, which is a continuation-in-part of application Ser. No. 604,143, Dec. 23, 1966, which in turn is a continuation-in-part of application Ser. No. 529,200, Feb. 23, 1966, all now abandoned. This application Jan. 8, 1969, Ser. No. 789,929

Int. Cl. C07c *169/20, 160/34, 173/00*

U.S. Cl. 260—239.55 C **50 Claims**

4-chloro-4,6-diene-6-halo- or lower alkyl-steroids are prepared via chlorination of corresponding compounds unsubstituted in the 4-position. After the chlorination compounds saturated at the 1- and 2-position can be unsaturated thereat and compounds containing a 3-oxo group can be converted to corresponding 3-hydroxy, 3-lower alkanoyloxy or 3-(1,2-alkylenedioxy) compounds. End-products of the invention are useful as either progestational agents, corticoid agents or androgenic/anabolic agents depending upon the particular derivative employed.

3,707,538

1,5,7-TRISUBSTITUTED-3-HYDROXY-1H-1,5-BENZODIAZEPINE-2,4-[3H,5H]-DIONES

Karl-Heinz Weber, Gau-Algesheim, Adolf Bauer, Ingelheim am Rhein, Peter Danneberg, Ockenheim, Klaus Minck, Gau-Algesheim, and Karl-Heinz Pook, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

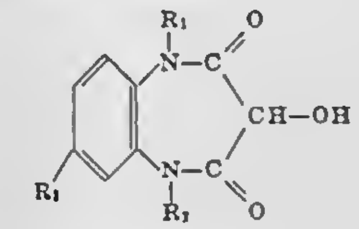
No Drawing. Continuation-in-part of application Ser. No. 193,181, Oct. 27, 1971. This application Jan. 26, 1972, Ser. No. 221,046

Claims priority, application Germany, Nov. 2, 1970, P 20 53 681.6; Jan. 27, 1971, P 21 03 745.6

Int. Cl. C07d *53/04*

U.S. Cl. 260—239.3 B **8 Claims**

Compounds of the formula



wherein

- R_1 is hydrogen, straight or branched alkyl of 1 to 4 carbon atoms, ω-hydroxy-(alkyl of 1 to 4 carbon atoms) or allyl,
- R_2 is phenyl, halo-phenyl, trifluoromethyl-phenyl, nitrophenyl or pyridyl, and
- R_3 is chlorine, bromine, fluorine, trifluoromethyl or nitro;

the compounds are useful as tranquilizers and anticonvulsives.

3,707,539

5-PHENYL-7-TRIFLUOROMETHYL-1H-1,5-BENZODIAZEPINE-2,4-DIONES

Karl-Heinz Weber, Gau-Algesheim, Karl Zeile, Peter Danneberg, and Rolf Giesemann, Ingelheim, and Karl Heinz Hauptmann, deceased, late of Ingelheim am Rhein, Germany, by Maria Hauptmann, heir, Bonn (Rhine), Germany; said Weber, Zeile, Danneberg, and said Giesemann assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

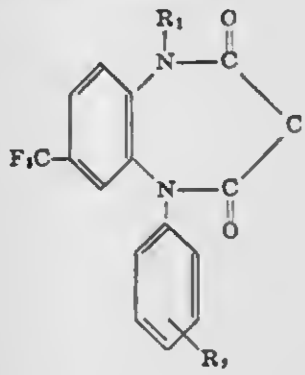
No Drawing. Continuation-in-part of application Ser. No. 89,482, Nov. 13, 1970, which is a continuation of abandoned application Ser. No. 703,188, Feb. 5, 1968. This application Feb. 1, 1971, Ser. No. 111,713

Claims priority, application Germany, Feb. 7, 1967, B 91,071; Jan. 18, 1968, B 96,281, B 96,282

Int. Cl. C07d *53/04*

U.S. Cl. 260—239.3 B **10 Claims**

Compounds of the formula



wherein

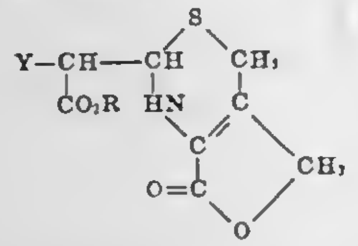
- R_1 is hydrogen, alkyl of 1 to 3 carbon atoms, hydroxy-alkyl of 2 to 3 carbon atoms, allyl or (cycloalkyl of 3 to 6 carbon atoms)-methyl, and
- R_2 is hydrogen, halogen, trifluoromethyl or methoxy;

the compounds are useful as psychosedatives and anticonvulsives.

3,707,540
1,3-THIAZINES AND THEIR PREPARATION
Gaston Amiard, Thorigny, and Rene Heymes, Romainville, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Dec. 7, 1966, Ser. No. 599,738
Claims priority, application France, Dec. 9, 1965, 41,613
Int. Cl. C07d *93/08, 99/24*
U.S. Cl. 260—243 R **7 Claims**

Lactones of 2 - (carbonyl-amino-methyl)-5-hydroxymethyl-3,6-dihydro-2H-1,3-thiazine-4-carboxylic acids useful as intermediates for antibiotics of the C-cephalosporine family and their preparation.

The invention relates to novel dihydro-1,3-thiazine compounds of the formula



(I)

wherein R is selected from the group consisting of alkyl and aralkyl, Y is selected from the group consisting of —HN—Ac, phthalimido and —NH—R′, R′ is selected from the group consisting of hydrogen, alkyl and aralkyl and Ac is the acyl radical of an organic carboxylic acid of 1 to 18 carbon atoms and to a novel process for the preparation of the said compounds.

3,707,541
OXAZOLIDINE AND TETRAHYDROOXAZINE COMPOUNDS HAVING INSECT REPELLENT ACTIVITY
Thomas A. Lajiness, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.
No Drawing. Filed Mar. 16, 1970, Ser. No. 20,097
Int. Cl. C07d *87/06, 85/26*
U.S. Cl. 260—244 R **5 Claims**

Oxazolidine and tetrahydrooxazine compounds bearing 3-alkanoyl substituents and alkyl, aryl and alkenyl substituents at the 2-position, are described. The compounds, as a class, have insect repellent activity.

3,707,542
DIALKYL-4-HYDROXYPHENYLCARBOXYLATES OF TRIS(HYDROXY-ALKYL) ISOCYANURATE
David H. Steinberg, Bronx, and Martin Dexter, Briarcliff Manor, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.
No Drawing. Filed Feb. 25, 1971, Ser. No. 118,967
Int. Cl. C07d *55/38*
U.S. Cl. 260—248 NS **8 Claims**

Esters of tris(hydroxyalkyl)isocyanurates with dialkyl-4-hydroxyphenyl carboxylic acids are stabilizers of organic material. The compounds, of which tris{2-[3-(3,5-di-tert.butyl - 4 - hydroxyphenyl)propionyloxy]-ethyl}isocyanurate is a typical embodiment, are prepared through esterification of tris (2-hydroxyethyl) isocyanurate.

3,707,543
DIBUTYL-4-HYDROXYPHENYLBENZOATES OF TRIS(HYDROXYALKYL)ISOCYANURATE
David H. Steinberg, Bronx, and Martin Dexter, Briarcliff Manor, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.
No Drawing. Filed Feb. 25, 1971, Ser. No. 118,968
Int. Cl. C07d *55/38*
U.S. Cl. 260—248 NS **6 Claims**

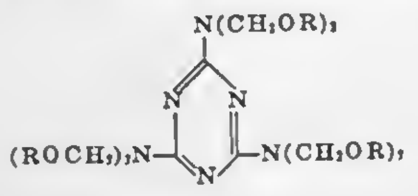
Esters of tris(hydroxyalkyl)isocyanurates with dibutyl-4-hydroxyphenyl benzoic acids are stabilizers of organic material. The compounds, of which tris[2-(3,5-di-tert.-butyl-4-hydroxybenzoyloxy)ethyl]-isocyanurate is a typical embodiment, are prepared through esterification of tris(2-hydroxyethyl)isocyanurate.

3,707,544
PRODUCTION OF CYANURIC CHLORIDE
Yelagondahally S. Suryanarayana and Luther J. Reid, Jr., Mobile, Ala., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed May 11, 1971, Ser. No. 142,358
Int. Cl. C07d *55/42*
U.S. Cl. 260—248 C **3 Claims**

An improvement is provided in a catalytic method for the production of cyanuric chloride from cyanogen chloride wherein the durability or life of the carbon catalyst is increased by mixing the active carbon catalyst with an intimate mixture of solid diluent, that is, an inert material or a catalyst with significantly less activity than the active carbon catalyst. Such a mixture when used in the vapor phase conversion of cyanogen chloride to cyanuric chloride has a much lower operating temperature with the result that the life of the active carbon catalyst is considerably increased.

3,707,545
HEXAKIS(DIHALOALKOXYMETHYL) MELAMINES (TBAT)
Robert V. Berthold, South Charleston, and Rene M. J. Roberts, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Aug. 24, 1971, Ser. No. 174,498
Int. Cl. C07d *55/32*
U.S. Cl. 260—249.6 **6 Claims**

Novel compounds of the following structural formula:



wherein R has the formula $-CH_2C_aH_bX_c$ or

$$-CH_2C_6H_{5-d}X_d$$

wherein X is chloro or bromo; *a* is an integer from 1 to 8, *b* is an integer from 0 to 16; *c* is an integer from 1 to 8, and *d* is an integer from 1 to 5.

3,707,546
PROCESS FOR PREPARING DODECANEDINITRILE
David Arthur Klein, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 2, 1971, Ser. No. 130,545
Int. Cl. C07c *121/10*
U.S. Cl. 260—465.2 **3 Claims**

Dodecanedinitrile is prepared from dodecanedioic acid by catalyzed reaction with ammonia, using dodecanedinitrile as the reaction solvent.

3,707,547
MANUFACTURE OF ADIPONITRILE
Stephen Frederick Bush and Michael John Shires, Reading, and Frank Johnson and Richard Anthony Williams, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
Filed June 29, 1970, Ser. No. 50,610
Claims priority, application Great Britain, Aug. 6, 1969, 39,340/69
Int. Cl. C07c *121/10, 121/26*
U.S. Cl. 260—465.8 **6 Claims**

Vaporising a heat sensitive substance by passage through a heated duct while blowing a carrier gas along the axis so as to maintain annular flow of liquid until most of it is vaporised and then continuing heat supply to complete the vaporisation. Particularly applicable to vaporisation of adipic acid into ammonia preliminary to adiponitrile manufacture.

3,707,548
9-HYDROXY-15-OXO-PROSTANOIC ACID
Jehan F. Bagli, Valois Gardens, Quebec, and Tibor Bogri, Montreal, Quebec, Canada, assignors to Ayerst, McKenna & Harrison, Limited, Ville St. Laurent, Quebec, Canada
No Drawing. Continuation-in-part of application Ser. No. 769,750, Oct. 22, 1968. This application July 28, 1969, Ser. No. 845,532
Int. Cl. C07c *61/36, 69/74*
U.S. Cl. 260—468 D **5 Claims**

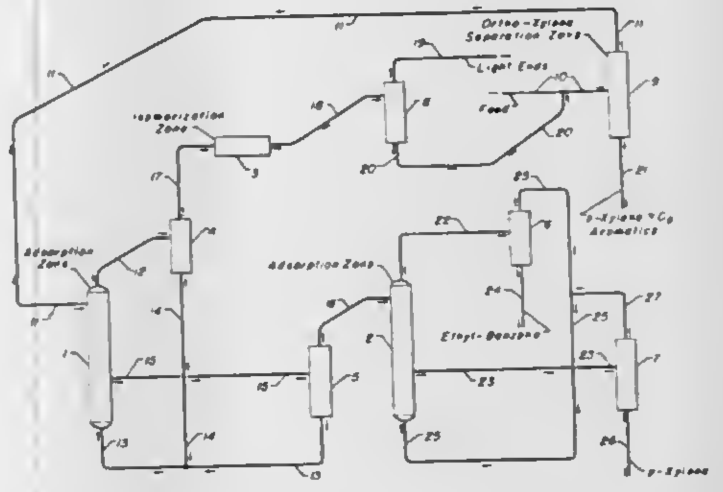
There are disclosed herein 9,15-dioxoprostanoic acid, 9-hydroxy-15-oxoprostanoic acid, 9,15-dihydroxyprostanoic and 9-oxo-15-hydroxy-prostanoic acid, lower alkyl esters thereof, and homologs thereof, as well as a process for preparing the above acids, lower alkyl esters thereof, and homologs thereof. The compounds possess hypotensive, antihypertensive, bronchospasmolytic and gastric acid secretion inhibiting properties, as well as inhibiting the aggregation of platelets and promoting the disaggregation of aggregated platelets. Methods for their use are also disclosed.

3,707,549
α-SUBSTITUTED HYDROCINNAMIC ACIDS AND DERIVATIVES THEREOF
Jack Mills, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 516,708, Dec. 27, 1965. This application Dec. 5, 1967, Ser. No. 687,996
Int. Cl. C07c *149/40*
U.S. Cl. 260—470 **7 Claims**

Novel α-substituted hydrocinnamic acids and derivatives thereof useful to reduce serum cholesterol and triglyceride levels and to block blood-platelet clumping when administered to animals.

3,707,550
PROCESS FOR THE PRODUCTION AND RECOVERY OF ORTHO-XYLENE, PARA-XYLENE AND ETHYLBENZENE
Laurence O. Stine, Western Springs, and Donald B. Broughton, Evanston, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 874.919, Nov. 7, 1969, now Patent No. 3,636,121. This application Oct. 26, 1971, Ser. No. 191,976
Int. Cl. C07c *7/12, 15/08*
U.S. Cl. 260—674 SA **9 Claims**

A modified dual adsorption and isomerization process employing a combination of an ortho-xylene separation zone and a first adsorption zone in communication with a second adsorption zone and an isomerization zone. The process is suitable for the separation of various C_8 aromatic isomers into individual relatively pure streams containing the individual isomers. The ortho-xylene separation zone separates ortho-xylene from the other C_8 aromatic isomers contained in the fresh feed and recycle feed and passes the remaining C_8 aromatic isomers to a first adsorption zone. The first adsorption zone then separates para-xylene and ethylbenzene from meta-xylene and passes the para-xylene and ethylbenzene to a second adsorption zone wherein para-xylene and ethylbenzene are separated into relatively purified para-xylene and ethylbenzene streams. The remaining meta-xylene separated from the para-xylene in the first adsorption zone is passed into an isomerization zone to effect the production of additional C_8 aromatic isomers which are recycled to and sequentially separated by the ortho-xylene separation zone and the first and second adsorption zones, allowing increased yields of some of the C_8 aromatics based on fresh feed to the ortho-xylene zone. The modification basically comprises separating and removing ortho-xylene from the feed to the isomerization zone thus allowing the production of additional ortho-xylene in said zone and thereby resulting in a higher overall yield of ortho-xylene based on fresh feed than that resulting if ortho-xylene were not separated and removed.

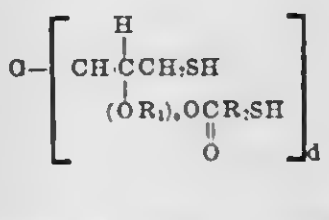


3,707,551
PHARMACEUTICALLY ACTIVE DERIVATIVES OF ETHANOOCTAHYDROPHENANTHRENE
Kyu Tai Lee and Joel G. Whitney, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application Mar. 4, 1968, Ser. No. 709,908. Divided and this application Feb. 11, 1971, Ser. No. 114,684
Int. Cl. C07c *47/52, 69/14, 103/20*
U.S. Cl. 260—479 R **6 Claims**

Novel disubstituted and polysubstituted 2,4′-ethanooctahydrophenanthrene- and 2,4′-ethanohexahydrophenanthrene-2-aldehydes, amides, and hydrazides are useful as antifertility agents when administered to animals.

3,707,552
ESTERS OF THIOGLYCOLLIC AND MERCAPTO PROPIONIC ACID
Bryan Dobinson, Duxford, and Bernard Peter Stark, Stapleford, England, assignors to Ciba-Geigy AG
No Drawing. Filed June 10, 1970. Ser. No. 45,246
Claims priority, application Great Britain, June 18, 1969, 30,957/69
Int. Cl. C07c *149/22*
U.S. Cl. 260—481 R **2 Claims**

A polythiol of the formula



I

wherein G represents a radical obtained by removal of *d* active hydrogen atoms from a compound having at least *d* active hydrogen atoms, R_1 represents an alkylene group containing two or more carbon atoms, R_2 represents a divalent organic residue, *e* is zero or a positive integer, and *d* is an integer of at least 1 which are intermediates for the preparation of curing agents useful as sealants, caulking agents and cable jointing agents.

3,707,553
TETRAMETHYLFORMAMIDINIUM ARENESULFONATES AND METHOD OF PREPARATION

George E. Bagley and Algirdas C. Poshkus, Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

No Drawing. Filed Aug. 24, 1965, Ser. No. 482,284

Int. Cl. C07c *123/00*

U.S. Cl. 260—501.14 **8 Claims**

Quaternary amidinium salts of the general formula:

$$Ar\{SO_3^{-+}CH[N(CH_3)_2]_2]_n$$

are readily synthesized by heating, at reflux, a mixture of dimethylformamide and an aromatic sulfonyl chloride. These compounds are useful as surface active agents, e.g. emulsifiers for waxes, emulsion stabilizers, aids in polymerization reactions, soiling inhibitors and foam stabilizers.

3,707,554
ALKALI METAL N-HALO-ALKANESULFONAMIDES AS BLEACHING AGENTS AND METHODS OF THEIR PREPARATION

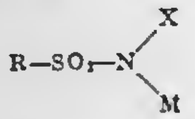
Frederick E. Hardy, Headon, Newcastle-upon-Tyne, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 15, 1969, Ser. No. 858,165

Int. Cl. C07c *143/74*

U.S. Cl. 260—543 A **7 Claims**

Novel alkali metal N-halo-alkanesulfonamides, having bleaching and antiseptic properties and capable of being formulated in bleaching and detergent compositions, are represented by the formula



$$R-SO_2-N\begin{matrix}\diagup X\\ \diagdown M\end{matrix}$$

wherein X is chlorine or bromine, M is an alkali metal, and R is an alkyl having from 1 to about 22 carbon atoms; the novel compounds can be prepared, for example, by reacting an alkane sulfonamide with an alkali metal hypochlorite or hypobromite.

3,707,555
CERTAIN ORGANIC FLUOROAMINO COMPOUNDS

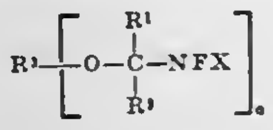
Charles D. Wright, White Bear Lake, and Joseph LaMar Zollinger, Woodbury Township, Washington County, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 151,582, Nov. 10, 1961. This application Oct. 15, 1962, Ser. No. 232,327

Int. Cl. C07c *87/22, 87/34, 85/06*

U.S. Cl. 260—563 R **17 Claims**

4. Compounds having the formula:



$$R^3\left[-O-\overset{R^1}{\underset{R^2}{C}}-NFX\right]_n$$

wherein R^1 and R^2 are each a member of the group consisting of fluorine and difluoramino, difluoramino-substituted perfluoroalkyl, difluoramino-substituted perfluoroalkylfluoramino, perfluoroalkyl, perfluoroalkylfluoramino, fluoramino-substituted perfluoroalkyl and fluorimino-substituted perfluoroalkylfluoramino radicals, said perfluoroalkyl moieties having from 1 to 5 carbon atoms, and when taken together with the carbon atom to which they are attached, R^1 and R^2 form a ring system having 6 atoms; *n* is an integral number from 1 to 6, X is a member of the group consisting of hydrogen, fluorine and chlorine and R^3 is a member of the group consisting of

(a) unsubstituted alkyl groups having from 1 to 18 carbon atoms and *n*-valencies,

(b) substituted alkyl groups having from 1 to 18 carbon atoms and *n*-valencies and substituted by not more than 3 of the group consisting of double bonds, triple bonds, nitro, carboxyl, carboalkoxy, alkoxycarbonyl, nitrato, nitrido, chloro, fluoro, difluoroamino, oxo and aldehydo groups,

(c) phenyl (lower alkyl),

(d) cycloalkyl groups having 4 to 6 carbon atoms in the ring and not more than 12 carbon atoms, and

(e) oxacycloalkyl groups having 2 to 5 carbon atoms in the ring and up to 7 carbon atoms.

3,707,556
BIS-META-PHENYLENE UREAS

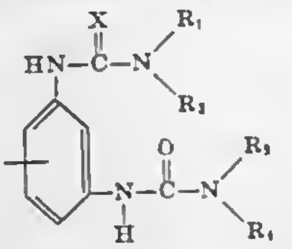
Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Oct. 12, 1970, Ser. No. 80,120

Int. Cl. C07c *127/00*

U.S. Cl. 260—553 A **5 Claims**

Bis-meta-phenylene ureas having the formula:



in which X represents oxygen or sulfur, R_1 represents lower alkyl or lower alkenyl, R_2 is hydrogen, R_3 represe i's alkyl, alkeryl, chloroacetyl, phenyl and chloro substituted phenyl, R_4 represents hydrogen, lower alkyl and furfuryl, and Z represents hydrogen or lower alkyl. The compounds of this invention are useful as herbicides.

3,707,557
SULFONYL AND SULFINYL PHENYL UREAS

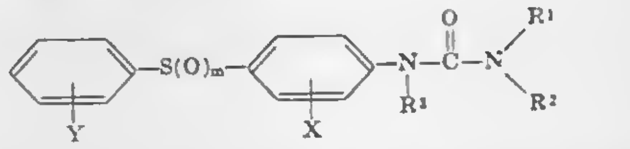
Melancthon Starr Brown, deceased, late of Berkeley, Calif. (by Gustave K. Kohn, administrator), assignor to Chevron Research Company, San Francisco, Calif.

Filed Nov. 9, 1970, Ser. No. 88,213

Int. Cl. C07c *127/18*

U.S. Cl. 260—553 A **7 Claims**

Compound of the formula



wherein R^1 is hydrogen or alkyl of 1 to 4 carbon atoms, R^2 is alkyl of one to four carbon atoms, R^3 is hydrogen or alkyl of one to four carbon atoms, X and Y are hydrogen, halogen of atomic number nine to 35, alkyl of one to four carbon atoms or alkoxy of one to four carbon atoms and *m* is one or two. The compounds are herbicides.

3,707,558
N-PHENYLSULFONYLBORANECARBOXAMIDES AND NOBORONANECARBOXAMIDES

Hermann Bretschneider and Kraft Hohenlohe-Oehringen, Innsbruck, Austria, Andre Grussner, Basel, Switzerland, and Klaus zur Nedden, Mari, Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Feb. 3, 1970, Ser. No. 8,390

Claims priority, application Switzerland, Feb. 14, 1969, 2,257/69; June 12, 1969, 8,969/69

Int. Cl. C07c *143/78*

U.S. Cl. 260—556 AC **19 Claims**

Bicyclic carboxamide derivatives, prepared, inter alia, by reacting, for example, a camphor-3-carboxylic acid or norcamphor-3-carboxylic acid derivative with a sulfonic acid amide, are described. The bicyclic carboxamide derivatives are useful as hypoglycemic agents.

3,707,559
N-ACYL PHENYLALANINE AMIDES

Robert H. Mazur, Deerfield, and David A. Jones, Jr., Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed May 14, 1971, Ser. No. 143,600

Int. Cl. C07c *103/30*

U.S. Cl. 260—558 A **8 Claims**

The above-captioned compounds are useful as pharmacological, e.g. anti-inflammatory, agents. They are manufactured by acylating phenylalanine to produce the N-acyl derivatives, then reacting the latter intermediates successively with an alkyl chloroformate and a primary amine to yield the desired N-acyl phenylalanine amides.

3,707,560
CERTAIN 4-AMINO-6-ARYL-PYRIMIDINES

Gerald George De Angelis, Wilton, and Hans-Jurgen Ernst Hess, Old Lyme, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,216

Int. Cl. C07d *51/42*

U.S. Cl. 260—256.5 R **19 Claims**

4-amino-6-arylpyrimidines and salts thereof, a novel class of inhibitors of platelet aggregation and bronchodilators in mammals.

3,707,561
POLYHALOGENATED AROMATIC AMINES

Lucien Sobel, Paris, Ludovic Parvi, Pont-de-Claix, and Arsene Isard, Grenoble, France, assignors to Ugine Kuhlmann, Paris, France

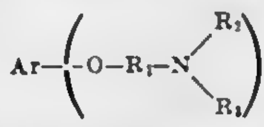
No Drawing. Filed Apr. 29, 1969, Ser. No. 820,310

Claims priority, application France, May 2, 1968, 150,251

Int. Cl. C07c *93/06*

U.S. Cl. 260—570.7 **4 Claims**

Polyhalogenated amines having the general formula:



$$Ar-\left(-O-R_1-N\begin{matrix}\diagup R_2\\ \diagdown R_3\end{matrix}\right)_n$$

in which $n=1$ to 4, Ar is a polyhalogenated aromatic radical, R_1 is an aliphatic or cycloaliphatic radical and R_2 and R_3 are hydrogen or an aliphatic, cycloaliphatic or heterocyclic alkyl radical or together may form a cycle or heterocycle. The amines are prepared by reacting a polyhalogenated aromatic compound with either an alcoholate of an amino alcohol or with the amino alcohol in the presence of an alkaline agent. Flame retardant epoxy resins are prepared by reacting the amines with polyepoxides or by reacting the amines with epichlorhydrin and thereafter curing the so obtained epoxides by usual hardeners.

3,707,562
10-AMINOALKYLENE-5H-DIBENZO[a,d] CYCLOHEPTENES

Walter Schindler and Hans Blattner, Riehen, near Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 571,193, Aug. 9, 1966. This application June 9, 1969, Ser. No. 831,719

Claims priority, application Switzerland, Aug. 12, 1965, 11,113/65; Aug. 19, 1965, 11,686/65

Int. Cl. C07c *87/28*

U.S. Cl. 260—570.8 TC **10 Claims**

The compounds are of the class of substituted 10-amino-(lower)alkyl - 5H - dibenzo[a,d]cycloheptenes and the pharmaceutically acceptable acid addition salts thereof and have a depressant effect on the central nervous system; pharmaceutical compositions comprising these compounds and a pharmaceutical carrier and the method of producing a depressant effect on the central nervous system are provided; an illustrative embodiment is 8-methyl-10-dimethylaminomethyl - 5H - dibenzo[a,d]cycloheptene.

3,707,563
PROCESS FOR PREPARING N-ALKYLATED ALIPHATIC DIAMINES

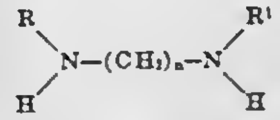
Josef Pikl, Glassboro, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 14, 1970, Ser. No. 72,202

Int. Cl. C07c *87/14*

U.S. Cl. 260—583 P **2 Claims**

A mixture of secondary and disecondary amines having the formula



$$\begin{matrix}R\diagdown\\ H\diagup\end{matrix}N-(CH_2)_n-N\begin{matrix}\diagup R^1\\ \diagdown H\end{matrix}$$

where *n* equals 2 to 8, R equals a C_2 to C_8 saturated aliphatic hydrocarbon radical and R^1 equals R or H can be prepared in high yield by reacting aldehyde and diamine in an aqueous system in a molar ratio of from about 1.2:1.0 to about 1.9:1.0 at from 0° to 50° C. in the absence of hydrogen to form a diimine and then reducing the diimine in situ under hydrogen pressure with essentially complete utilization of the aldehyde and diamine.

3,707,564
CERTAIN ORGANIC COMPOUNDS CONTAINING BERYLLIUM AND BORON

Cliff Y. Fujikawa, Encino, Calif., assignor to North American Rockwell Corporation

No Drawing. Continuation-in-part of application Ser. No. 603,405, Dec. 16, 1966. This application July 8, 1968, Ser. No. 743,261

Int. Cl. C07f *5/02*

U.S. Cl. 260—606.5 B **8 Claims**

Liquid beryllium compounds, prepared by the reaction of tetraborane with enumerated classes of alkyl beryllium compounds, and useful as rocket fuels, are disclosed.

3,707,565
PHENOL SULFIDE DERIVATIVES

Kurt Hofer, Munchenstein, Basel-Land, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

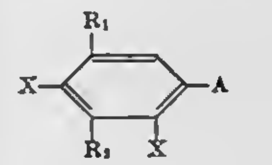
No Drawing. Filed Aug. 20, 1969, Ser. No. 851,721

Claims priority, application Switzerland, Aug. 28, 1968, 12,899/68

Int. Cl. C07c *149/30*

U.S. Cl. 260—608 **8 Claims**

Novel phenols obtained by reacting a compound of the Formula I



(I)

in which

- one X is selected from hydroxyl groups and the residues of esters of phosphoric acid and of phosphorous acid and the other X is selected from hydrogen atoms and tertiary butyl radicals,
- each of R_1 and R_2 is independently selected from hydrogen atoms and tertiary butyl radicals,
- A is selected from phenyl radicals and phenyl radicals substituted by up to 2 tertiary butyl radicals,

with the proviso that at least one of R_1 and R_2 must be a tertiary butyl radical and with the further proviso that at most 3 tertiary butyl radicals may be present per molecule; with a condensing agent which is adapted to cause linking between phenol molecules (e.g. sulphur monochloride, sulphur dichloride, phosphorus trichloride or formaldehyde with or without an alkylene mercaptan) are described and their use as stabilizers against certain deterioration phenomena, especially adverse effect of light, heat or oxidation with organic materials, especially plastics such as polypropylene.

3,707,566

ARYLOXYPENTANE COMPOUNDS

Paul L. Creger and Winifred A. Neuklis, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Mar. 30, 1970, Ser. No. 24,000

Int. Cl. C07c *43/20*

U.S. Cl. 260—613 D **3 Claims**

A series of 2,2-dimethyl-5-(2,5-xylyloxy)- and (3,5-xylyloxy)-1-pentanols, ether and ester derivatives, and structurally related nitriles and aldehydes. The compounds lower serum triglyceride levels. The 1-pentanol compounds can be produced by reducing the corresponding valeric acids or their salts or esters. The ether and ester derivatives can be produced by reacting the 1-pentanol compounds with an etherifying agent or esterifying agent. The nitriles can be produced by reacting a 3-aryloxypropyl halide with isobutyronitrile in the presence of a base. The aldehydes can be produced by reacting a substituted imine with a hydrolytic agent.

3,707,567

TELOMERS OF HYDROXYMETHYL NORBORNENE

Frank Wingler, Leverkusen, and Herbert Bartl, Odenthal-Hahnenberg, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Mar. 11, 1970, Ser. No. 18,719. Divided and this application Sept. 22, 1971, Ser. No. 182,907

Claims priority, application Germany, Mar. 27, 1969, P 19 15 682.2

Int. Cl. C07c *29/00;* **C08f** *15/40*

U.S. Cl. 260—617 F **5 Claims**

Copolymers with a molecular weight of from 300 to 3,000, a chlorine content and/or bromine content of from 40 to 80% by weight and an OH number of from 20 to 200 and process of producing the same.

3,707,568

METHOD FOR PURIFYING CRUDE TRICHLOROPHENOL OR HEXACHLOROPHENE

Edwin B. Michaels, Gregory Court, East Norwalk, Conn. 06855, and John W. Lee, Glen Ave., Fairfield, Conn. 06430

No Drawing. Continuation-in-part of application Ser. No. 703,271, Feb. 6, 1968. This application June 9, 1971, Ser. No. 151,605

Int. Cl. C07c *37/22*

U.S. Cl. 260—619 A **3 Claims**

There is provided a method for purifying crude trichlorophenol or hexachlorophene by solubilizing the latter and ammoniating resultant solution to precipitate said salt complex leaving impurities in solution and, thereafter, decomposing the precipitate by heat.

3,707,569

ALKYLATION PROCESS

Bernardus J. van Sorge, Selkirk, N.Y., assignor to General Electric Company

No Drawing. Filed July 22, 1970, Ser. No. 57,354

Int. Cl. C07c *39/02, 39/12*

U.S. Cl. 260—621 R **10 Claims**

There is provided a process for selectively alkylating a phenolic compound in the ortho-position to the significant reduction of alkylation in the meta- and para-positions which comprises alkylating the phenolic compound with an alkanol in the presence of a tellurium-containing catalyst.

3,707,570

DIHALOGENATION OF ALKYLCYCLOHEXANES

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 9, 1969, Ser. No. 883,579

The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed

Int. Cl. C07c *17/10, 23/10*

U.S. Cl. 260—648 R **22 Claims**

Alkylcyclohexanes having one or more unbranched alkyl substituents of 1–3 carbon atoms each are dichlorinated or dibrominated by reacting the same under homogeneous conditions and at −30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering a dichloro or dibromo alkylcyclohexane product in which the two halogen atoms are attached to the cyclohexane ring. The products have utility as intermediates for preparing difunctional derivatives, e.g. diacids, dialcohols or diamides, which are useful as monomers in polymer manufacture.

3,707,571

HALOGENATION OF POLYCYCLIC PERHYDROAROMATICS

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 19, 1969, Ser. No. 886,796

The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed

Int. Cl. C07c *17/10, 23/20*

U.S. Cl. 260—648 R **12 Claims**

Polycyclic perhydroaromatics having 3–11 rings at least two of which are fused are mono- and dihalogenated by reacting the same under homogeneous conditions and at −30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering product containing both one and two chlorine or bromine atoms attached to ring carbon atoms. The monohalo and dihalo products can be used to alkylate benzene and yield polycyclic hydrocarbons of low aromaticity useful as traction fluid components or useful for further conversion to sulfonates suitable as detergent components of lubricating oil compositions.

3,707,572

DIHALOGENATION OF ALKYLDECAHYDRONAPHTHALENES

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 9, 1969, Ser. No. 886,797

The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed

Int. Cl. C07c *17/10, 23/36*

U.S. Cl. 260—648 R **16 Claims**

Alkyldecahydronaphthalenes having one or more unbranched alkyl substituents of 1–3 carbon atoms each are dichlorinated or dibrominated by reacting the same under homogeneous conditions and at —30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering a dichloro or dibromo alkyldecahydronaphthalene product in which the two halogen atoms are attached to the nucleus. The products have utility as intermediates for preparing difunctional derivatives, e.g. diacids, dialcohols or diamides, which are useful as monomers in polymer manufacture, or diesters which are useful as plasticizers in polyvinyl chloride.

3,707,573

DIHALOGENATION OF PERHYDROPOLYPHENYL HYDROCARBONS

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 22, 1969, Ser. No. 887,377

The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed

Int. Cl. C07c *17/10, 23/18*

U.S. Cl. 260—648 R **12 Claims**

Perhydropolyphenyl hydrocarbons having 2–6 rings and 0–3 alkyl substituents per ring containing up to 3 carbon atoms each are dichlorinated or dibrominated by reacting the same under homogeneous conditions and at −30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering a dichloro or dibromo perhydropolyphenyl product in which the halogen atoms are attached to rings. The dihalo products have utility as intermediates for preparing difunctional derivatives, e.g. diacids, dialcohols or diamides, which are useful as monomers in polymer manufacture, or diesters which are useful as plasticizers in polyvinyl chloride. They also can be used to alkylate benzene and yield polycyclic hydrocarbons of low aromaticity useful as traction fluid components or useful for further conversion to sulfonates suitable as detergent components of lubricating oil compositions.

3,707,574

METHOD FOR THE CONTINUOUS PRODUCTION OF 1,1-DICHLORETHANE

Rudolf Stephan, Ranzel, and Hermann Richtzenhain, Cologne-Sulz, Germany, assignors to Dynamit Nobel Aktiengesellschaft

No Drawing. Continuation of application Ser. No. 617,459, Feb. 21, 1967. This application June 26, 1970, Ser. No. 56,066

Claims priority, application Germany, Feb. 24, 1966, D 49,427

Int. Cl. C07c *17/08*

U.S. Cl. 260—658 R **2 Claims**

A method for the continuous production of 1,1-dichlorethane by reacting vinyl chloride introduced in liquid form and dry hydrogen chloride in 1,1-dichlorethane as reaction medium in the presence of catalytic quantities of an anhydrous chloride of a trivalent metal is disclosed characterized in that the reaction is carried out in a vertical reaction zone at a temperature below about 50° C. The liquid vinyl chloride and dry hydrogen chloride are introduced at the lower end of the reaction zone. The catalyst is maintained in suspension in the lower portion of the reaction zone by regulating the rate at which the starting materials are introduced into the reaction zone. The 1,1-dichlorethane reaction product which is entirely free of suspended catalyst is removed at the top of the reaction zone.

3,707,575

PROCESS FOR SEPARATING C_5 HYDROCARBONS BY SOLVENT EXTRACTION AND EXTRACTIVE DISTILLATION

Eckart Muller, Bergen Enkheim, Karl Heinz Eisenlohr, Buchschlag, and Helmut Klein, Hanau, Germany, assignors to Metallgesellschaft Aktiengesellschaft

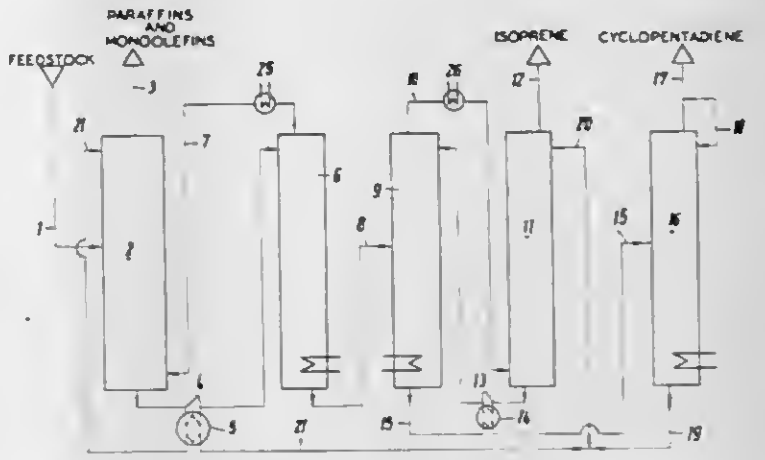
Filed Aug. 11, 1970, Ser. No. 63,151

Claims priority, application Germany, Aug. 13, 1969, P 19 41 197.3

Int. Cl. C07c *7/00*

U.S. Cl. 260—666 A **14 Claims**

A C_5 hydrocarbon mixture is separated by removing monoolefins and paraffins from the mixture by solvent extraction followed by extractive distillation. The bottoms product (distilland) from the distillation step is then extractively distilled a second time and a mixture of isoprene and co-distilled cyclopentadiene is obtained as the distillate which is subject to a second solvent extraction to remove the cyclopentadiene. The bottoms product from the second distillation step is further distilled to recover cyclopentadiene as the distillate and solvent which is recycled to the first and second solvent extraction steps.



3,707,576

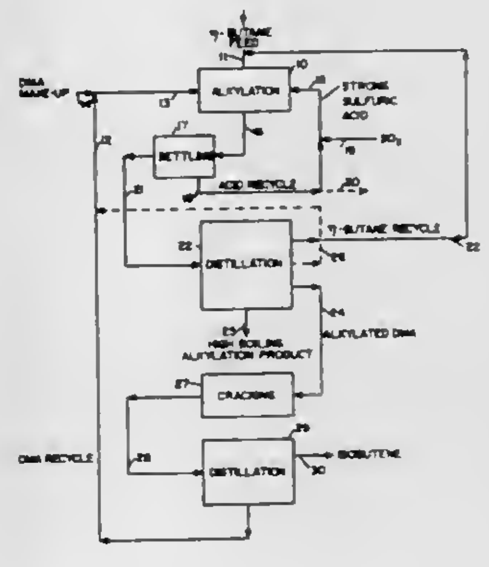
PREPARATION OF ALIPHATIC OLEFINS FROM SATURATED HYDROCARBONS

Robert E. Moore, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.

Continuation-in-part of applications Ser. No. 80,779, Oct. 14, 1970, and Ser. No. 91,183, Nov. 19, 1970. This application May 26, 1971, Ser. No. 147,011

Int. Cl. C07c *3/54, 13/28*

U.S. Cl. 260—666 A **16 Claims**

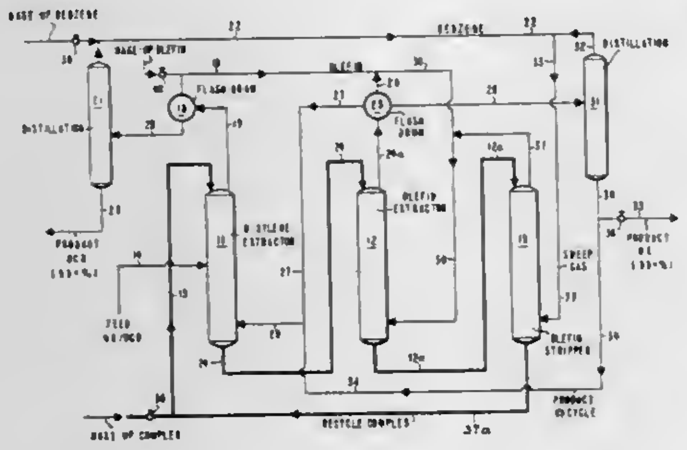


A process for converting saturated hydrocarbons to aliphatic or alicyclic olefins having the same number of carbon atoms as the feed is described. The feed can be C_4–C_{10} n-paraffins, certain C_4–C_{10} isoparaffins, cyclohexane or methyl-substituted cyclohexanes of the C_7–C_{10} range. The olefin product from n-paraffin feed is singly branched olefin. The process involves reacting the saturated hydrocarbon with a C_{10}–C_{13} adamantane hydrocarbon in the presence of strong sulfuric acid to form a higher alkylated adamantane, followed by cracking of the latter to yield the olefin and re-form the C_{10}–C_{13} adamantane hydrocarbon. The latter can be recycled. The procedure is also applicable to the recovery of olefins from spent sulfuric acid previously used in the treatment of olefinic stocks, e.g. in an olefin-isoparaffin alkylation process.

3,707,577

SEPARATION OF AROMATICS

Donald G. Stenmark, Houston, Tex., assignor to Esso Research and Engineering Company
Filed Mar. 8, 1971, Ser. No. 122,073
Int. Cl. C07c *7/02, 7/10*
U.S. Cl. 260—674 A 20 Claims



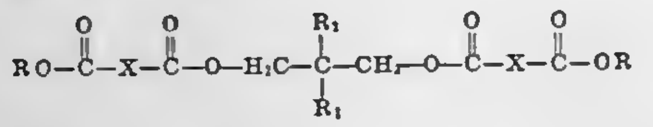
A selected aromatic hydrocarbon is separated from its mixtures with other aromatic hydrocarbons by forming a lithium-aluminum chloride complex with an unsaturated compound which is used to extract a mixture of aromatic hydrocarbons to form a raffinate phase and an extract complex phase; the phases are separated and the extract complex phase is washed with a portion of the compound and there is recovered from the washed extract complex phase a second extract phase lean in said compound and a second raffinate phase comprising said compound and a selected aromatic hydrocarbon which is then recovered from the second raffinate phase.

3,707,578

COATING COMPOSITIONS CONTAINING PHTHALATE ESTERS

Joseph A. Vasta, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company
No Drawing. Original application Apr. 2, 1968, Ser. No. 718,246, now Patent No. 3,663,598, dated May 16, 1972. Divided and this application Sept. 10, 1970, Ser. No. 71,215
Int. Cl. C08g *9/32*
U.S. Cl. 260—67.6 R 8 Claims

Compounds of the formula



$$RO-\overset{\overset{\displaystyle O}{\|}}{C}-X-\overset{\overset{\displaystyle O}{\|}}{C}-O-H_2C-\underset{\underset{\displaystyle R_2}{|}}{\overset{\overset{\displaystyle R_1}{|}}{C}}-CH_2-O-\overset{\overset{\displaystyle O}{\|}}{C}-X-\overset{\overset{\displaystyle O}{\|}}{C}-OR$$

where
- R is an alkyl group or a cyclohexyl group,
- R_1 is hydrogen or an alkyl group,
- R_2 is —OH or —CH_2OH, and
- X is the residue from phthalic acid, maleic acid, or succinic acid,

and coating compositions containing these compounds.

3,707,579

OLEFIN DISPROPORTIONATION PROCESS

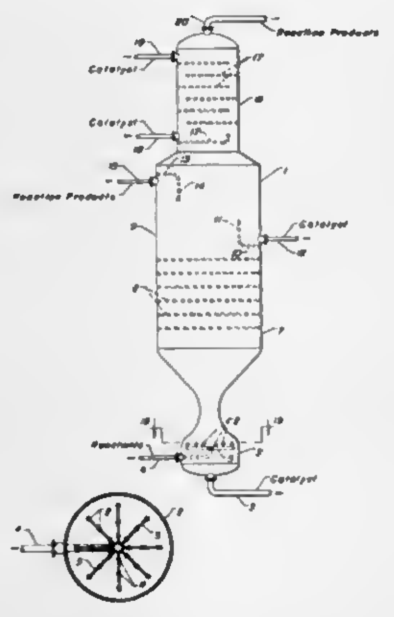
Dean P. Montgomery, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Dec. 28, 1970, Ser. No. 102,107
Int. Cl. C07c *3/62*
U.S. Cl. 260—683 D 5 Claims

The process of disproportionating olefin hydrocarbons is improved by contacting the feed olefin hydrocarbons with a bed of activated and CO treated magnesium oxide at a temperature below which any significant isomerization activity is encountered prior to contacting the feed with the olefin disproportionation catalyst.

3,707,580

HYDROGEN FLUORIDE ALKYLATION WITH APPARATUS HAVING A VENTURI-SHAPED CHAMBER

Robert F. Anderson, La Grange Park, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed June 3, 1971, Ser. No. 149,593
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.48 11 Claims



An alkylatable reactant is alkylated with an olefin-acting reactant, utilizing a fluid catalyst, by passing the reactants and catalyst through a venturi-shaped zone and a retention zone into a separation zone. A catalyst phase and a reaction products phase are separated and the catalyst phase is withdrawn. A first portion of the reaction products phase is withdrawn and a second portion is passed through a refluxing zone. The portion of reaction products phase withdrawn from the separation zone is recycled to the venturi-shaped zone. Catalyst is introduced into the downstream end of the refluxing zone and passed counter-currently to the second portion of reaction products. The second portion of the reaction products is withdrawn and the product of the process is recovered from it. Also disclosed is a novel unitary alkylation apparatus comprising, in combination, a venturi-shaped chamber, a retention chamber, a settling chamber and a refluxing chamber.

3,707,581

OLEFIN CONVERSION PROCESS USING CATALYST CONTAINING A METAL PHOSPHATE SUPPORT

Louis F. Heckelsberg, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation of abandoned application Ser. No. 846,977, Aug. 1, 1969, which is a continuation-in-part of abandoned application Ser. No. 627,632, Apr. 3, 1967. This application Dec. 30, 1970, Ser. No. 102,883
Int. Cl. C07c *3/62, 11/02, 13/02*
U.S. Cl. 260—683 D 10 Claims

Olefins are converted into other olefins having different numbers of carbon atoms by contact with a catalyst active for disproportionating propylene into ethylene and butene and comprising a phosphate of aluminum, zirconium, calcium, magnesium or titanium and promoted by one or more selected compounds of tungsten, molybdenum, or rhenium.

3,707,582

PHOSPHORUS COMPOUND PROMOTED OLIGOMERIZATION OF ISOBUTENE

Gary L. Driscoll, Boothwyn, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 53,268, July 6, 1970. This application June 7, 1971, Ser. No. 150,740
Int. Cl. C07c *3/18*
U.S. Cl. 260—683.15 B 9 Claims

A promoted polymerization of isobutene to form a polyisobutene oil having a viscosity index of from 95 to 130, using phosphorus trichloride or phosphorus oxychloride as the promoter, stannic chloride as the catalyst, and nitromethane as the solvent at from −30° C. to 100° C. and preferably from 0° C. to 50° C. The stannic chloride is present in from 0.1 to 40 and preferably 1 to 20 volume percent as based on nitromethane and phosphorus compound is present in a volume ratio of from 0.1:1 to 5:1 phosphorus compound:stannic chloride.

3,707,583

ADHESIVE

Alan G. McKown, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 768,675, Oct. 18, 1968, now Patent No. 3,655,818. This application June 4, 1971, Ser. No. 150,026
The portion of the term of the patent subsequent to Apr. 11, 1989, has been disclaimed
Int. Cl. C08g *45/04*
U.S. Cl. 260—837 14 Claims

A curable structural adhesive in flowable, particulate form comprising an epoxy resin in combination with a reaction product of a carboxylated nitrile rubber and an epoxy resin and an epoxy curing system which preferably will provide a cure at a temperature not exceeding about 250° F. Upon subjection to about 150° F., the adhesive converts to a state in which it will readily adhere to various substrates including metals. Also provided is a process for applying the adhesive to a substrate.

3,707,584

PROCESS FOR PRODUCING WATER-DILUTABLE HEAT-HARDENABLE CROSS-LINKING CO-POLYMERS

Laszlo Tulacs, Hitzendorf, near Graz, Austria, assignor to Vianova Kunstharz Aktiengesellschaft, Johannesgasse, Austria
No Drawing. Filed July 17, 1970, Ser. No. 56,003
Claims priority, application Austria, July 29, 1969, A 7,288/69
Int. Cl. C08g *37/32*
U.S. Cl. 260—851 6 Claims

A process for producing upon neutralization water-soluble cross-linking co-polymers is described characterized in that from 5 to 40 percent by weight of a water-soluble or water-insoluble partially or completely etherified aminoplast resin, 5 to 30 percent by weight of an alpha-beta ethylenically unsaturated carboxylic acid or its functional derivative carrying at least one free carboxyl group, and 30 to 90 percent by weight of other co-polymerizable compounds carrying no free carboxyl groups are blended and thereafter reacted to form a homogeneous resinous composition. The composition obtained has improved gloss, adhesion, and flexibility and is particularly suitable for electrodeposition.

3,707,585

SUSPENSION POLYMERIZATION OF VINYL MONOMERS

Takehiko Okamoto, Shirasawa, and Masakazu Inoue, Akihiko Kishimoto, and Tadahiro Sueyoshi, Nagoya, Japan, assignors to Toray Industries, Inc., Chuo-ku, Tokyo, Japan
No Drawing. Continuation-in-part of application Ser. No. 670,380, Sept. 25, 1967. This application May 6, 1970, Ser. No. 35,284
Claims priority, application Japan, Sept. 26, 1966, 41/62,981; Sept. 29, 1966, 41/63,907
Int. Cl. C08f *1/11*
U.S. Cl. 260—883 4 Claims

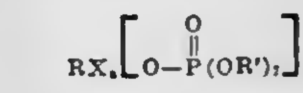
A process for the suspension polymerization of vinyl monomers in an aqueous medium using as a suspending aid a copolymer of an acrylic acid ester with 70–90% acrylamide, which process provides high suspension stability, good control of particle size of the resultant polymer and a resultant polymer having an excellent transparency.

3,707,586

HALOGENATED PHOSPHATE POLYESTERS

Richard J. Turley, Orange, Conn., assignor to Olin Corporation
No Drawing. Filed Feb. 2, 1970, Ser. No. 8,040
Int. Cl. C07f *9/08, 9/12*
U.S. Cl. 260—928 11 Claims

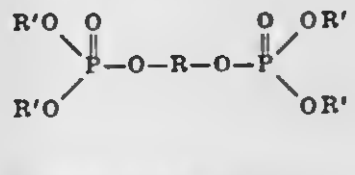
Halogenated phosphate polyesters, useful as flame retardants for polyurethane foam, are disclosed which have the formula



$$RX_a\left[O-\overset{\overset{\displaystyle O}{\|}}{P}(OR')_2\right]_n$$

wherein
- R is an aliphatic hydrocarbon radical of 1–8 carbons or an aromatic hydrocarbon radical,
- X is a halogen,
- *a* is an integer of 0–4,
- *n* is an integer of 2–6, and
- each R′ is independently a haloalkyl radical.

According to preferred embodiments of the invention, these polyesters are represented by the formula



wherein R and R′ are as indicated above.

3,707,587

PROCESS FOR THE PREPARATION OF ORGANIC PHOSPHORUS COMPOUNDS

Reinhard Schliebs, Cologne-Flittard, Konrad Uhlig, Leverkusen, Gunter Oertel, Cologne-Flittard, and Hans-Joachim Diehr, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 16, 1971, Ser. No. 124,932
Claims priority, application Germany, Apr. 14, 1970, P 20 17 812.5
Int. Cl. C07f *9/40*
U.S. Cl. 260—970 5 Claims

The invention relates to an improved process for the preparation of organic phosphorus compounds having free hydroxy groups and which are useful for the production of flame resistant polyurethane resins. Production of organic phosphorus compounds by reacting spirocyclic compounds with carbonyl compounds and alkanolamines and the utility thereof in the production of flame-resistant polyurethane resins.

3,707,588

PROCESS FOR START-UP OF FIBER SPINNING SOLUTIONS

Kenneth C. Campbell, Rock Hill, S.C., Donald E. Robinson and R. Russell Rhinehart, Charlotte, N.C., and Wade J. Truesdale, Rock Hill, S.C., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,196

Int. Cl. B28b *7/04*

U.S. Cl. 264—39 **7 Claims**

A method for the start-up of a fiber-forming acrylonitrile polymer solution spinning operation wherein during spinning the spinning solution is maintained under superatmospheric pressure and at a temperature above the atmospheric boiling point of the solvent comprising prefilling the spinneret with a high boiling solvent in an amount sufficient to maintain the spinneret filter substantially saturated with solvent during the start-up until spinning solution flow commences.

3,707,589

REHEATING A BETA-ALUMINA ARTICLE IN AN ALKALI METAL ATMOSPHERE TO IMPROVE ITS PERMEABILITY

Takewo Chiku, Toyota, and Kiyoshi Ninomiya and Hiroaki Hayashi, Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan

Filed Apr. 13, 1971, Ser. No. 133,551

Int. Cl. C04b *35/10, 35/64, 41/02*

U.S. Cl. 264—82 **11 Claims**

A beta-alumina article permeable to sodium and potassium ions made by heating a sintered alpha-alumina article in the presence of sodium or potassium suffers from a lack of uniformity of conversion of alpha-alumina to beta-alumina, particularly in the center portion of the article. The uniformity is greatly improved by reheating this article at similar temperatures used in the first heating step in an atmosphere having a lower concentration of sodium or potassium than used in the first heating step. Following this second heating step the article is washed in water.

3,707,590

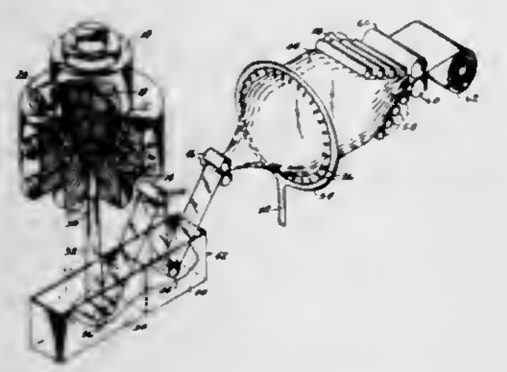
ORIENTED SARAN COEXTRUDATE

Glenn C. Wiggins, Midland, Marvin J. Kreh, Essexville, Robert S. Davis, Midland, and Fred Stevenson, Beaverton, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Original application Apr. 14, 1967, Ser. No. 630,889. Divided and this application July 27, 1970, Ser. No. 64,880

Int. Cl. B29f *3/08*

U.S. Cl. 264—95 **4 Claims**



An oriented two-layered laminate of vinylidene chloride-vinyl chloride copolymer as one layer and an ethylene-unsaturated ester type copolymer as the other layer. To this laminate may be adhered another polymer, also capable of being oriented, plastic sheet, paper sheet or board, metal or metal foil. Products such as pouches, chubs, formed troughs and the like can be made therefrom because the vinylidene chloride-vinyl chloride copolymer retains its orientation.

3,707,591

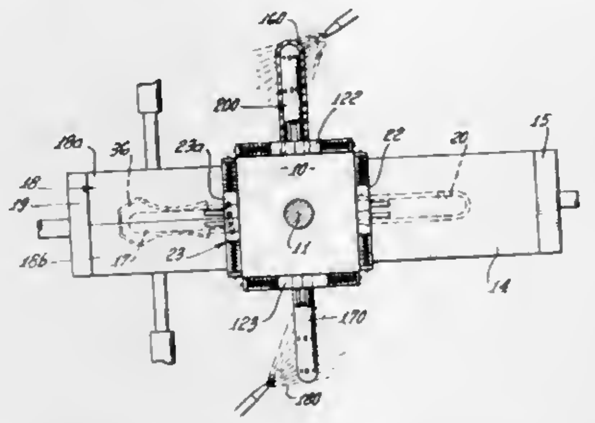
HIGH SPEED MOLDING OF HOLLOW PLASTIC ARTICLES

George A. Chalfant, Ontario, Calif., assignor to Trans Container Corporation, Los Angeles, Calif.

Continuation of abandoned application Ser. No. 885,076, Dec. 15, 1969. This application July 2, 1971, Ser. No. 159,487

Int. Cl. B29c *17/07, 25/00*

U.S. Cl. 264—97 **5 Claims**



A plastic parison with neck and body portions is formed over a blow nozzle and within neck and body molds at a forming station. The parison and nozzle are transferred to a region outside the body forming mold and the hot body portion is cooled while the parison neck portion remains in a neck mold. Gas is next blown at a blow station and via the nozzle into the partially cooled parsion body portion for effecting its expansion into container body shape within a blow mold, and the neck mold is then opened and the blown container is separated from the nozzle, as for example by the blow mold.

3,707,592

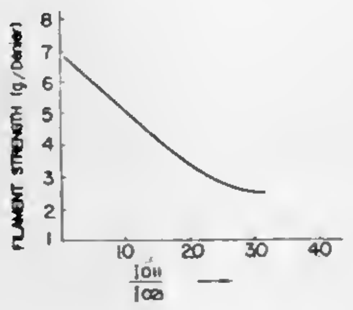
PROCESSES FOR SUSPENSION-POLYMERIZING VINYLIDENE FLUORIDE AND ORIENTING THE MELT EXTRUDED POLYMER

Hajime Ishii, Nobuo Bannai, and Sadao Nishita, Iwakishi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha

Continuation-in-part of abandoned application Ser. No. 501,888, Oct. 22, 1965. This application Jan. 15, 1970, Ser. No. 3,204

Int. Cl. C08f *3/22;* **D01d** *5/12*

U.S. Cl. 264—210 R **2 Claims**



Vinylidene fluoride polymers having a crystallization temperature above 135° C. and a melting temperature above 175° C. Articles such as fibers, films, etc., made from such polymers, have excellent heat-resistant properties and high mechanical strength. The aforementioned polymers may be produced by suspension polymerizing polyvinylidene fluoride in a water medium at a temperature preferably between 0° C. and 30° C. in the presence of a catalyst which may be a dialkyl peroxy dicarbonate or a dialkyl peroxy carbonate.

3,707,593

APPARATUS AND METHOD FOR MANUFACTURING CONTINUOUS FILAMENTS FROM SYNTHETIC POLYMERS

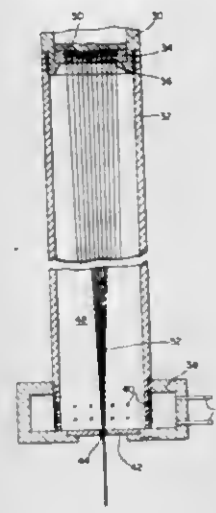
Shunsuke Fukada, Kyoto, and Toru Nakanishi, Ehime-ken, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Apr. 2, 1970, Ser. No. 25,149

Int. Cl. B28b *3/20;* **D01d** *5/12*

U.S. Cl. 264—210 F **13 Claims**

An apparatus and method are provided for manufacturing continuous synthetic polymer filaments which are especially useful in the preparation of non-woven products. The apparatus of this invention is comprised of an elongated closed cylinder which has a spinneret assembly at an upper end thereof, an exit nozzle at a lower end thereof and means for introducing a compressed fluid into the interior of the cylinder so as to form a pressurized chamber within the cylinder. In the method of this invention, the polymer is spun into filaments by the spinneret assembly. The spun filaments are then cooled and solidified by the compressed fluid in the chamber. The solidified filaments then exit through the exit nozzle along with a portion of the compressed fluid which causes the filaments to be drawn so as to improve their physical properties.



ELECTRICAL

3,707,594
AUTOMATIC RHYTHM SOUND PRODUCING DEVICE ADAPTED FOR USE WITH KEYBOARD MUSICAL INSTRUMENTS

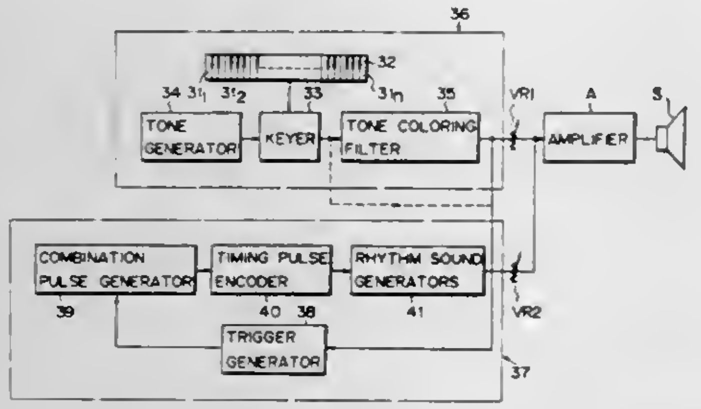
Kiyoshi Ichikawa, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed March 5, 1971, Ser. No. 121,387

Claims priority, application Japan, March 10, 1970, 45/22708; March 10, 1970, 45/19911

Int. Cl. G10f *1/00*

U.S. Cl. 84—1.03 **7 Claims**



An automatic rhythm sound producing device built in a keyboard musical instrument capable of playing ordinary tones of the melody, chord or bass, or combinations thereof upon selective depression of a plurality of keys arranged in the order of musical notes. The device includes a combination pulse generator which comprises a clock pulse generator followed by a frequency dividing counter chain to generate combination pulses, and having a resetting arrangement. The outputs from the combination pulse generator are supplied to a timing pulse encoder so as to cause outputs of the various stages of the counter chain to appear on the output lines of the encoder as a train of selected timing pulses which represent desired rhythm patterns. The outputs from the encoder are supplied to individual rhythm sound generators to produce rhythm sounds according to the selected rhythm patterns for an automatic rhythm performance. A trigger generator is provided to detect a depression of a key and upon detection to start the normally reset counter chain, thereby initiating the automatic rhythm performance.

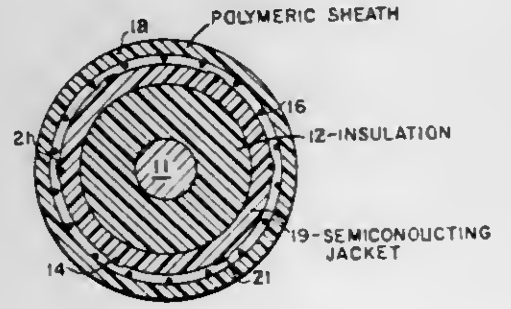
3,707,595
SHIELDED CABLE

Walter J. Plate, Rye, N.Y., assignor to Anaconda Wire and Cable Company

Filed May 20, 1971, Ser. No. 145,356

Int. Cl. H01b *9/02*

U.S. Cl. 174—115 **8 Claims**



In an electric power cable a neutral conductor comprising a plurality of separated wires is applied helically over an electrically conducting cable jacket in which longitudinal wires are embedded. The longitudinal wires serve to distribute any heavy fault currents among all the overlaid helical wires.

3,707,596
CIRCUIT ARRANGEMENT FOR SURPRESSING THE CHROMINANCE SUBCARRIER IN PAL SIGNAL

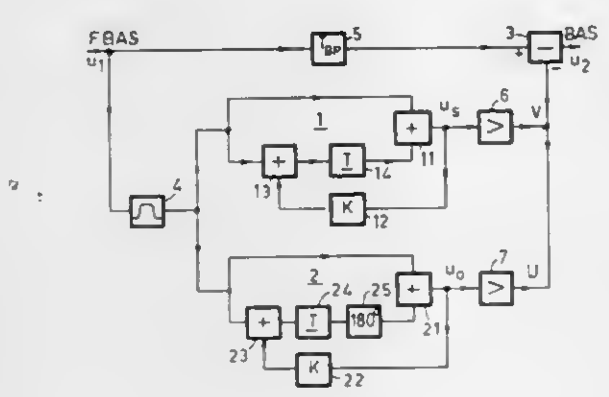
Klaus Kuhn, Kalenbarg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,657

Claims priority, application Germany, Dec. 19, 1969, P 19 63 819.8

Int. Cl. H04n *9/02*

U.S. Cl. 178—5.4 P **5 Claims**



A circuit for eliminating the color component of a composite television signal has two comb filters. Both filters have internal feedback and one uses subtraction, while the other uses addition. This prevents a loss of vertical definition in the picture.

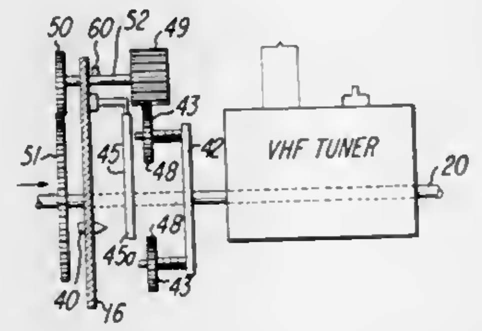
3,707,597
VIDEO BLANKING AND AUDIO MUTING CIRCUIT

Lawrence Mark Lunn, Indianapolis, Ind., assignor to RCA Corporation

Filed March 8, 1971, Ser. No. 121,999

Int. Cl. H04n *5/44*

U.S. Cl. 178—5.8 R **8 Claims**



The described switching circuit blanks the picture and mutes the sound of a television receiver during its channel selection tuning, either manually or automatically by remote control. The picture blanking function is accomplished by operating on the brightness limiter circuit of the receiver to decrease the brightness control bias coupled to the video signal chain, while the sound muting function is accomplished by operating on a current splitter to attenuate the signal drive coupled to the receiver's audio output circuit.

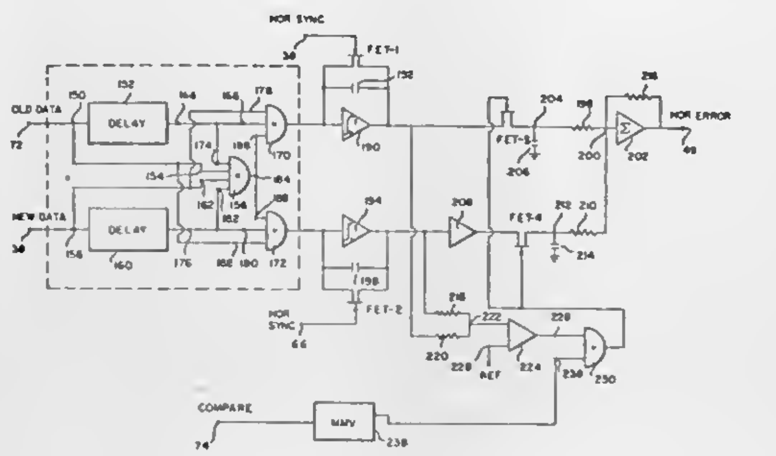
3,707,598
ELECTRONIC PATTERN RECOGNITION

Joe M. Scarbrough, Orlando, Fla., assignor to Martin Marietta Corporation, New York, N.Y.

Filed July 2, 1969, Ser. No. 838,490

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **17 Claims**



Method and apparatus for electronic recognition of patterns as particularly adapted to the pattern tracking of the electronic signature of an object within the field of view of a television camera.

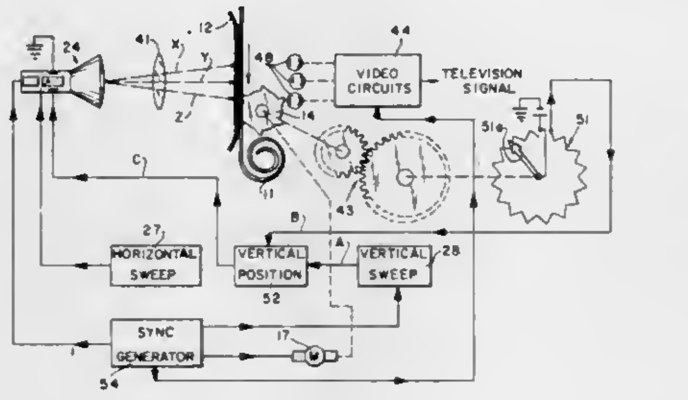
3,707,599
APPARATUS FOR SCANNING CONTINUOUSLY MOVING FILM FOR COLOR TELEVISION

Morris E. Brown, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 33,401, April 30, 1970. This application Dec. 27, 1971, Ser. No. 212,720

Int. Cl. H04n *5/38*

U.S. Cl. 178—7.2 **10 Claims**



A system for scanning a continuously moving information bearing strip includes means for varying the position of a scanning raster synchronously with and in the direction of the film movement. When the film motion is stopped for single frame viewing, the position of the scanning raster is also stopped and a full scan of the frame then in position is effected without reframing. According to one embodiment, the position of the scanning raster is varied under control of a rotating potentiometer and, according to a second embodiment, by a ring counter. In a third embodiment, the positioning of the scanning raster is controlled by a member having a variable transmission of radiation and coupled to the movement of the information bearing strip, and a device sensitive to radiation directed through the member.

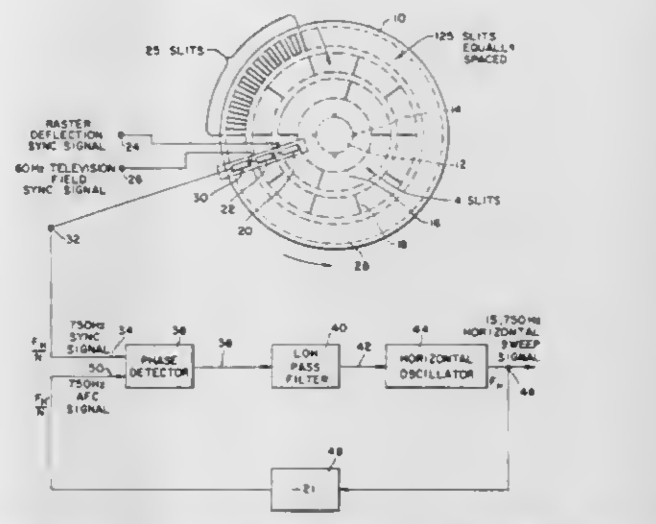
3,707,600
DISC CONTROLLED INTERLACED SCANNING RASTER

Carl N. Schauffele, and Lenard M. Metzger, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 18, 1971, Ser. No. 107,200

Int. Cl. H04n *5/38*

U.S. Cl. 178—7.2 **5 Claims**



Apparatus for scanning the frames of a continuously moving information bearing medium in a television field pattern including a plurality of spaced horizontal lines controlled by a horizontal sweep signal having a predetermined horizontal sweep frequency. A predetermined sweep frequency of the horizontal sweep signal is produced by a horizontal oscillator whose frequency is varied by a control signal produced by a phase detector. A feedback circuit interconnects the output of the horizontal oscillator and one input terminal of a phase detector. The other input terminal of the phase detector is adapted to receive a sync signal having a frequency equal to an integral submultiple of the predetermined horizontal sweep frequency. The phase detector responds to the horizontal sweep signal and the detected sync signal to produce the control signal, the magnitude of which is dependent upon the phase difference therebetween.

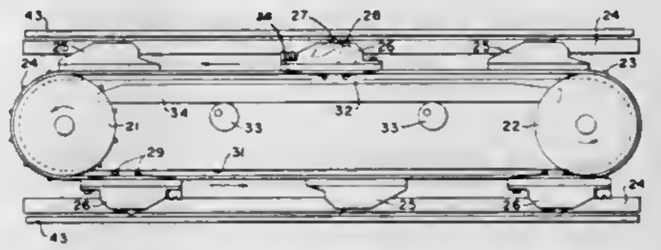
3,707,601
FACSIMILE TRANSCEIVER

Ralph W. Goble, Boulder, Colo., assignor to Phonocopy, Inc., Wilmington, Del.

Filed July 24, 1970, Ser. No. 58,053

Int. Cl. H04n *3/04*

U.S. Cl. 178—7.6 **10 Claims**

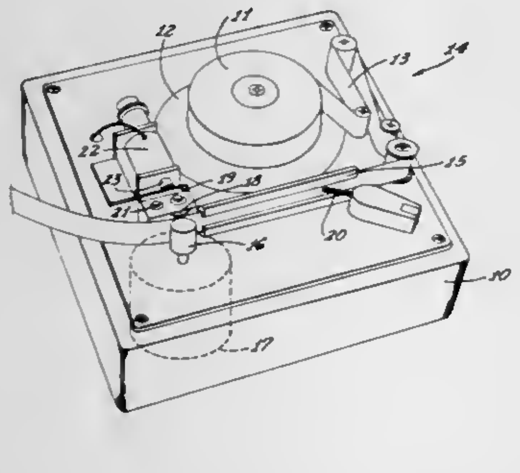


A flat-bed scanner for facsimile transceivers permits an original document to be inserted for scan reading and the sheet materials necessary for scan print-out to be operatively engaged respectively by the scanning read heads or writing stylii by mounting these scanning elements on an endless belt driven on two spaced pulleys. The original document is read by the read heads as they move in one direction between the pulleys and the print-out occurs on the opposite side of the pulley assembly as the writing stylii are transported by the belt on its return run. By establishing "diametric symmetry" simplified phase synchronization of two units is obtained independent of the direction of transmission.

3,707,602
STRIP PRINTER

Peter S. Glaser, Culver City, and Jack Goldberg, Northridge, both of Calif., assignors to Electronic Arrays, Inc., Mountain View, Calif.

Filed May 12, 1971, Ser. No. 142,572
Int. Cl. H04l *21/04*
U.S. Cl. 178—30 **11 Claims**



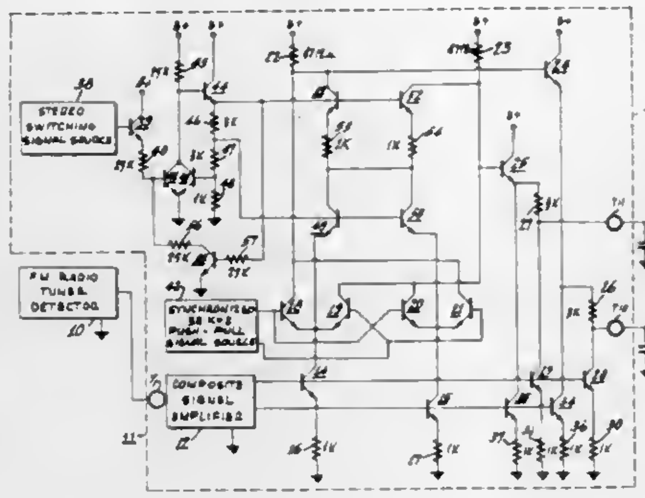
A strip printer wherein an electrosensitive strip is reeled past plural, vertically aligned electrodes by means of a capstan-pinch roller combination, the capstan being driven by a constant speed motor on a continuous basis. A solenoid is coupled to the pinch roller for selective actuation causing the pinch roller to engage the strip for gripping the strip by the pinch roller and the capstan. A read only memory has character input, column addressing input and data output lines for providing sequentially data groups in the data output lines in response to signals at the character input and in further response to sequential column addressing input signals, provided by an addressing counter. The data lines are connected to the electrodes for control of electric energization thereof in response to output signals on the data lines. A constant frequency oscillator provides oscillations to the counter at a particular phase in relation to an enabling input signal, derived from a print command input, and sustained for the duration of solenoid energization so that a particular plurality of data columns in the memory are addressed in sequence and at a constant rate, for causing energization signals to be applied to the electrodes at said rate.

3,707,603
FM STEREOPHONIC RECEIVER DETECTION APPARATUS AND DISABLING MEANS

Allen LeRoy Limberg, Somerville, N.J., assignor to RCA Corporation

Filed Dec. 29, 1969, Ser. No. 888,390
Int. Cl. H04h *5/00*
U.S. Cl. 179—15 BT **18 Claims**

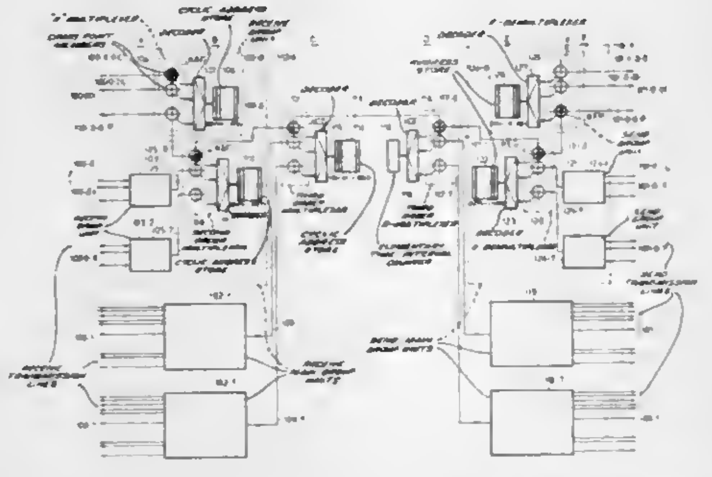
A detector for deriving stereophonic audio difference (L—R) signal from a stereophonic composite signal and matrix amplifier means coupled to the detector for combining the difference signals with audio sum (L+R) signals to produce left (L) and right (R) audio signals. Automatic switching means for transferring the system between monophonic and stereophonic reproduction modes is also provided. The system is adapted for fabrication in integrated circuit form.



3,707,604
TELECOMMUNICATION SYSTEM WITH TIME DIVISION MULTIPLEX

Johannes Anton Greefkes; Oscar Bernardos Philomenus Rikkert de Koe, and Adrianus Wilhelmus Maria van den Enden, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed June 22, 1971, Ser. No. 155,571
Claims priority, application Netherlands, June 24, 1970, 7009245
Int. Cl. H04j *3/04*
U.S. Cl. 179—15 A **5 Claims**



A telecommunication system with time division multiplex comprising receive transmission lines and send transmission lines and a clock for generating a time scale which is divided into mutually equal frame time intervals, each of which is divided into *k* mutually equal main time intervals, each of which is divided into *m* mutually equal sub-time intervals, the transmission lines being divided into groups, and the groups being divided into main groups, each group of receive transmission line being connected to an adjustable first-order multiplexer, the first-order multiplexers of a main group being connected to an adjustable second-order multiplexer, each group of send transmission lines being connected to an adjustable first-order demultiplexer, the first-order demultiplexers of a main group being connected to an adjustable second-order demultiplexer, a switching network being provided for connecting the second-order multiplexers to the second-order demultiplexers. In a preferred embodiment the steepness of the edges and the pulse widths are adapted to the locally prevailing signal pulse frequency.

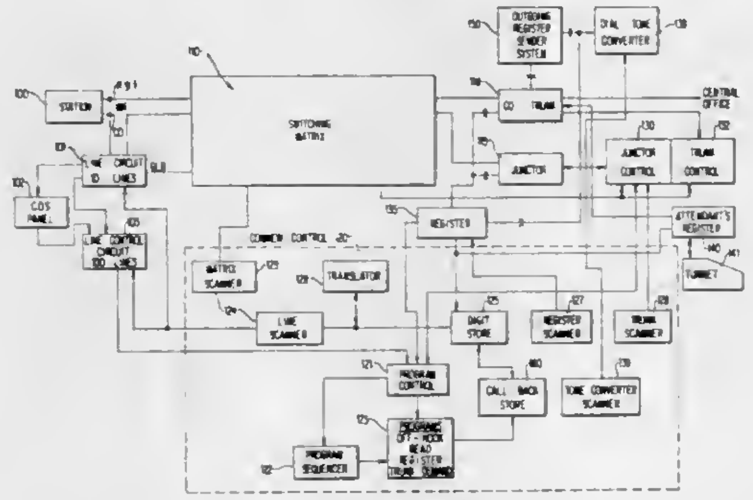
ERRATUM

For Class 179—18 see:
Patent No. 3,707,140

3,707,605
AUTOMATIC CALL-BACK INCLUDING SIMPLIFIED STORAGE AND SCANNING

Ernest O. Lee, Jr., and John A. Adams, Jr., both of Fairport, N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Jan. 27, 1971, Ser. No. 110,112
Int. Cl. H04m *3/48*
U.S. Cl. 179—18 BG **23 Claims**

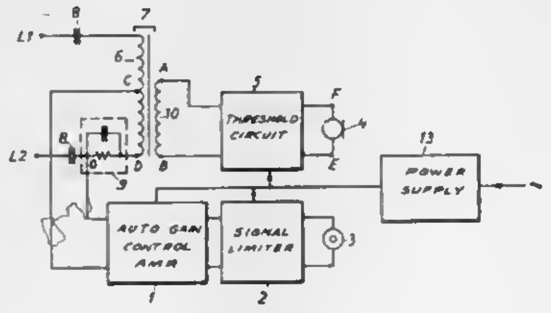


Automatic call-back system for automatic telephone exchanges which permits calling party to make another call while call-back is in effect without abandoning this feature, and also permits the setting up of the call-back feature after a called subscriber number has been dialed and without the need to re-dial such number subsequent to the dialing of a special call-back digit, including the provision of a storage unit capable of simultaneously storing a plurality of pairs of calling and called subscriber numbers in respective storage locations, store control means associated with each storage location for indicating whether data is stored therein and scanning means for periodically scanning said store control means.

3,707,606
ARRANGEMENT FOR OPERATORS TELEPHONE SET

Michel Crespel, Franconville, and Christian Valat, Bangui, both of France, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed July 30, 1970, Ser. No. 59,569
Claims priority, application France, Aug. 5, 1969, 6926875
Int. Cl. H04m *1/60*
U.S. Cl. 179—81 B **5 Claims**

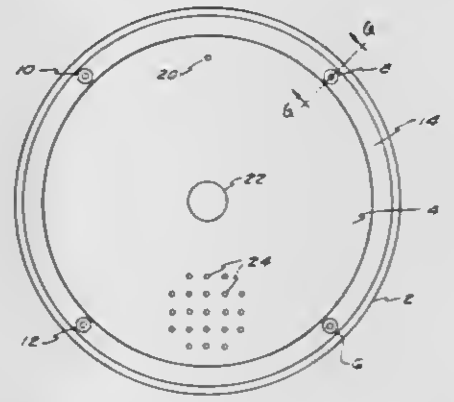


Electronic arrangement for operators' telephone sets for connection to a telephone exchange of a local battery system as well as a central battery system. The arrangement comprises an amplifier having a selectably constant output level and a signal limiter for receiving and a sidetone-threshold circuit for transmission. The arrangement gives a considerable improvement of the receiving as well as of the transmission conditions for the operators, especially when many operators are stationed in the same room.

3,707,607
HANDS-FREE EMERGENCY CALL BOX

Willis C. Reddick, Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 10, 1970, Ser. No. 62,270
Int. Cl. H04m *1/04*
U.S. Cl. 179—100 L **4 Claims**

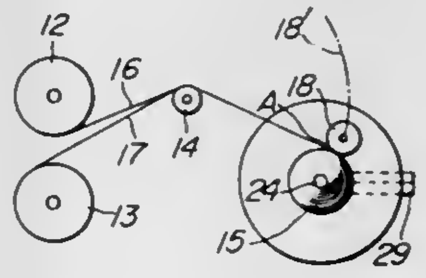


An all weather emergency-reporting telephone call box and system is provided. The call box uses a speaker and microphone for voice reception and transmission, respectively. The housing is formed of heavy material in a configuration selected to minimize the opportunity for vandalism. Direct communications access to the emergency station can be gained by the operation of one push-button switch which operates equipment preparing the system for hands-free operation.

3,707,608
METHOD AND APPARATUS FOR DUPLICATING A MAGNETIC TAPE

Hiroshi Sugaya, Suita; Fukashi Kobayashi, Hirakata, and Mitsuaki Ono, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 747,679, July 25, 1968, abandoned. This application June 28, 1971, Ser. No. 157,749
Claims priority, application Japan, Dec. 28, 1967, 43/12; Dec. 28, 1967, 43/75; Aug. 2, 1967, 42/50058; Aug. 10, 1967, 42/51672; Jan. 30, 1968, 43/6449; Oct. 14, 1967, 42/88266; Dec. 28, 1967, 43/78; Oct. 4, 1967, 42/84660; Jan. 12, 1968, 43/2265
Int. Cl. G11b *5/86*
U.S. Cl. 179—100.2 E **25 Claims**



A method of and apparatus for duplicating a magnetic tape by taking-up a recorded magnetic tape of high coercive force and an unrecorded magnetic tape of low coercive force on one reel with the magnetic coating thereof in close contact with each other and impressing an alternate magnetic field externally on said tapes as they are taken up on the reel thereby to transfer a signal on said recorded tape onto said unrecorded tape.

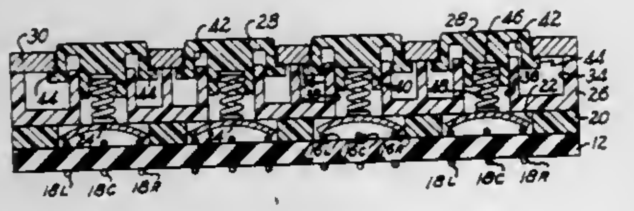
ERRATUM

For Class 179—110 see:
Patent No. 3,707,131

3,707,609
DIAPHRAGM PUSHBUTTON SWITCH ARRAY FOR KEYBOARDS

Martin H. Dapot, Pawtucket, and Henry J. Boulanger, Cumberland, both of R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 27, 1971, Ser. No. 192,802
Int. Cl. H01h *5/30, 13/64*
U.S. Cl. 200—5 R **5 Claims**



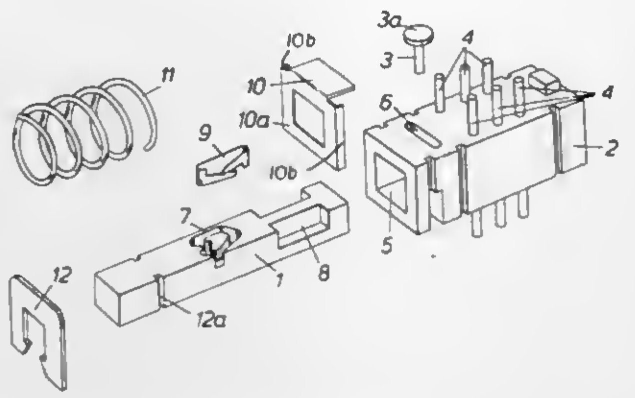
A system employing a keyboard comprises a base mounting an array of key bodies each adapted to reciprocably move to cause actuation of electrical circuits. A diaphragm is employed as an electrical conductor moving into and out of engagement with underlying contacts upon actuation and deactuation of the key body. Bounding problems have been minimized while maintaining tactile feedback by locating a spring member between the key and its respective diaphragm providing increased motion differential and by providing elongate guiding surfaces which eliminate skew movement of the key. Several forms of keys and key mountings are shown embodying the elongated guideway including an elongated hub molded in the bezel plate and receiving a close fitting rod portion of the key, a separate tubular guide and close fitting plunger, and a key having tabs extending laterally therefrom, the tabs slidably received in grooves formed in the base. Another embodiment particularly useful where two or more circuits are to be actuated from the same key employs a second spring to maintain the diaphragm away from the underlying contacts until the key is depressed thereby precluding undesirable back circuits without the use of blocking diodes or the like.

3,707,610
ALTERNATE ACTION MECHANISM FOR PUSHBUTTON SWITCH WITH FLAT-HEADED LATCHING PIN

Gwyn Davies, Cwmbach, England, assignor to A. B. Electronic Components Limited, Abercynon, Glamorgan, England

Filed April 5, 1971, Ser. No. 131,051
Claims priority, application Great Britain, April 7, 1970, 16,519/70
Int. Cl. H01h *13/56*
U.S. Cl. 200—153 J **4 Claims**

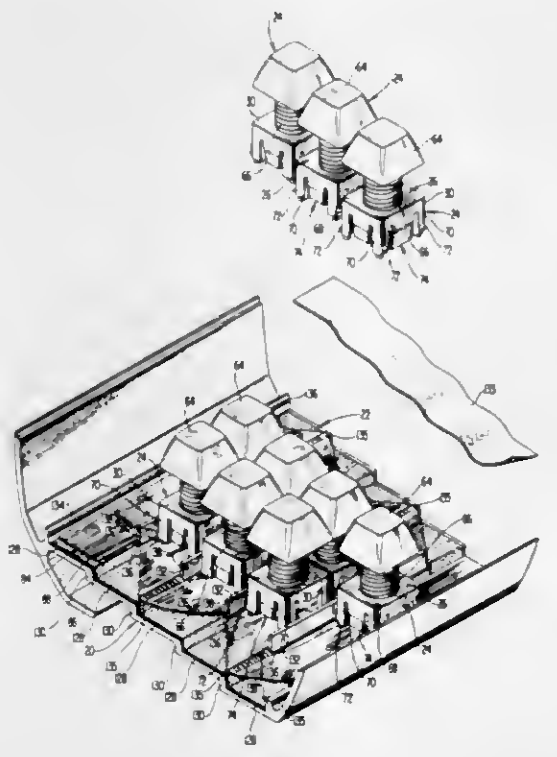
A push button switch comprising a housing containing a plurality of contacts, a push button slider having a cam track in one surface thereto and being adapted to be inserted into the housing to connect selected contacts in pairs, the slider being biassed towards a position of rest; and a flat headed straight pin inserted through a slot in the housing perpendicular to the longitudinal axis of the slider into engagement with the cam track of the slider. An enlarged flat head on the pin is held between a flat surface surrounding the slot and a retaining plate, so that the pin remains perpendicular to the plane of the upper surface of the slider. On successive depressions of the slider, the pin moves across the transverse slot in the housing and along the path of the cam track to control the degree of ingress of the slider in the housing.



3,707,611
CODING KEYBOARD AND ELECTRICAL SWITCH THEREFOR

Robert H. Twylord, Falls Church, Va., assignor to Mechanical Enterprises Incorporated

Continuation-in-part of Ser. No. 866,488, Oct. 15, 1969. This application Sept. 29, 1970, Ser. No. 76,496
Int. Cl. H01h *29/00*
U.S. Cl. 200—211 **28 Claims**

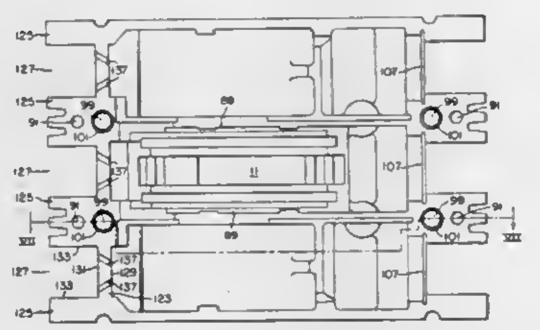


A keyboard for electronic apparatus such as computer and communication equipment, and an electrical switch therefor including a resilient deformable tube filled with an electrically conductive liquid such as mercury. Included in the keyboard is an elongated conductive means comprising a plurality of side-by-side conductors. The keyboard switch modules are each provided with a plurality of contact elements and mounting means adapted for holding the contact elements in anyone of a plurality of predetermined positions whereby each switch module can be encoded and thus preconditioned for electrically energizing a different preselected combination of the conductors to represent the desired code data unique to each switch.

3,707,612
CIRCUIT INTERRUPTER WITH IMPROVED MOLDED INSULATING HOUSING FORMED WITH VENT PASSAGE MEANS

Nick Yorgin, Ambridge, and John G. Salvati, Beaver Falls, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 11,452, Feb. 16, 1970, Pat. No. 3,632,939. This application June 15, 1971, Ser. No. 153,198
Int. Cl. H01h *9/30, 33/76*
U.S. Cl. 200—168 R **4 Claims**

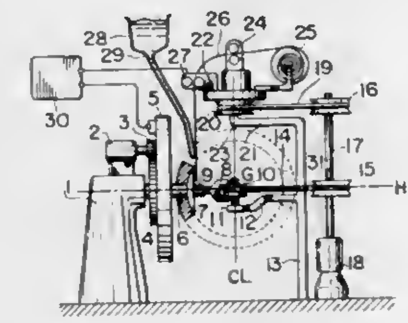


A circuit interrupter comprises a molded insulating housing molded to form improved vent passage means for venting arc gases from the housing.

3,707,613
METHOD AND APPARATUS FOR MANUFACTURING SPHERICAL METALLIC VESSELS OR HEMISPHERICAL VESSEL HEADS

Akira Ujile, Kobe, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed March 26, 1970, Ser. No. 22,772
Claims priority, application Japan, March 28, 1969, 44/23140
Int. Cl. B23k *9/04*
U.S. Cl. 219—76 **3 Claims**



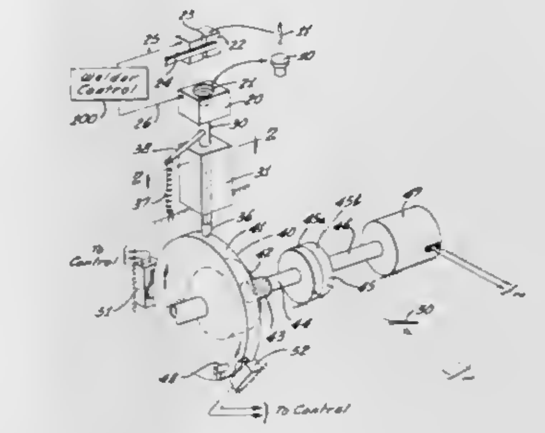
A spherical container or a hemispherical head for a pressure vessel, is formed integrally of deposited weld metal. A first turntable is rotatable about a substantially horizontal axis which constitutes one diameter of the sphere, and a second turntable is rotatable about a substantially vertical axis which constitutes another diameter of the sphere perpendicular to the first diameter. A small spherical metallic segment constitutes a starting piece, and has a wall thickness equal to that of the vessel to be formed, the segment forming the base of a solid central angle of the sphere.

3,707,614
WELDER

Delbert L. Phillips, Malibu, and Lewis Clark Feightner, Chatsworth, both of Calif., assignors to New Twist Connector Corporation, Santa Monica, Calif.

Division of Ser. No. 715,773, March 25, 1968, Pat. No. 3,609,284. This application June 1, 1970, Ser. No. 54,056
Int. Cl. B23k *9/00, 11/04*
U.S. Cl. 219—97 **15 Claims**

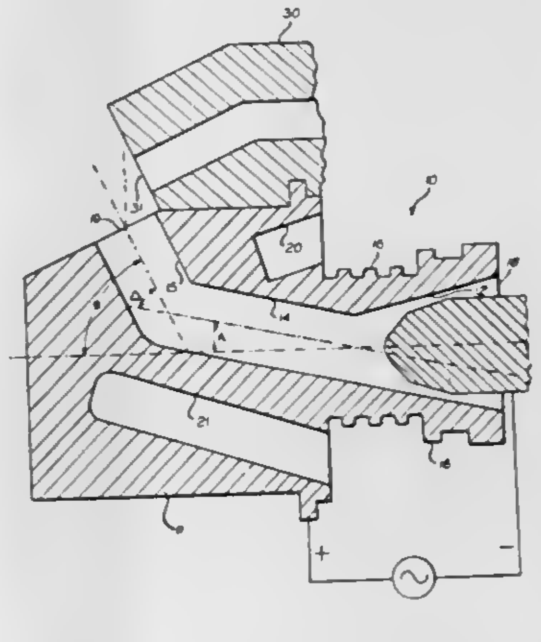
One of two small workpieces that are to be welded together is slidingly mounted in a fixed workholder and the other is firmly gripped by a movable workholder. To carry out an operating cycle, the movable workholder is reciprocated by two lobes of a cam that makes on revolution when momentarily connected to a relatively large mass that rotates at constant velocity. Initially the first slidable workpiece is placed at random at a position that is advanced slightly from the position desired for the welding operation but the first reciprocation of the second workpiece is against the slidable workpiece to retract it precisely to the desired position for a welding operation. In carrying out the second reciprocation, the two workpieces are charged by capacitance and as the gap between the two workpieces narrows a high frequency pulse triggers an arc between the two workpieces and the continued advance of the second workpiece crowds the two workpieces together for final fusion.



3,707,615
NOZZLE FOR A PLASMA GENERATOR

Anthony J. Rotolico, Long Island, and Edwardo Romero, Medford, both of N.Y., assignors to Metco Incorporated, Westbury, L.I., N.Y.

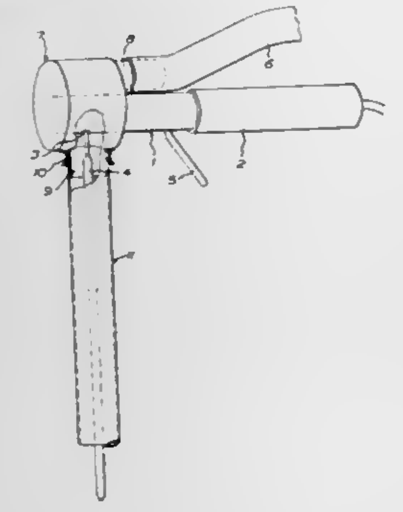
Filed Nov. 12, 1971, Ser. No. 198,251
Int. Cl. B23k *9/04*
U.S. Cl. 219—121 P **10 Claims**



An angular nozzle electrode for plasma generating devices is disclosed. The nozzle includes an inlet end, an intermediate portion and an outlet portion in angular relationship so as to maximize the function and operational life of the nozzle electrode.

3,707,616
EXHAUST DEVICES

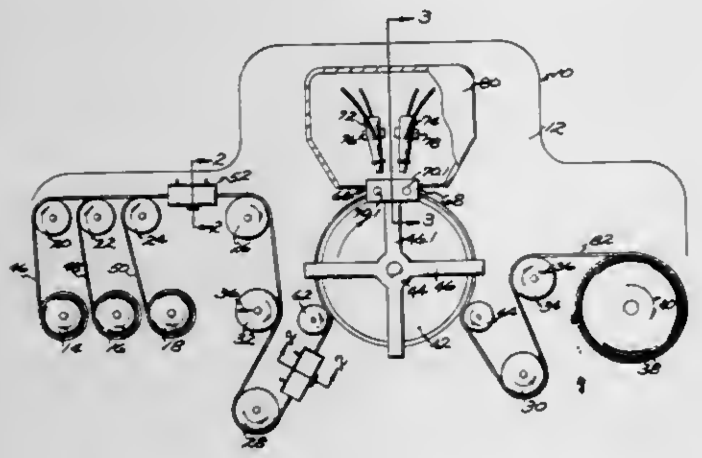
Erik A. Lindkvist, Korpralsvagen 44 a, 902 53 Umea, Sweden
Filed Nov. 24, 1971, Ser. No. 201,709
Claims priority, application Sweden, Nov. 25, 1970, 15947/70
Int. Cl. B23k *9/26*
U.S. Cl. 219—136 **4 Claims**



An exhaust device for gases and fumes in electric welding processes includes an exhaust conduit which is drawn up to the means holding the electrode. Arranged in the exhaust conduit is a connecting socket or like element to which a sleeve enclosing the electrode can be fixed. The sleeve is of such a nature as to be gradually disintegrated by the electric welding arc so that the electrode in the course of its successive consumption will have its end portion located outside the mouth or end of the sleeve.

3,707,617
APPARATUS FOR MAKING EDGELAY THERMOSTATIC BIMETALS

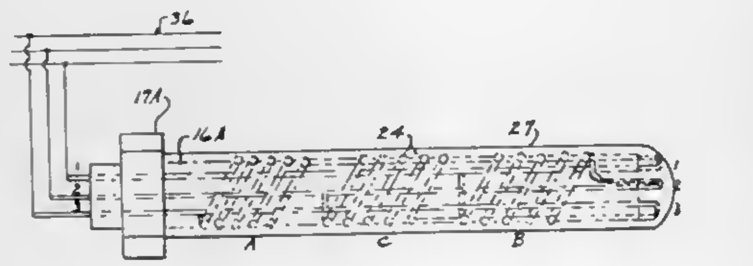
Carlton G. Rutter, Seekonk, Mass.; Richard F. Barry, Warwick, R.I., and Frank J. McLennan, Brockton, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed June 14, 1971, Ser. No. 152,943
Int. Cl. B23k *9/00*
U.S. Cl. 219—137 **6 Claims**



The disclosed apparatus includes means for advancing the three strips of metal in edgewise abutting relation to each other over the periphery of a large metal roll which has two circumferential grooves formed therein, the grooves being arranged to be aligned with pairs of abutting strip edges as the strips are advanced over the roll. A pair of welding means are disposed in closely spaced relation to each other to weld respective pairs of abutting strip edges together substantially simultaneously while the strip edges are positioned over the roll grooves, the large metal roll serving to rapidly conduct heat away from the strips as they are welded to minimize the width of the weld formed between each pair of metal strips. In a preferred embodiment of the apparatus, additional rolls engage other surfaces of the metal strips welded to conduct additional heat away from the strips for further reducing the widths of the welds formed between the strips.

3,707,618
ELECTRIC IMMERSION HEATER ASSEMBLY

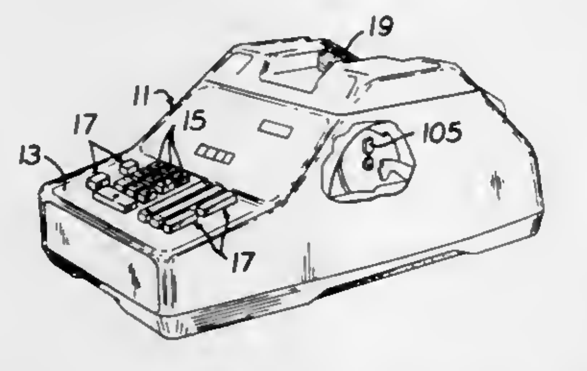
Edward J. Zeitlin, Purdys, and Lee Leighton, Mohegan Lake, both of N.Y., assignors to Edward J. Zeitlin, Purdys, N.Y.
Filed July 12, 1971, Ser. No. 161,596
Int. Cl. H05b *1/00*
U.S. Cl. 219—336 **5 Claims**



An electric immersion heater assembly for hot water heating boilers provided in one form as a single phase circuit with a central conductive reinforcing rod that is utilized as one electrode and a ceramic body surrounding said rod with a resistance heating wire spirally wound upon said ceramic body and connected at its other end with a second electrode, said electrodes extending out of the heater at the unimmersed end and said immersed portion glazed with a non-conductive coating. A further embodiment includes a multi-phase circuit and in which the central core includes three reinforcing conductive electrodes that are Delta connected to a multiphase power line.

3,707,619
ACTUATING APPARATUS FOR A BUSINESS MACHINE

Marvin Shapiro, Huntington, N.Y., assignor to Digitronics Corporation, Albertson, N.Y.
Filed March 12, 1970, Ser. No. 19,034
Int. Cl. G06c *9/00, 7/04*
U.S. Cl. 235—61 PE **16 Claims**

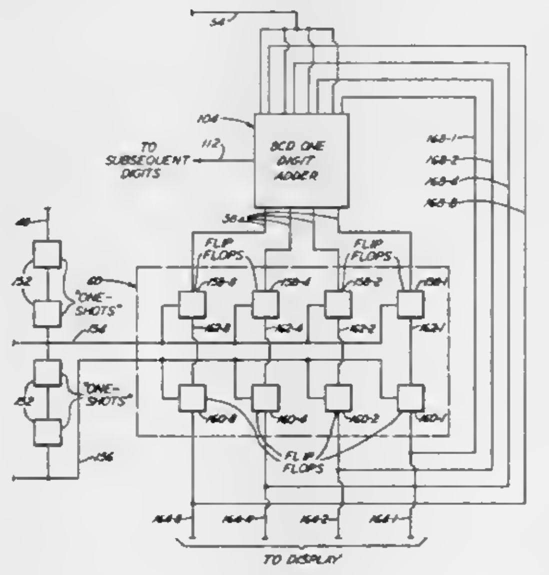


An actuating apparatus for entering data into a pin-box type business machine having a plurality of selectively and individually operable character and function keys wherein solenoids are provided which are responsive to operate signals for operating the pins in the pin-box memory. A signal generator is provided which is responsive to the operation of the character keys for applying the operate signal to the appropriate solenoid. Also provided is inhibit means for preventing the generation of the operate signal for a preselected interval of time and energizing means which operates the inhibit means in response to the operate signal. The invention also includes means for energizing any one solenoid upon the partial depression of the solenoid core to enter a character or function.

3,707,620
Patent Not Issued For This Number

3,707,621
SUCCESSIVE ADDITION UTILIZING A BISTABLE LATCH

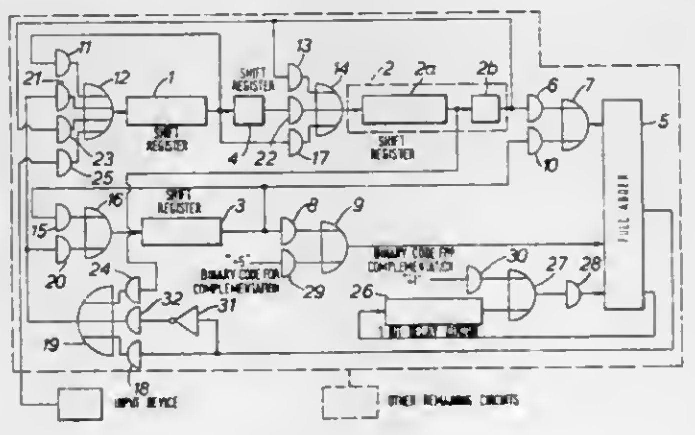
Ronald L. Krutz, and Thomas J. Villella, both of c/o Gulf Research & Development Co., P.O. Drawer 2038, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 815,838, April 14, 1969, Pat. No. 3,598,283. This application March 10, 1971, Ser. No. 122,726
Int. Cl. G06f *7/50*
U.S. Cl. 235—174 **9 Claims**



An improved electronic latch for causing a train of pulses to operate an adding device which is constantly fed a signal proportional to some number in such a way that for each pulse of said train of pulses said number will be added to the previous total in said adding device.

3,707,622
DIGITAL SERIAL ARITHMETIC UNIT

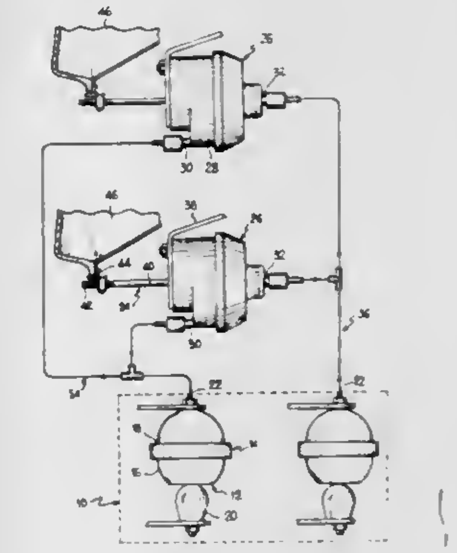
Isao Hatano; Akira Nagano, and Kenzi Yosimoto, all of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto-fu, Japan
Filed Dec. 14, 1970, Ser. No. 97,883
Claims priority, application Japan, Dec. 15, 1969, 44/101159
Int. Cl. G06f *7/50*
U.S. Cl. 235—176 **10 Claims**



An electronic system for use in calculating machines comprises a plurality of serial shift registers, an appropriate number of gates and a single serial full adder. This electronic system is adapted to perform the essential arithmetic operations in the calculator in a simple manner without necessitating a large number of components.

3,707,623
SYSTEM FOR CONTROLLING THE ANGULAR POSITION OF THE HEADLIGHTS OF A VEHICLE

Charles Rivolier, Cesson, France, assignor to Societe Anonyme D.B.A.
Filed Nov. 29, 1971, Ser. No. 202,751
Claims priority, application France, Dec. 3, 1970, 70-43444
Int. Cl. B60q *1/00, 3/00*
U.S. Cl. 240—7.1 LJ **5 Claims**

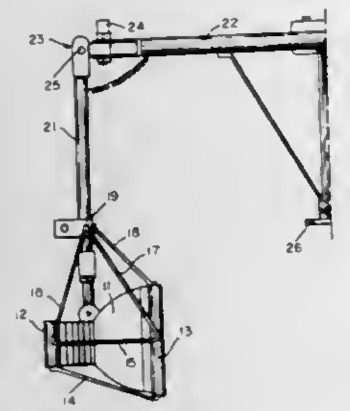


A control system for modifying the angular position of the headlights of a vehicle, on both sides of a normal preset position, according to the trim of the latter. The system utilizes a fluid pressure differential control to sense vehicle load by sensing the depression of the body of the vehicle relative to the chassis. By communicating the fluid pressure to an actuator at the headlights of the vehicle, the angular relationship between the headlights and the vehicle body may be varied as a function of the vehicle trim. The actuator is provided with a movable assembly of annular nested abutments resiliently urged a fixed stop of the actuator casing, and with a piston connected to the headlights subjected on one hand to said pressure differential and on the other hand to the strength of a spring biasing said piston into engagement with said movable assembly of abutments.

3,707,624
LOADING PLATFORM LIGHT FIXTURE

Anthony Marsh, 51 Revere Street, Hull, Mass.
Filed Nov. 12, 1970, Ser. No. 88,822
Int. Cl. F21v *15/00, 21/00*
U.S. Cl. 240—54 A **4 Claims**

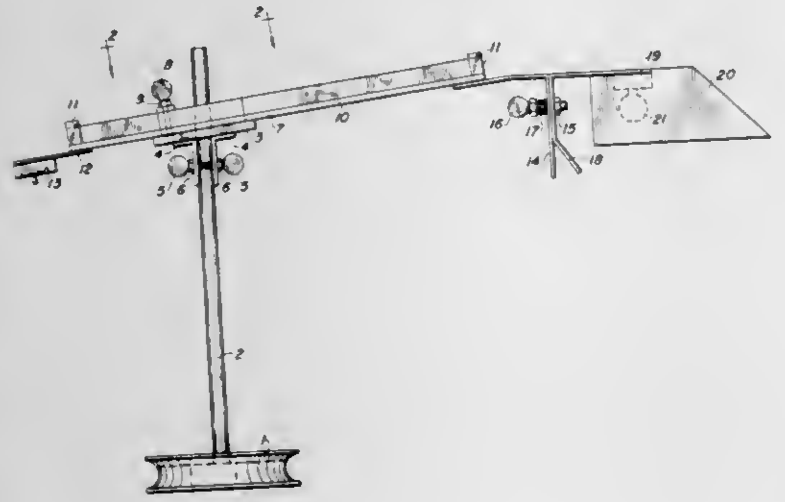
A conventional light fixture having a protective shield which absorbs impact and destructive forces and flexible coupling which avoids forces which it cannot withstand.



3,707,625

ROTARY FLOOR AND TABLE LIGHT

Ralph L. Hustead, R.D. No. 2, Box 127, Union Town, Pa.
Continuation-in-part of Ser. No. 727,265, May 7, 1968, abandoned. This application Oct. 6, 1970, Ser. No. 78,555
Int. Cl. F21s *1/12*
U.S. Cl. 240—81 BA **2 Claims**

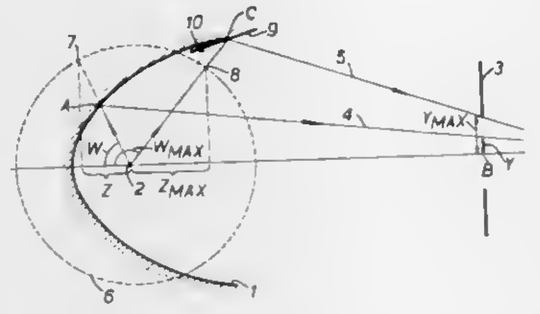


A bracket with a pair of parallel vertical plates engages opposite sides of a round post and has end portions projecting away from the post in opposite directions. An adjusting screw at each side of the post draws the ends of the plates toward each other to press the plates tightly against the post. A cross arm is supported by the brackets transversily of the post and carries a light socket on one end. This arm is adjustable lengthwise across the post to vary the distance between the light socket and the post.

3,707,626

OPTICAL REFLECTOR

Robert John Deichen, 22 Beacon Grove, 31/33 High Street, Carshalton, England
Filed April 8, 1971, Ser. No. 132,490
Claims priority, application Great Britain, April 10, 1970, 17277/70
Int. Cl. F21v *7/00, 7/04*
U.S. Cl. 240—103 R **2 Claims**

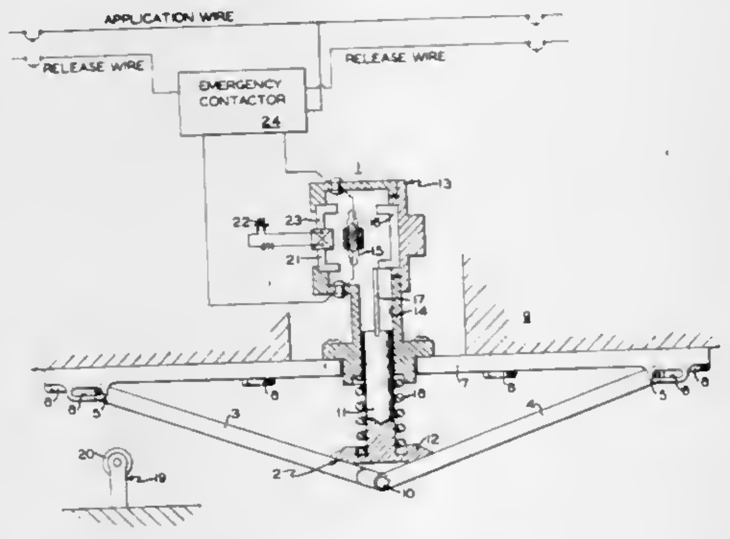


An optical reflector suitable for use in spotlights for projectors to direct light from a source through a gate to a lens system forming an objective. The reflector is so shaped that a substantial even field of illumination is obtained at the gate.

3,707,627

EMERGENCY TRIP APPARATUS FOR A BRAKING SYSTEM

Charles W. Sheppard, Trafford, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Dec. 16, 1970, Ser. No. 98,602
Int. Cl. B61l *3/04;* **H01h** *9/00*
U.S. Cl. 246—192 **6 Claims**

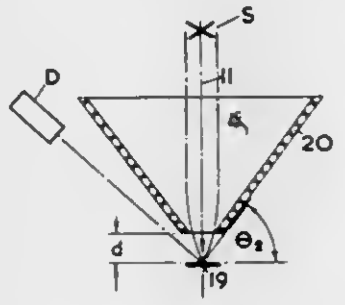


An electric trip switch device for railroad service utilizing a magnetic reed switch in proximity with a permanent magnet, which acts upon the reed switch. A magnetic conductor is adapted to move between the permanent magnet and reed switch in accordance with the actuating mechanism of the trip switch being engaged by a trackside detector to control the reed switch operation. An interlock circuit responsive to the electric signal provided by the reed switch may be employed to control application and release train line wires to produce a trip switch initiated brake application. Reset means comprising an electro-magnet is provided to momentarily reinforce the magnetic field produced by the permanent magnet to initially close the reed switch contacts following a trip switch actuation, after which the contact closure is maintained by the permanent magnet.

3,707,628

MAGNETIC LENSES

Richard Bassett, near Cheltenham, and Thomas Mulvey, Birmingham, both of England, assignors to National Research Development Corporation, London, England
Continuation of Ser. No. 753,127, Aug. 16, 1968, abandoned. This application March 22, 1971, Ser. No. 126,930
Claims priority, application Great Britain, Aug. 18, 1967, 38,250/67
Int. Cl. H01j *37/26;* **G01n** *23/22*
U.S. Cl. 250—49.5 PE **11 Claims**

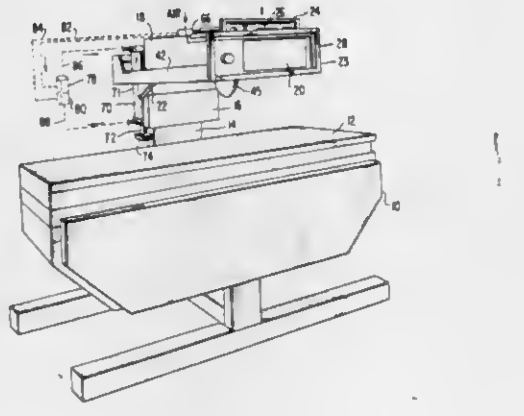


A magnetic lens, for focusing a beam of charged particles, includes a coil at least part of which, at an end thereof, tapers conically with a half-angle between 20° and 85°. The coil may comprise a plurality of conductors laid concurrently, and cooling means may be provided in contact with the inner surface. Desirably, the coil is shrouded, at least in part, with material of high magnetic permeability. Radiation such as X-rays, from a target in focus beyond the tapering end of the coil, may be detected over a large solid angle.

3,707,629

PNEUMATIC POWER ASSIST APPARATUS FOR SPOT FILM DEVICE

John Ronald Colston, Annapolis, Md., assignor to CGR Medical Corporation, Cheverly, Md.
Filed Aug. 18, 1971, Ser. No. 172,631
Int. Cl. G01n *21/34*
U.S. Cl. 250—58 **15 Claims**

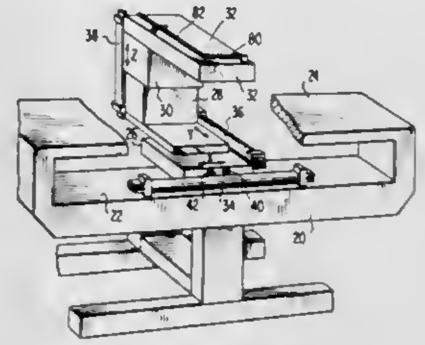


A three axis pneumatic power assist system particularly adapted for moving a spot film device on an X-ray table. The system is adapted to control the motion of a spot film device accurately and safely with little effort from the operator and preferably includes a wrap-around handle which allows the operator to feel the force exerted by the spot film device on a patient and to operate various controls simultaneously.

3,707,630

PNEUMATIC POWER ASSIST APPARATUS FOR SPOT FILM DEVICE

Harry E. Koerner, and William C. Horsey, both of Baltimore, Md., assignors to CGR Medical Corporation, Cheverly, Md.
Filed Oct. 5, 1971, Ser. No. 186,660
Int. Cl. G01n *21/34*
U.S. Cl. 250—58 **19 Claims**

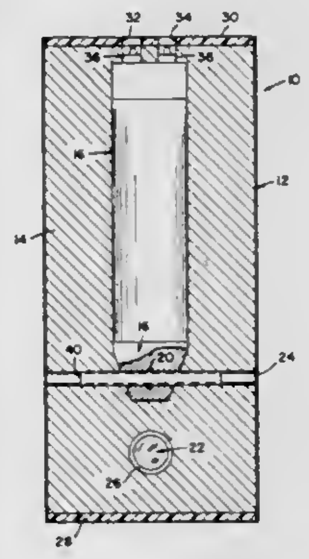


A three axis pneumatic power assist system which is particularly adapted to move a spot film device over a patient lying on an X-ray table. Three separate pneumatic circuits are adapted to power three mutually perpendicularly movable carriages in response to a control handle mounted on the spot film device so that the spot film device may be easily movable anywhere over the top of the X-ray table within predefined limits. A double acting spring biased spool valve is utilized for each of the three axes and is actuable by the control handle to cause a control signal to be fed to a pneumatic actuator which powers the respective carriage. When desirable the control handle and the control valves may be remotely located from the X-ray table and the spot film device with suitable pneumatic interconnection lines being provided therebetween.

3,707,631

NUCLEAR FUEL ASSAY SYSTEM

Samuel Untermyer, Portola Valley, Calif., assignor to National Nuclear Corporation, Palo Alto, Calif.
Filed April 2, 1970, Ser. No. 25,157
Int. Cl. G01t *1/20, 3/00*
U.S. Cl. 250—71.5 R **17 Claims**



A system for the non-destructive assay of nuclear fuel is disclosed. A scintillating body is positioned near the fissionable fuel species to be assayed. An interrogating beam of low energy neutrons is passed through a moderating material to reduce the neutrons to the thermal or low epi-thermal regions. The moderated interrogating beam penetrates a selected segment of the fuel. Fission of the fissionable species radiates fast neutrons into the scintillating body producing proton recoil in hydrogenous material. These protons produce scintillation events in large sized phosphor grains. Photons from the scintillation events are carried through a transparent light guide to a light detector for counting. The light guide is disclosed as a substantially transparent, non-scintillating polymer surrounded by a light reflecting layer which in turn is covered by a light shield. In a modified form the nuclear fuel to be assayed is positioned in a cavity enclosed by a moderating material with a neutron source and scintillating body radially positioned from the cavity. The scintillating material is arrayed in a series of grooves formed in a transparent light guide connected with a counting device.

3,707,632
RADIATION DOSIMETER HAVING TWO IONIZATION CHAMBERS WITH DIFFERENT RATIOS OF NEUTRON TO GAMMA RADIATION RESPONSES

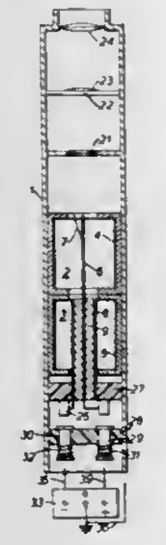
Paul Neville Cooper, Sutton Coldfield, and Bryan John Tymons, Berrick Prior, near Benson, both of England, assigoors to R. A. Stephen & Company Limited, Surrey, England

Filed Nov. 30, 1970, Ser. No. 93,700

Claims priority, application Great Britain, Dec. 2, 1969, 58,857/69

Int. Cl. G01t *1/14, 3/00*

U.S. Cl. 250—83.3 PD **10 Claims**



An ionization dosimeter includes two ionization chambers having different ratios of neutron radiation response to gamma radiation response. One pair of corresponding electrodes of the two chambers are connected directly together. The other pair of corresponding electrodes are coupled through a capacitance. The two chambers are electrically charged in opposite polarities so that the change in potential across the capacitance is proportional to the difference between the responses of the two chambers. The value of the coupling capacitance can be chosen so that the potential represents either the effective biological radiation dose, or the neutron radiation dose.

3,707,633
THERMOELECTRIC PULSE GENERATOR FOR MOTOR VEHICLES

Eckhard Ursel, Kappelrodeck, Germany, assignor to Robert Bosch G.m.b.H, Stuttgart, Germany

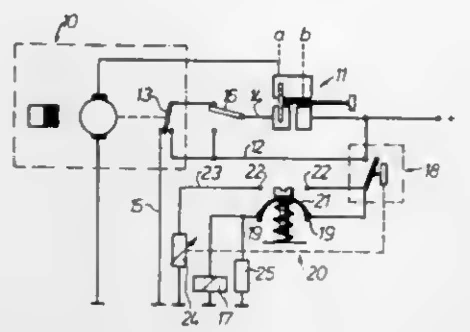
Filed March 1, 1972, Ser. No. 230,759

Claims priority, application Germany, March 10, 1971, P 21 11 447.6

Int. Cl. H01h *35/00*

U.S. Cl. 307—106 **10 Claims**

A pulse generator arrangement in which a heat-sensitive bimetallic snap disc is connected to a heating circuit when in its initial position. After being heated by current passing directly through the snap disc, the element moves to an actuated position in which a second circuit becomes closed. In the second circuit, the bimetallic snap disc becomes subjected to a lower heating current and thereby cools to a temperature required for the disc to snap back to its initial position. A motor and control circuit operating in conjunction with the snap disc serves for intermittent operation of windshield wipers in a motor vehicle.



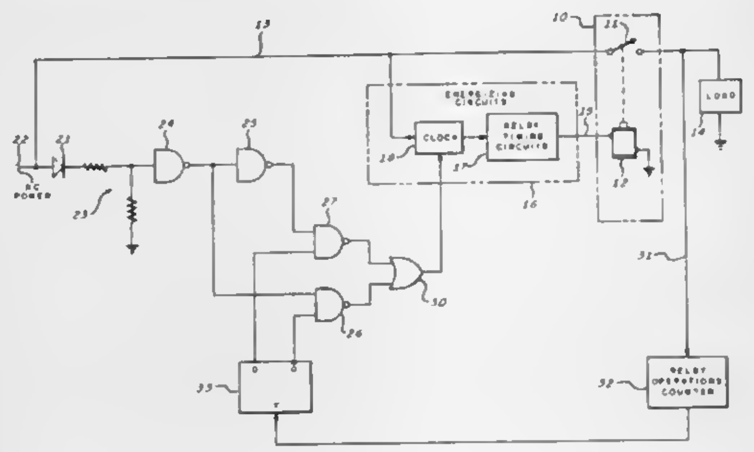
3,707,634
APPARATUS FOR EXTENDING CONTACT LIFE OF RELAYS UTILIZED FOR A.C. LOAD SWITCHING

David Arlen, Jericho; Louis A. Guido, Northport, and Lawrence P. Quinn, Glen Cove, all of N.Y., assignors to Sperry Rand Corporation

Filed March 31, 1971, Ser. No. 129,771

Int. Cl. H01h *1/50*

U.S. Cl. 307—138 **6 Claims**



Apparatus for use with a relay utilized to switch alternating current loads to extend the contact life thereof. Circuits are included to cause alternate energization of the relay to occur in time coincidence with points on the alternating current waveform that are 180° apart, respectively. Thus, the alternate operations of the relay occur at alternate polarities of the a.c. waveform switched. Hence, contact material transferred from one contact to the other during one relay operation is re-transferred from the other contact to the one on the next following relay operation.

3,707,635
CONSTANT EFFECTIVE VOLTAGE POWER SOURCE CIRCUIT

Yoshichi Kawashima, Gifu, Japan, assignor to Nippondenso Kabushiki Kaisha

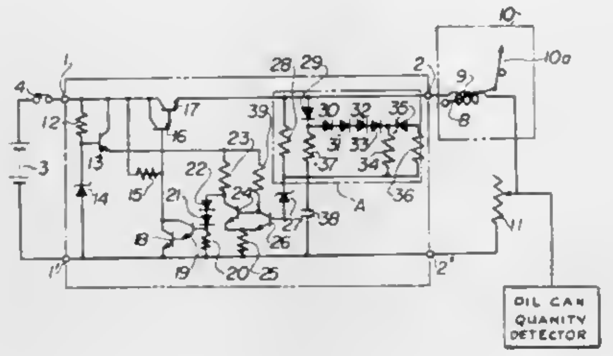
Filed Nov. 3, 1970, Ser. No. 86,399

Claims priority, application Japan, Dec. 16, 1969, 44/101056

Int. Cl. G05f *1/40*

U.S. Cl. 307—297 **5 Claims**

A constant effective voltage power source circuit utilizing the charging and discharging of a capacitor. It includes an output voltage detection circuit having non-linear elements such as a diode and a constant-voltage diode which impart a parabolic current-voltage characteristic to the power source circuit. The output voltage detection circuit functions to vary the charging current into the capacitor, which is repeatedly charged and discharged to provide an effective output voltage, in accordance with the source voltage detected by it to control the effective output voltage to a constant value.



3,707,636
HIGH VOLTAGE GENERATING APPARATUS UTILIZING PIEZOELECTRIC TRANSFORMERS

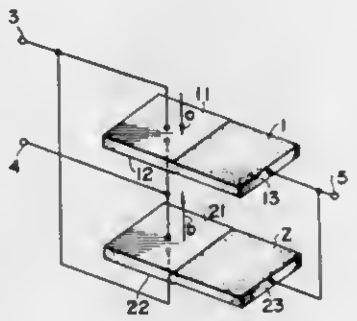
Keiji Inoue, Yokohama, Japan, assignor to Denki Onkyo Company Limited, Tokyo, Japan

Filed Sept. 23, 1970, Ser. No. 74,808

Claims priority, application Japan, Sept. 30, 1969, 44/92792 (utility model)

Int. Cl. H01v *7/00*

U.S. Cl. 310—8.1 **4 Claims**



In a high voltage generating apparatus, there are provided a plurality of piezoelectric transformers which are connected in parallel and a driving voltage of the same frequency as the natural frequency or its higher harmonic is applied across the parallel connected driving electrodes of the piezoelectric transformers to polarize them in the same direction relative to their residual polarization.

3,707,637
DYNAMOELECTRIC MACHINE WITH LINT GUARD FOR TERMINALS

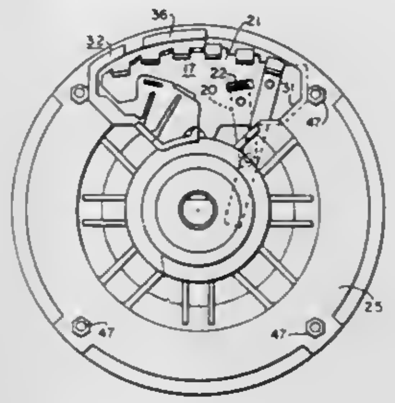
Thomas Charlton, and Kenneth L. Catlon, both of Lima, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed April 28, 1971, Ser. No. 138,144

Int. Cl. H02k *11/00*

U.S. Cl. 310—71 **5 Claims**

A lint guard is provided that prevents dust and lint from entering a motor in such a quantity that a fire hazard may be created and yet the lint guard does not require an assembly operation after the complete wiring of the motor. The lint guard is a generally cup-like member that fits in the conduit box opening of the motor end bell with one or more openings to accommodate terminals extending from a terminal board mounted on the end bell. The lint guard is preferably molded from a fire retardant plastic material.



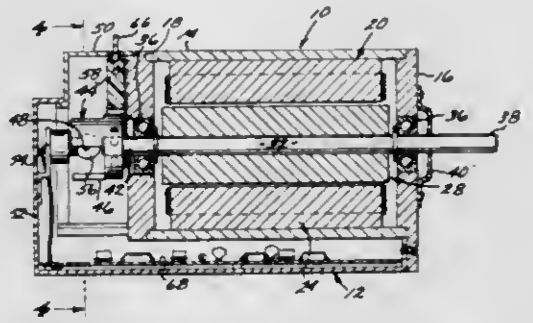
3,707,638
ELECTRIC MOTOR UTILIZING A FERRITE STATOR OF LOW COERCIVENESS, FERRITE ROTOR OF HIGH COERCIVENESS, AND PHOTO-ELECTRIC COMMUTATION

James C. Nailen, Santa Ana, Calif., assignor to Alumina Ferrite Corporation of America, Chatsworth, Calif.

Filed March 9, 1970, Ser. No. 17,712

Int. Cl. H02k *21/04, 21/44*

U.S. Cl. 310—152 **1 Claim**



An electric motor with a wound stator and a permanent magnet rotor, wherein optical commutation is combined with a ferrite stator core to provide improved high speed capability and efficiency, long life, and utility in any atmosphere. A novel pole format of six poles or multiple thereof combined with electronic pulsing gives the motor a stepping capability enabling it to follow incremental tape storage, computer, or master-slave commands, as well as providing further torque and speed potential. Optional use of a ferrite rotor provides extreme longevity to the motor.

3,707,639
ELECTRON DISCHARGE TUBES

Alan Hugh Pickering, Chelmsford, England, assignor to English Electric Valve Company Limited, London, England

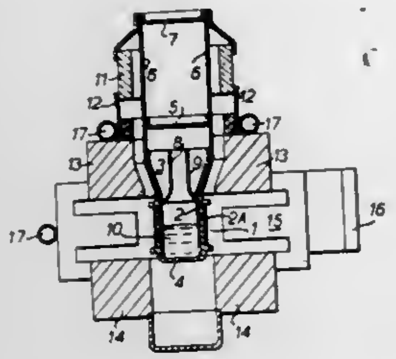
Filed Sept. 14, 1970, Ser. No. 72,040

Claims priority, application Great Britain, Sept. 16, 1969, 45,692/69

Int. Cl. H01j *23/04*

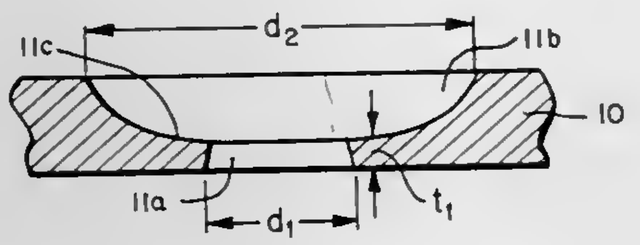
U.S. Cl. 313—30 **19 Claims**

An electron discharge tube has its cathode carried by a supporting structure constituted by a closed hollow container which is in good heat exchanging relation with the cathode. In the container is a quantity of sodium, potassium, caesium, rubidium, lithium or an alloy of two or more of these metals having a boiling point equal to the desired cathode operating temperature. In operation the container acts as a boiler and condenser for the material.



3,707,640
SHADOW MASK HAVING DOUBLE-SIZED APERTURES

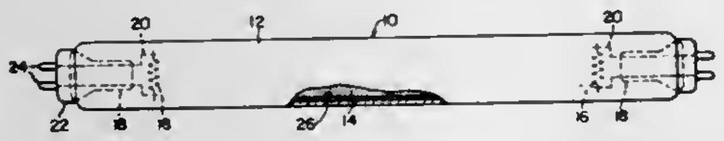
Martin L. Lerner, River Forest, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed June 18, 1970, Ser. No. 47,401
Int. Cl. H01j *29/06, 29/08, 31/20*
U.S. Cl. 313—85 S 3 Claims



The shadow mask of a color picture tube has a field of apertures each of which includes a small-diameter portion surrounded by a web usually having a thickness less than half the thickness of the sheet from which the mask is formed. The web thickness, instead of being uniform over the aperture field, decreases with radial distance from the center of the field.

3,707,641
DISCHARGE DEVICE WHICH UTILIZES A MIXTURE OF TWO FLUORESCENT MATERIALS

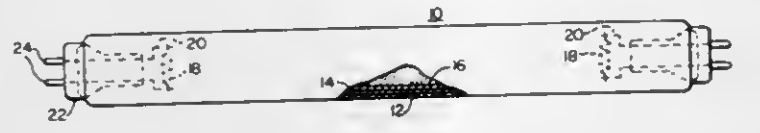
William A. Thornton, Cranford, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 22, 1970, Ser. No. 100,680
Int. Cl. H01j *61/44*
U.S. Cl. 313—109 5 Claims



Discharge device incorporates phosphor combination wherein a first phosphor responds to ultraviolet excitation to provide an emission both in the visible and the ultraviolet. A second phosphor is excited by the ultraviolet emission of the first phosphor to emit in the visible, thereby to provide a very efficient composite emission.

3,707,642
VAPOR LAMP WHICH INCORPORATES A SPECIAL PHOSPHOR COATING

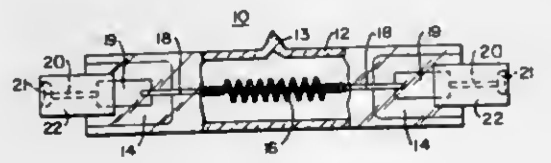
William A. Thornton, Jr., Cranford, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 31, 1970, Ser. No. 68,221
Int. Cl. H01j *61/44, 61/48*
U.S. Cl. 313—109 7 Claims



Fluorescent lamp incorporates a finely divided phosphor coating of different particle sizes. The phosphor particles of the coating which are positioned next to the envelope inner surface are preferably relatively fine and are smaller than the relatively coarse particles which are positioned farther from the envelope inner surface. Such a special phosphor coating enables the total amount of coated phosphor to be considerably reduced.

3,707,643
HALOGEN REGENERATIVE-CYCLE INCANDESCENT LAMP

Lymperios N. Yannopoulos, and Alfred H. Pebler, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 30, 1971, Ser. No. 158,435
Int. Cl. H01k *7/00*
U.S. Cl. 313—222 4 Claims

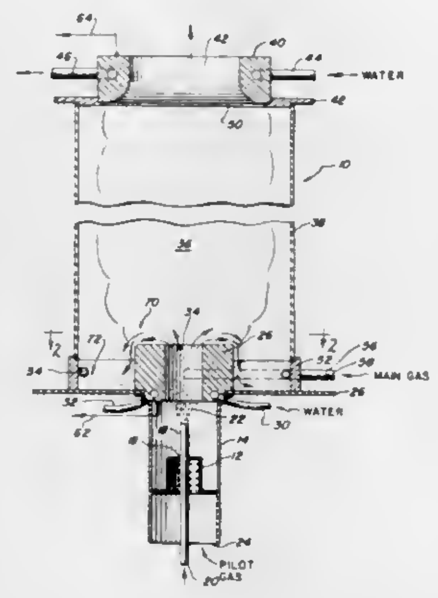


The quality and useful life of regenerative-cycle type incandescent lamps are enhanced by dosing the lamp with a carefully controlled amount of carbon tetrabromide that is vaporized and admixed with an inert fill gas, such as a mixture of 90 percent argon and 10 percent nitrogen. Both oxygen and hydrogen are purged from the lamp prior to the gas-filling operation and are excluded from the CBr_4-dosed fill gas. A method for filling such lamps with a mixture of an inert gas and a small carefully-controlled amount of vaporized halogen-containing material that is monitored by infrared measuring techniques is also disclosed.

3,707,644
APPARATUS FOR HEATING GASES TO HIGH TEMPERATURES

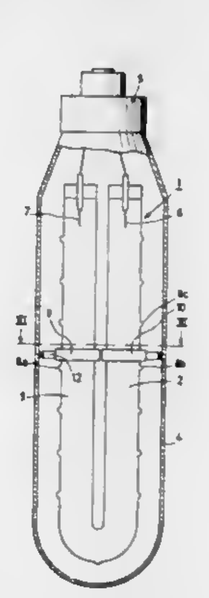
Thomas J. Hirt; Richard D. Kissinger; John P. Kendall, and Karl H. Frantzen, all of Omaha, Nebr., assignors to Northern Natural Gas Company, Omaha, Nebr.
Filed Feb. 19, 1971, Ser. No. 116,893
Int. Cl. H01j *17/26;* **B23k** *9/00*
U.S. Cl. 313—231 5 Claims

Improved apparatus for heating gases to high temperatures without a flame produced by chemical combustion, including a pair of electrodes positioned in the gas stream, means for creating a distributed discharge through the gas stream between the electrodes, including the addition of an ionizing additive to the gas stream, and means providing a pressure differential zone adjacent the upstream electrode to form a recirculation of a portion of the ionized additives about the upstream electrode. The improved apparatus is especially advantageous in a process for titanium dioxide by heating oxygen, as well as other applications where the normal combustion would provide undesirable products during processing.



3,707,645
VIBRATION REDUCING ASSEMBLY FOR OBLONG DISCHARGE LAMP

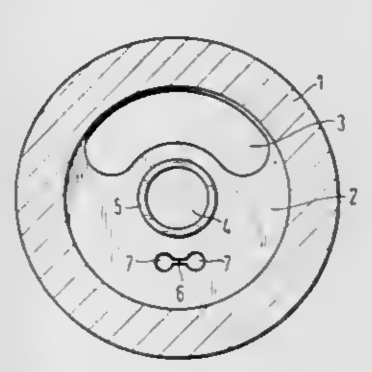
Urbaan Paul Marguerite Goossens, Elversele, Belgium; Willem Lodewijk Van Hoorn, and Gerard Marie Jules De Neve, both of Essasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 24, 1971, Ser. No. 118,238
Claims priority, application Germany, Feb. 28, 1970, G 70 07 375.5; July 9, 1970, G 70 25 867.2
Int. Cl. H01j *1/18, 19/12*
U.S. Cl. 313—269 6 Claims



Shock and vibration are dampened in an oblong discharge lamp having a u-shaped tube, by the inclusion of resilient supports about each portion of the u-shaped tube to act as a buffer between the tube and outer envelope. The resilient supports include means for preventing rotation of the resilient supports about the legs of the u-shaped tube.

3,707,646
DELAY LINE FOR TRAVELLING WAVE TUBES

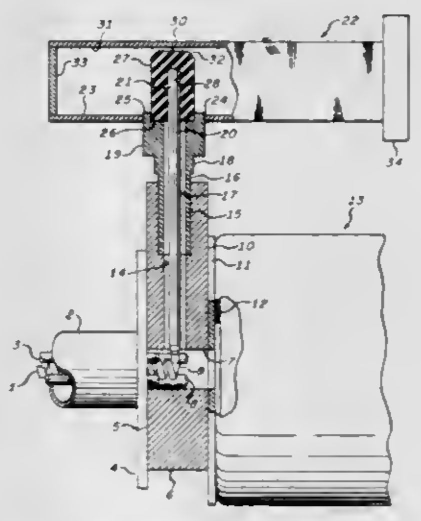
Franz Gross, Munich, Germany, assignor to Siemens-Aktiengesellschaft, Berlin and Munich, Germany
Filed Dec. 30, 1970, Ser. No. 102,766
Claims priority, application Germany, Jan. 14, 1970, P 20 01 487.3
Int. Cl. H01j *25/34;* **330** *42*
U.S. Cl. 315—3.5 5 Claims



A delay line for a travelling wave tube in the form of an inter-digital line arranged in a hollow conductor and having coupling slots in partitions between line segments, utilizes additional tuned slots to destroy undesired interfering frequencies.

3,707,647
HIGH FREQUENCY VACUUM TUBE ENERGY COUPLER

John L. Rawls, Jr., Archer, Fla., assignor to Sperry Rand Corporation
Filed March 10, 1971, Ser. No. 122,877
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.5 7 Claims

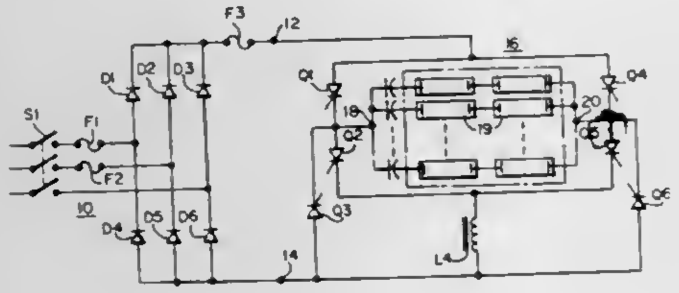


A high frequency transmission line coupler for transfer of propagating high frequency energy with respect to the interior of a high frequency vacuum tube is characterized by a rugged vacuum envelope system permitting transfer of high power with freedom from the development of electrical arcs and cracking and leaking of vacuum seals. The structure eliminates the need for making a vacuum seal at the inner conductor of the coupling transmission line element and provides greatly increased tolerance to thermal and other shock mechanisms.

3,707,648
INVERTER APPARATUS AND METHOD FOR HIGH FREQUENCY FLUORESCENT LAMP OPERATION

John Rosa, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 28, 1970, Ser. No. 75,917
Int. Cl. H05b *37/00*
U.S. Cl. 315—231 8 Claims

Apparatus and method for operating fluorescent lamps with high frequency AC inverted from a DC source comprises a thyristor bridge having an inductor in circuit therewith. The bridge is adapted to be connected directly to the power source and is also adapted to be disconnected therefrom to permit "-free-wheeling" operation of the lamps from energy previously stored in the inductor. For a part of each operating half cycle, energy previously stored in the inductor is used to operate the lamps with the power supply being disconnected, and for the remainder of the half cycle, the lamps are operated directly from the power source and energy is stored in the inductor for lamp operation during a part of the next half cycle.



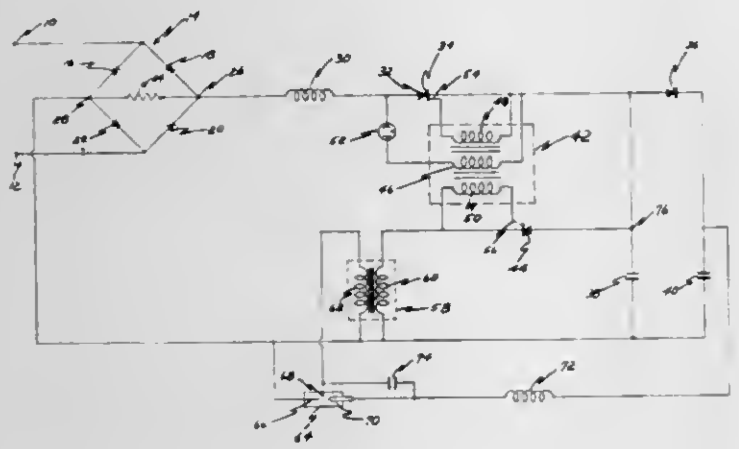
3,707,649
INTERMITTENT ARC ILLUMINATION SOURCE

James P. Kottenstette, Denver, Colo., assignor to Denver Research Institute, Denver City, Colo.

Filed July 20, 1970, Ser. No. 56,342

Int. Cl. H05b *37/00*

U.S. Cl. 315—239 **11 Claims**



An intermittent arc illumination source which utilizes a xenon short arc lamp operated in a pulse mode by a controlled discharge circuit operating from a low voltage alternating current source. The high current, high energy pulses are intermittently produced for conduction through the lamp at a rate sufficiently rapid to make the resulting bursts of illumination appear continuous to the human eye.

3,707,650
PROTECTIVE SYSTEM FOR SERIES CAPACITORS

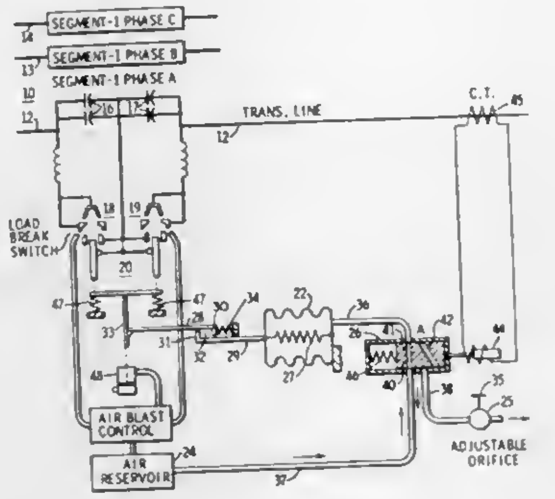
Robert T. Innis, Ellettsville; Alan J. Berg, and James N. Santilli, both of Bloomington, all of Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 22, 1969, Ser. No. 826,977

Int. Cl. H02b *7/16*

U.S. Cl. 317—12 A **5 Claims**

Time delay means for actuating a protective bypass switch for series capacitors comprising a bellows device containing a gaseous medium, a valve means pneumatically connected to the bellows, and an adjustable control orifice device, the control orifice being effective to release the gaseous medium from the bellows at a predetermined rate when an overcurrent condition is sensed on the line, the bellows being effective to actuate the protective switch a predetermined time after the overcurrent is sensed.



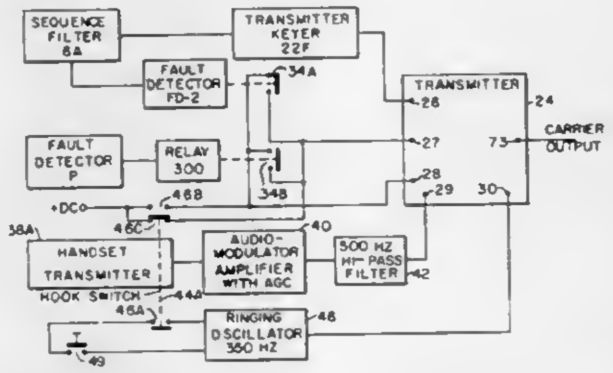
3,707,651
FREQUENCY SHIFTED MODULATED CARRIER PROTECTIVE RELAYING SYSTEM WITH AMPLITUDE MODULATED VOICE COMMUNICATION

Herbert W. Lensner, East Orange, and Roger E. Ray, Parsippany, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 29, 1971, Ser. No. 157,880

Int. Cl. H02h *7/26*

U.S. Cl. 317—28 R **17 Claims**



Relaying apparatus using a carrier wave which shifts frequency to perform its relaying function and which carrier wave is amplitude modulated, at frequencies greater than the shift frequency of the wave, to provide a voice channel which has no effect on the relaying operation; the lower frequency magnitudes of the voice frequencies being attenuated so that the amplitude modulation of the wave is solely at frequencies higher than the shift frequency of the frequency modulated wave; the ringing frequency being selected to be above the magnitude of the shift in frequency and below the attenuated voice frequencies.

3,707,652
BUS BAR INTERCONNECTION ARRANGEMENT FOR STACKABLE ELECTRICAL PANELS

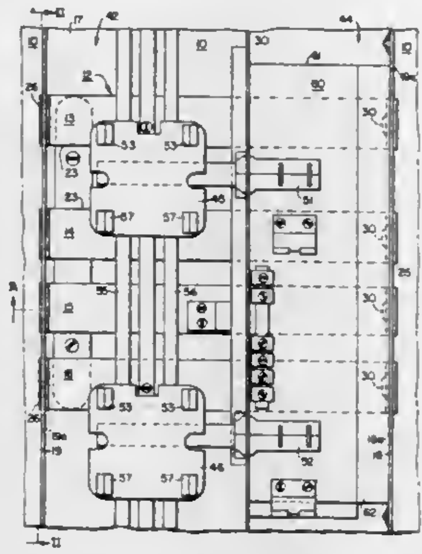
William F. Coffey, Stratford, and Kenneth R. Coley, Fairfield, both of Conn., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1972, Ser. No. 229,990

Int. Cl. H02b *1/20*

U.S. Cl. 317—120 **4 Claims**

A bus bar interconnection arrangement for stackable electrical panels includes bus bars mounted along the rear wall of a panel enclosure with the bar ends bent forward along the side walls of the enclosure. Openings in the side walls expose the bar ends to permit mating engagement and direct contact connection with complementary bar ends of a bus bar of an adjacent panel.



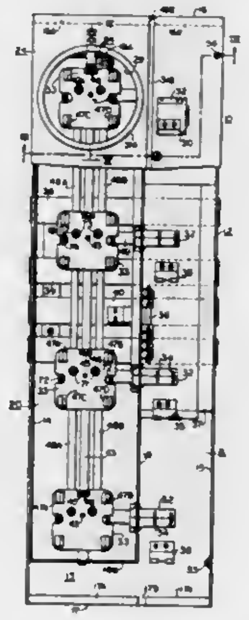
3,707,653
FRONT COVER ASSEMBLY FOR ELECTRICAL PANELS

William F. Coffey, Stratford, and Kenneth R. Coley, Fairfield, both of Conn., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1972, Ser. No. 229,994

Int. Cl. H02b *1/04, 9/00*

U.S. Cl. 317—120 **6 Claims**



A front cover assembly for electrical panels has detachable cover sections including mating sides fastened together so as to form an integral unit covering separate compartments of the panel and for removal of one cover section to open a panel compartment while another compartment remains closed by the cover assembly.

3,707,654
SERIES-PARALLEL ELECTRICAL CIRCUIT

Zygmunt A. Wachta, Boston, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

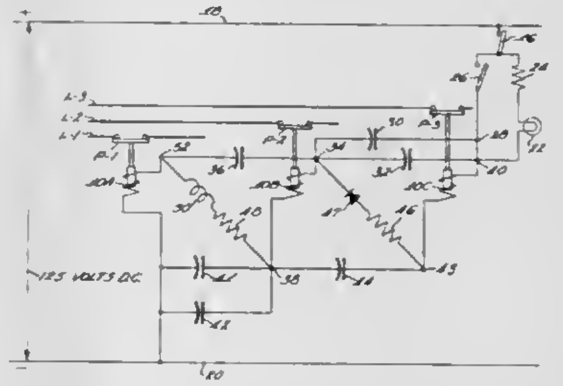
Filed May 26, 1971, Ser. No. 147,132

Int. Cl. H01h *47/10*

U.S. Cl. 317—157 **21 Claims**

A direct current electrical circuit in which any number of electrical devices may be energized in parallel with each other to momentarily provide a higher state of energization of the devices, or in which the devices may be energized in series with each other to provide a lower state of energization of the devices, with the circuit automatically reverting from the parallel energization state to the series energization state.

The invention is shown embodied in a trip coil circuit for a multi-pole electrical circuit breaker, such as a three-pole circuit breaker, in which each pole of the circuit breaker is provided with its own separate trip coil, including capacitor means in circuit with each respective trip coil whereby to place each respective trip coil electrically in parallel with the other trip coils across the direct current potential when the trip circuit is initially energized for tripping operation, and additional circuit means connecting the trip coils in series with each other across the direct current potential to provide an alternative current flow path for the trip coils when the capacitor means become substantially fully charged, and also to provide a series path through the trip coils whereby a supervisory signal device may monitor for trip circuit continuity prior to initiation of a tripping operation. The circuit thereby combines the advantages of the fast response time characteristic of a parallel circuit with the supervisory capability of a series circuit for monitoring circuit continuity of the plurality of trip coils.



3,707,655
A SEMICONDUCTOR DEVICE HAVING PAIRS OF CONTACT AREAS AND ASSOCIATED SUPPLY CONDUCTOR POINTS OF ATTACHMENT IN A PREFERRED ARRANGEMENT

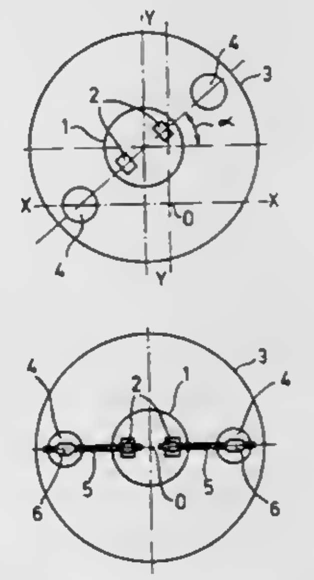
Joannes Gerard Rudolph, and Gerard Moesker, both of Mollenhutsweg, Nijmegen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 9, 1970, Ser. No. 70,761

Claims priority, application Netherlands, Sept. 11, 1969, 6913812

Int. Cl. H01l *3/00, 5/00*

U.S. Cl. 317—234 R **5 Claims**

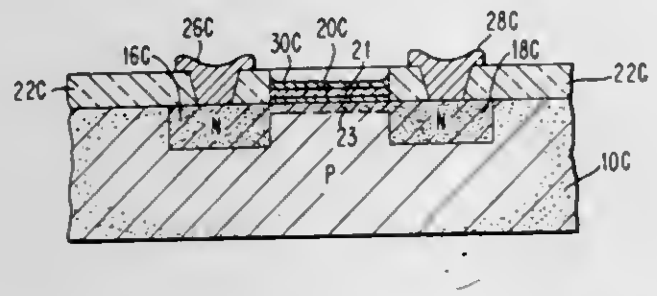


A semiconductor device features pairs of contact areas and associated supply conductor points of attachment in a preferred arrangement which facilitates the manufacturing of the device. The intersection of the locus of all the lines defined by each contact area and associated supply conductor point of attachment is a single point.

3,707,656

TRANSISTOR COMPRISING LAYERS OF SILICON DIOXIDE AND SILICON NITRIDE

David DeWitt, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 572,119, Aug. 12, 1966, abandoned. This application Feb. 19, 1971, Ser. No. 117,077
Int. Cl. H01l *11/14*
U.S. Cl. 317—235 **12 Claims**

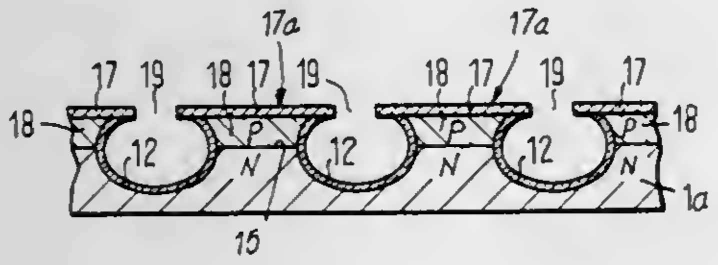


A semiconductor structure in which a substrate having surface regions of opposite type conductivity is covered with two different insulating layers. In a specific structure, the regions in the substrate form an isolated gate field effect transistor with a thin layer of silicon nitride forming the insulation in the gate portion and a thicker layer of silicon dioxide forming the insulation over the remainder of the device.

3,707,657

TARGET STRUCTURE FOR A VIDICON TUBE AND METHODS OF PRODUCING THE SAME

Werner Veith, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Dec. 2, 1970, Ser. No. 94,382
Claims priority, application Germany, Dec. 3, 1969, P 19 60 705.7
Int. Cl. H01l *15/00*
U.S. Cl. 317—235 R **7 Claims**

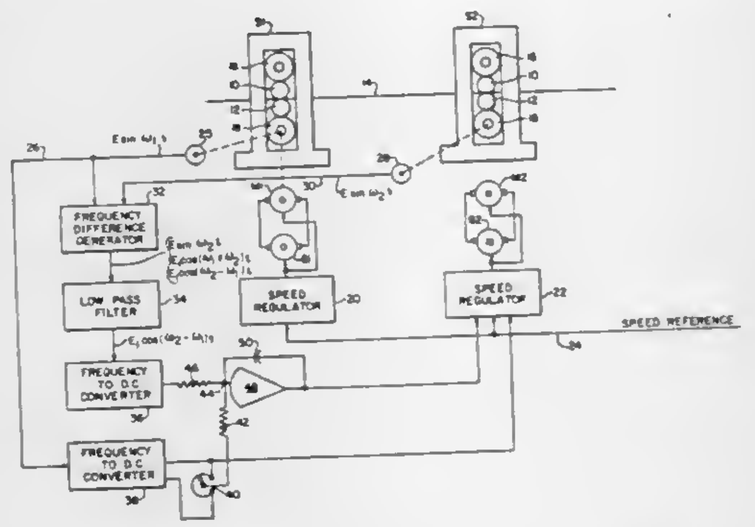


A vidicon tube target structure wherein a n-conductive signal plate has a target surface thereof provided with a p-conductive layer and an array of fine grooves extend from this layer downwardly beyond the p-conductive layer into the signal plate to define an array of mesa-like p-conducitve land areas. The peripheral groove walls are coated with an insulator material while the land areas are coated with a conductive metal. The grooves and lands are configured to provide an increased amount of utilizable effective target surface area for a scanning electron beam.

3,707,658

STRETCH CONTROL SYSTEM FOR ELONGATE MATERIAL

Laurence L. Hilsenbeck, Lancaster, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed March 3, 1971, Ser. No. 120,586
Int. Cl. B65h *59/38*
U.S. Cl. 318—7 **9 Claims**

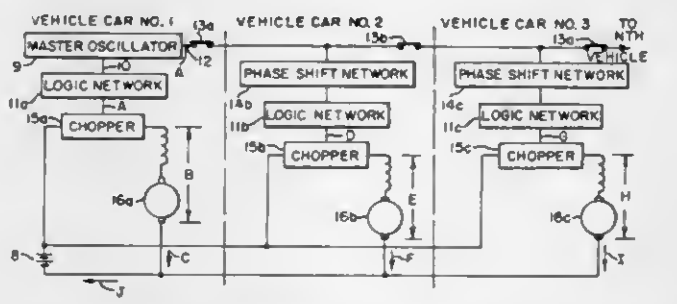

FREQUENCY DIFFERENCE GENERATOR
LOW PASS FILTER
FREQUENCY TO D.C. CONVERTER
FREQUENCY TO D.C. CONVERTER
SPEED REGULATOR
SPEED REGULATOR
SPEED REFERENCE

System for controlling the speeds of rolls or the like in succeeding tandem stands of a rolling mill, or the speed of the rolls of a single stand operative with a take-up or pay-off reel, to produce a predetermined amount of stretch in elongate material passing through the mill. This is accomplished by generating alternating current signals whose frequencies are proportional to the speeds of succeeding stands in a tandem mill, for example, and by utilizing these signals to generate a direct current signal proportional to the difference in respective frequencies, and, hence, the difference in speeds. The value of this latter signal is then compared with a reference value to vary the speed of the second stand or a reel to maintain a substantially constant stretch relationship for the material.

3,707,659

CHOPPER CONTROL APPARATUS HAVING A COMMON CONTROL PATH

Hendrik C. Appelo, Geneva, Switzerland, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 9, 1971, Ser. No. 151,440
Int. Cl. H02p *5/46*
U.S. Cl. 318—52 **6 Claims**

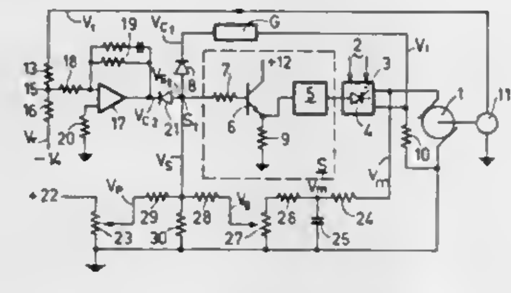


A vehicle includes a plurality of vehicle cars, one vehicle car of which provides a vehicle control signal for use by itself as well as for transmission over a single signal transmission path to the other vehicle cars. In the other vehicle cars the vehicle control signal is delayed a finite amount of time which is determined by the number of vehicle cars. The resultant vehicle control signal present in each vehicle car is used to control the chopper conduction period for the vehicle car. The control of the respective chopper conduction periods results in a reduction of the ripple current from the power source.

3,707,660

ARRANGEMENT FOR REGULATING THE CURRENT SUPPLIED TO THE OPERATIVE CIRCUIT OF A COMMUTATING MOTOR

Engbert Bernard Gerard Nijhof, and Wilhelmus Bernardus Rosink, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed March 3, 1970, Ser. No. 16,201
Claims priority, application Netherlands, March 6, 1969, 6903439
Int. Cl. H02p *5/28, 7/36*
U.S. Cl. 318—308 **17 Claims**

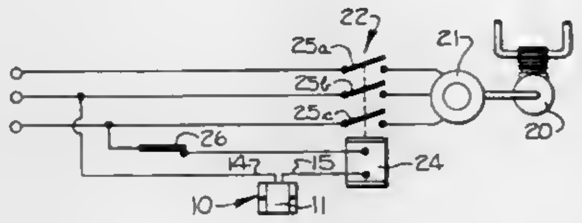


A control system for a commutating electric motor includes at least one semiconductor controlled element for controlling the current in the operative circuit of the motor and a control device for adjusting the firing angle thereof. A negative feedback regulating voltage is supplied to the control device which depends upon the current in the operative circuit and/or upon the motor speed. Switching transients in the operative circuit are limited by means of a sum voltage composed of a bias voltage and a positive feedback voltage derived in an integrating positive feedback loop. The positive feedback voltage is determined by the voltage across the operative circuit. The switching transients are primarily determined by the bias voltage and the resistance of the operative circuit.

3,707,661

ELECTRICAL DRIVE MOTOR PROTECTIVE MEANS

Ray J. King, Charlotte, N.C., assignor to CMD Electronics, Inc., Charlotte, N.C.
Filed March 22, 1971, Ser. No. 126,602
Int. Cl. H02p *5/16*
U.S. Cl. 318—484 **7 Claims**



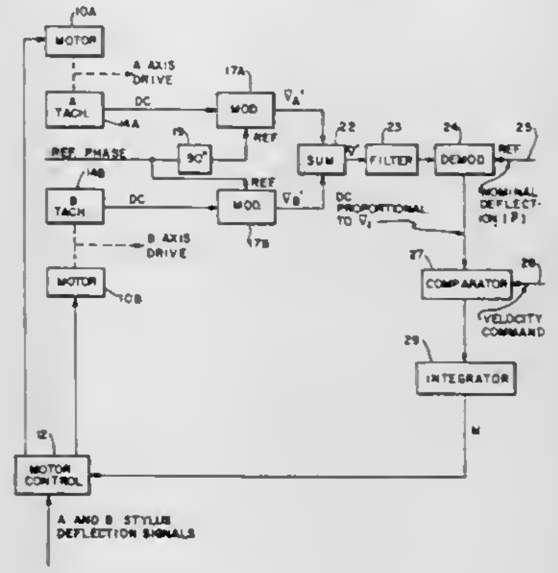
An electrical drive motor for the compressor of a vapor compression cycle refrigeration system is protected against failure otherwise possibly occurring due to excessively frequent starting by the combination therewith of a two terminal electrical network which delays energization of the electrical drive motor for a predetermined interval of time.

3,707,662

MACHINE TOOL VELOCITY CONTROL SYSTEM

George A. Hoffman, Racine, Wis., assignor to Gettys Manufacturing Company, Incorporated, Racine, Wis.
Filed Aug. 3, 1970, Ser. No. 60,693
Int. Cl. G05b *19/36*
U.S. Cl. 318—578 **16 Claims**

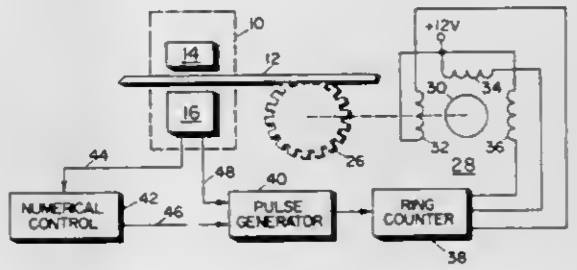
Velocity control means for use in an automatic tracer system in which a stylus is moved relative to a template, comprises a control circuit for maintaining the magnitude of the velocity component in a direction tangential to the template surface (at the point of stylus contact) equal to a predetermined magnitude.



3,707,663

CLOSED LOOP CONTROL FOR STEPPING MOTOR DRIVE

Everett R. Bishop, Waynesboro, Va., assignor to General Electric Company
Filed April 23, 1971, Ser. No. 136,852
Int. Cl. G05b *19/40*
U.S. Cl. 318—685 **10 Claims**



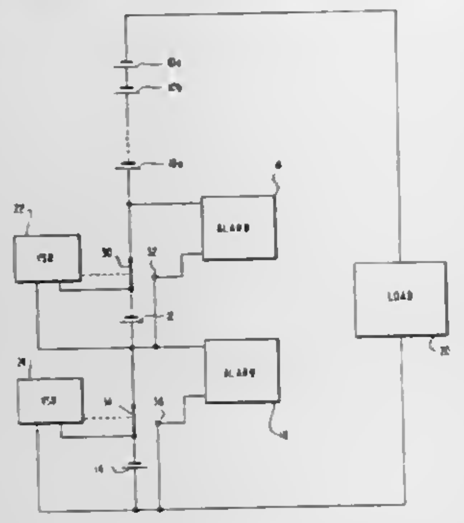
A stepping motor drive for a perforated tape reader. The energization of the stepping motor is controlled by a ring counter driven by a pulse generator. The control loop is closed by a feedback signal indicative of whether the tape sprocket hole is in a read or a non-read position. The generation of a pulse is inhibited unless the tape was driven to a new read position by a previously-generated pulse.

3,707,664

NOVEL BATTERY DISCHARGE SENSOR AND CONTROL

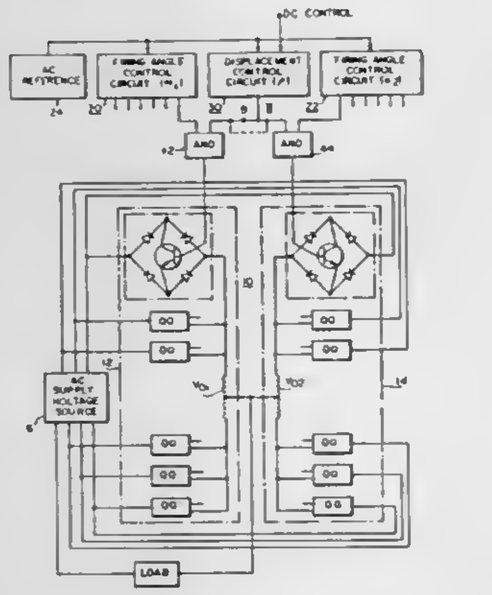
Fred H. Esch, Silver Spring, Md., assignor to Communications Satellite Corporation, Washington, D.C.
Filed April 6, 1971, Ser. No. 131,610
Int. Cl. H02j *7/00*
U.S. Cl. 320—18 **11 Claims**

In an energy storage device of the type which comprises a plurality of series connected voltage cells such as a series of alkaline battery cells, the discharge of the cells is prevented from reaching a dangerously low level by monitoring the voltage level of selected ones of the cells which have a lower energy capacity than the remaining standard cells in the storage device. The selected cells, having a lower maximum capacity, will reach a detectable degree of discharge first and circuit means are provided for detecting when the full discharge of these cells is about to be reached. When detection occurs the selected cells are bypassed and signals are sent out to indicate that the overall energy storage device has reached a low level of charge.



3,707,665
POWER FREQUENCY CHANGER WITH CONTROLLABLE INPUT DISPLACEMENT FACTOR

Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 84,795, Oct. 28, 1970, abandoned. This application Nov. 12, 1971, Ser. No. 198,204
Int. Cl. H02m *5/22*
U.S. Cl. 321—5 **6 Claims**

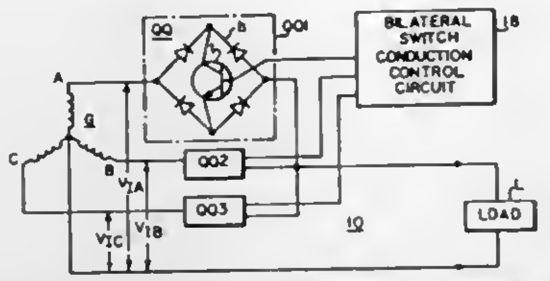

DC CONTROL
AC REFERENCE
FIRING ANGLE CONTROL CIRCUIT
DISPLACEMENT CONTROL CIRCUIT
FIRING ANGLE CONTROL CIRCUIT
AND
AND
QQ
AC SUPPLY VOLTAGE SOURCE
LOAD

The invention relates to the operation of a frequency changer system comprised of bilateral switching elements in which the conduction intervals of the bilateral switching elements are shifted with respect to a selected time reference to vary the input displacement factor, or input power factor, of the frequency changer system.

3,707,666
UNITY INPUT DISPLACEMENT FACTOR FREQUENCY CHANGER

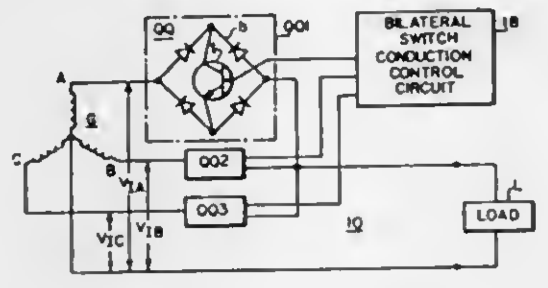
Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 84,796, Oct. 28, 1970. This application Nov. 12, 1971, Ser. No. 198,215
Int. Cl. H02m *5/22*
U.S. Cl. 321—5 **3 Claims**

The invention relates to a frequency changer (or cycloconverter) system employing conduction controlled bilateral switches operating in a controlled switching mode to maintain a unity input displacement factor for the frequency changer system independent of load power factor and output voltage. The input displacement factor, which is often referred to as the input power factor, of the frequency changer system is defined to be the angle between the input, or source, voltage and the fundamental component of the input current drawn by the frequency changer system.



3,707,667
UNITY INPUT DISPLACEMENT FACTOR FREQUENCY CHANGER

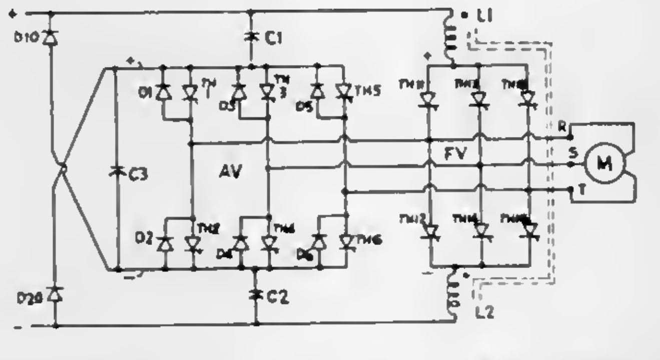
Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 84,796, Oct. 28, 1970. This application Nov. 12, 1971, Ser. No. 198,283
Int. Cl. H02m *5/22*
U.S. Cl. 321—5 **5 Claims**



The invention relates to a frequency changer (or cycloconverter) system employing conduction controlled bilateral switches operating in a controlled switching mode to maintain a unity input displacement factor for the frequency changer system independent of load power factor and output voltage. The input displacement factor, which is often referred to as the input power factor, of the frequency changer system is defined to be the angle between the input, or source, voltage and the fundamental component of the input current drawn by the frequency changer system.

3,707,668
COMPOUND INVERTER OF VARIABLE OUTPUT VOLTAGE AND FREQUENCY

Gerald T. Johnston, Mahwah, N.J., assignor to Precision Products Company, Hawthorne, N.J.
Filed Dec. 16, 1971, Ser. No. 208,563
Int. Cl. H02m *7/48*
U.S. Cl. 321—5 **36 Claims**

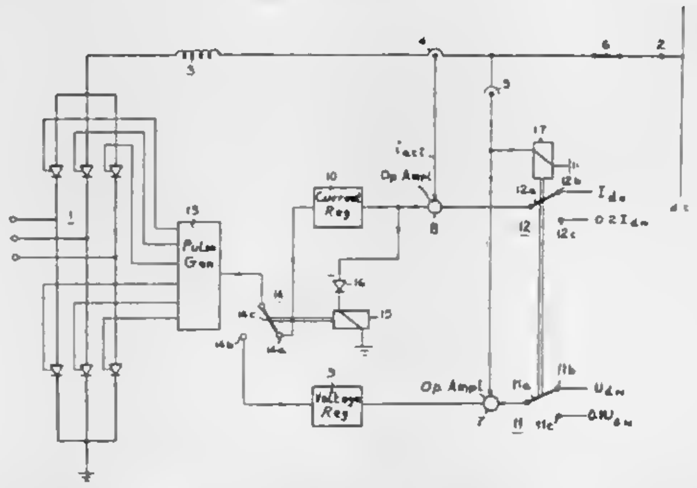


Two polyphase thyristor bridges are both directly connected to the polyphase a.c. output terminals of an inverter.

One operates at an adjustable d.c. input voltage that appears across an input storage capacitor, which is in series, at each of its terminals, with one of two pulsing capacitors respectively connecting to the poles of the inverter's d.c. supply. The other bridge has its d.c. input connected to the d.c. supply on each side by coupled inductor windings and serves to transfer energy to the adjustable voltage bridge by charging and discharging the pulsing capacitors, as well as to extinguish the thyristors of the latter bridge when required, and to furnish directly part of the load current. Control circuits include arrangements for comparison of the storage capacitor voltage with a controllable reference voltage in response to which energy transfer pulses alternately charging the pulsing capacitors one way and then the other are drawn from the d.c. supply to control the output voltage of the inverter, preferably as some function of the operating frequency. Refinements are shown to assure adequate charging of pulsing capacitors at high speed, lockup and short circuit tolerance or protection simplicity, and limitation of the peak pulsing capacitor voltage.

3,707,669
METHOD OF REGULATING HIGH VOLTAGE DIRECT CURRENT TRANSMISSION SYSTEM OPERATING WITH SEVERAL CONVERTER STATIONS CONNECTED IN A MULTIPOINT NETWORK

Karl-Werner Kanngiesser, Viernheim, and Hans Peter Lips, Schriesheim, both of Germany, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Continuation-in-part of Ser. No. 51,049, June 30, 1970, abandoned. This application Jan. 27, 1971, Ser. No. 110,005
Claims priority, application Germany, July 4, 1971, P 19 33 943.6
Int. Cl. H02m *1/18*
U.S. Cl. 321—11 **11 Claims**

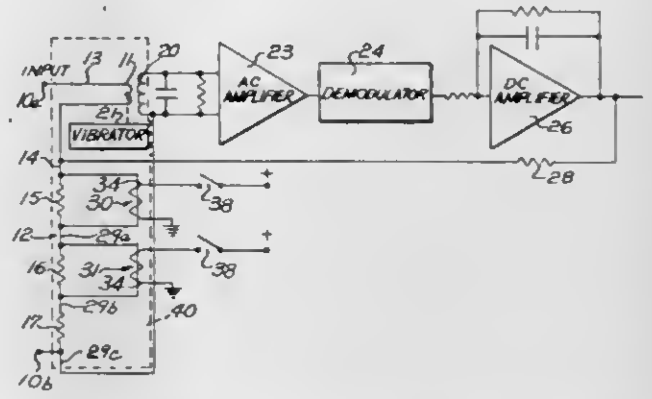


In a high voltage d-c transmission system having more than two converter stations for establishing a multipoint power supply, the stations working in rectifier and inverter operation respectively at opposite ends of the transmission line are provided with the usual current, voltage and extinction angle regulators which operate, under normal conditions in the system, along a certain characteristic curve. In the event of a short-circuit in the d-c mains, the station regulators are changed over for operation along a different characteristic curve with reduced nominal current and voltage values in order to support the cut-off process of the d-c switches.

3,707,670
VARIABLE LOW RESISTANCE CIRCUIT WITH SUPERCONDUCTING SHUNTS

Robert J. Erdman, Twinsburg, Ohio, assignor to Keithley Instruments, Inc., Solon, Ohio
Filed April 1, 1969, Ser. No. 811,895
Int. Cl. H01c *1/00, 7/16*
U.S. Cl. 323—96 **4 Claims**

Low resistance circuit, for use in series with superconducting component, having resistance value changeable between a low resistance and that of a superconductor below its critical temperature T_c. A superconducting switch is rendered non-superconducting by heating, while in a cryogenic environment, with an electric resistor.

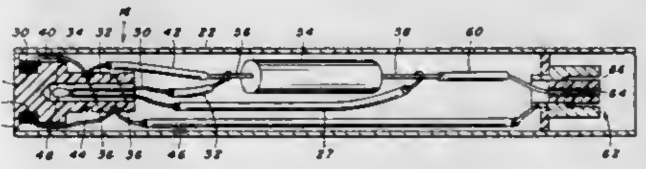


ERRATUM

For Class 323—24 see:
Patent No. 3,707,682

3,707,671
INDUCTIVE VIBRATION PICKUP APPARATUS

Robert S. Morrow, 4148 Rowanne Court, Columbus, Ohio; Lloyd D. Penn, 190 Crestview Drive, Johnstown, Ohio, and Kenneth E. Hays, 397 N. Stygler Road, Gahanna, Ohio
Continuation of Ser. No. 697,109, Jan. 11, 1968, abandoned. This application May 1, 1970, Ser. No. 33,673
Int. Cl. G01r *33/00*
U.S. Cl. 324—34 R **8 Claims**

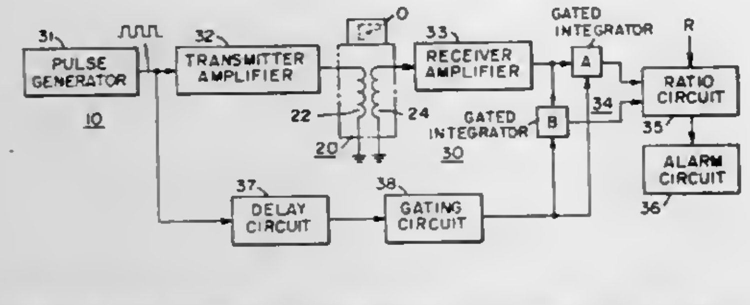


Electrical sensing apparatus such as proximity switches and vibration pickups of the type in which the distance between an inductor in the tank circuit of an oscillator and a metallic object in the field of the inductor is indicated by the amplitude at the output of the oscillator. The apparatus incorporates means adapted to compensate the output and/or sensitivity of the oscillator for temperature variations in either the inductor or the oscillator circuitry. Temperature compensation is achieved by means of thermistors, one of which is in series with the inductor and the other of which is in the oscillator network.

3,707,672
WEAPON DETECTOR UTILIZING THE PULSED FIELD TECHNIQUE TO DETECT WEAPONS ON THE BASIS OF WEAPONS THICKNESS

Robert C. Miller; Walter J. Carr, Jr., and George T. Mallick, Jr., all of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 2, 1971, Ser. No. 149,226
Int. Cl. G01r *33/00*
U.S. Cl. 324—41 **4 Claims**

This invention is a metal detector which utilizes pulsed field techniques in order to detect the presence of metal objects and to provide discrimination between metal objects based on characteristics such as thickness, size and shape. An object to be monitored for metal content is subjected to pulsating magnetic fields. The rate of change of the magnetic field occurring at either the initiation or termination of magnetizing pulses is interpreted to identify the metal object in terms of thickness.

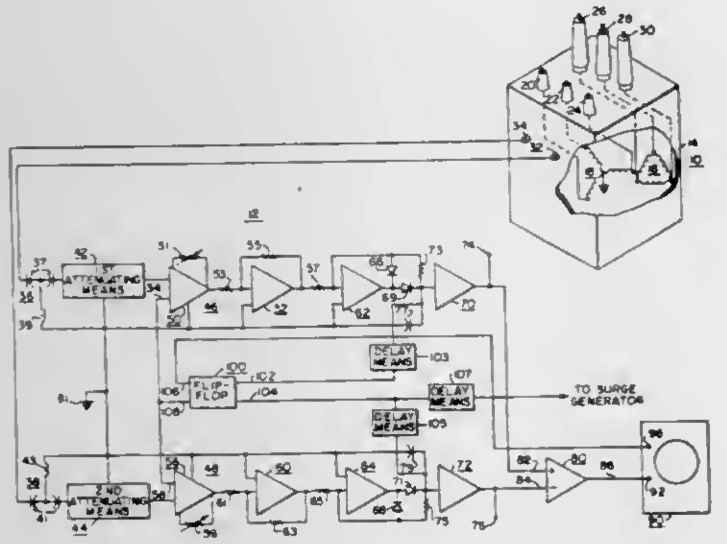


3,707,673

CORONA DISCHARGE DETECTING APPARATUS INCLUDING GATABLE AMPLIFIERS CONTROLLED BY FLIP-FLOP MEANS

William J. Carter, Muncie, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed March 29, 1971, Ser. No. 128,716
Int. Cl. G01r *31/08, 31/12*
U.S. Cl. 324—52 **5 Claims**



Apparatus for accurately detecting corona discharges occurring within the casing of electrical inductive apparatus, such as transformers and electrical reactors. Mechanical disturbances within the apparatus, initiated by corona discharges, are detected by two spaced mechanical to electrical transducers. The signal from the two transducers are amplified, converted to unidirectional signals of like polarity, and the two signals are subtracted in a difference amplifier to cancel noise common to both signals while amplifying corona responsive portions of the signals.

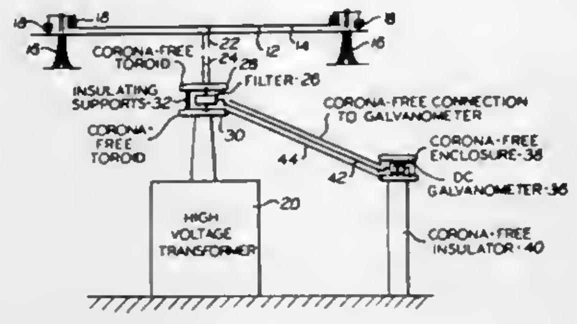
3,707,674

METHOD AND APPARATUS FOR MEASURING CORONA INCEPTION VOLTAGE ON OVERHEAD CONDUCTORS AND THE LIKE

George Bahder, Edison, and Felipe G. Garcia, Scotch Plains, both of N.J., assignors to General Cable Corporation, New York, N.Y.

Filed April 5, 1971, Ser. No. 131,094
Int. Cl. G01r *33/02*
U.S. Cl. 324—72 **12 Claims**

With this invention, corona inception voltage in uninsulated overhead lines is detected by placing a sensitive direct current galvanometer in position to detect the change from negative to positive space charge around the overhead conductor when corona discharge begins. The galvanometer, with low pass filters, is placed in series with the power line, and the low pass filters prevent the relatively heavy capacitive alternating current from flowing through the direct current galvanometer coil.

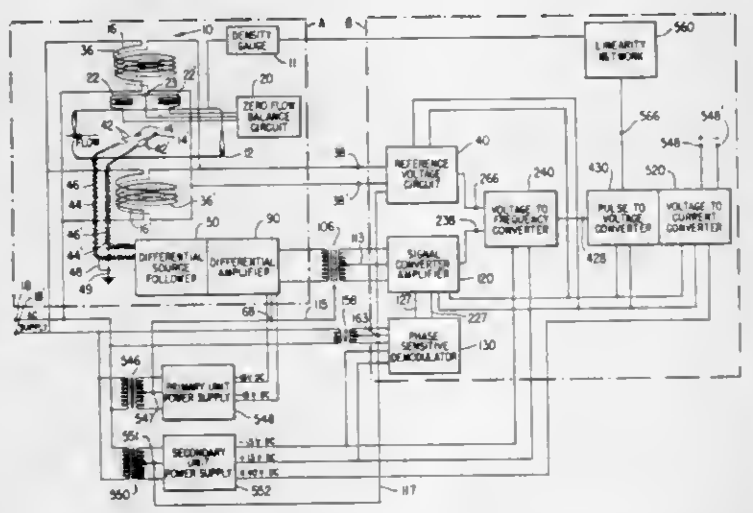


3,707,675

MEASURING SYSTEM FOR COMPARING THE RELATIVE MAGNITUDES OF FIRST AND SECOND D.C. SIGNALS

Roger L. Krechmery, and Lee A. Seabeck, both of Mentor, Ohio, assignors to Bailey Meter Company

Filed Sept. 11, 1970, Ser. No. 71,508
Int. Cl. G01r *7/00*
U.S. Cl. 324—140 D **7 Claims**


DENSITY GAUGE
ZERO FLOW BALANCE CIRCUIT
LINEARITY NETWORK
REFERENCE VOLTAGE CIRCUIT
DIFFERENTIAL SOURCE FOLLOWER
DIFFERENTIAL AMPLIFIER
SIGNAL CONVERTER AMPLIFIER
VOLTAGE TO FREQUENCY CONVERTER
PULSE TO VOLTAGE CONVERTER
VOLTAGE TO CURRENT CONVERTER
PHASE SENSITIVE DEMODULATOR
PRIMARY UNIT POWER SUPPLY
SECONDARY UNIT POWER SUPPLY

A Measuring system for comparing the relative magnitudes of a first and a second D.C. input signal by symmetrically integrating the first input signal between time period intervals proportional to its magnitude relative to the magnitude of the second input signal so that pulses are generated at a frequency which is a multiple of the integrating cycle. The variable frequency pulses are either counted directly or are converted to a frequency variable train of voltage pulses, each of the pulse cycles of the train of pulses having the corresponding periodicity of the variable input frequency and each voltage pulse having a substantially constant pulse width; the train of pulses are used to modulate a voltage source output signal which, when subsequently averaged, provides an output signal that is proportional to the product of the modulated output signal of the voltage source and the input frequency.

3,707,676

SETPOINT AND ACTUAL VALUE INDICATOR

Yves De Bretagne, and Francis Manier, both of Amiens, France, assignors to Honeywell Inc., Minneapolis, Minn.

Filed May 5, 1971, Ser. No. 140,440
Claims priority, application France, July 6, 1970, 7025004
Int. Cl. G01r *1/08*
U.S. Cl. 324—157 **8 Claims**

Condition controlling apparatus for adjusting the setpoint of and indicating the actual value for a condition, is provided

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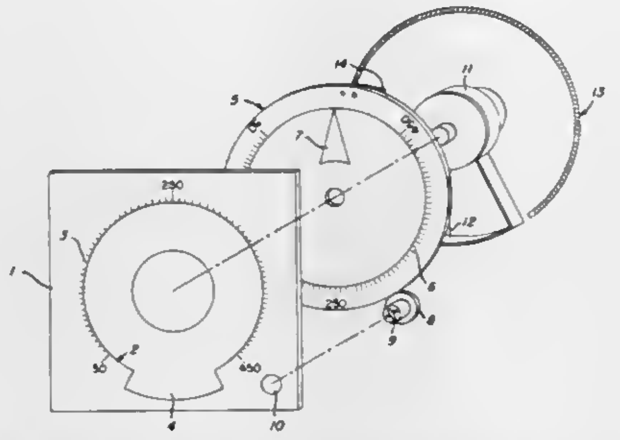
with a movable scale on the front face of a movable disc, a setpoint mark and a stationary scale, identical to the movable scale but in which the direction of increasing values is reversed, disposed on the front face of a stationary front plate having a window therein for viewing the pointer of a galvanometer and revealing only a limited angular zone on the movable scale.

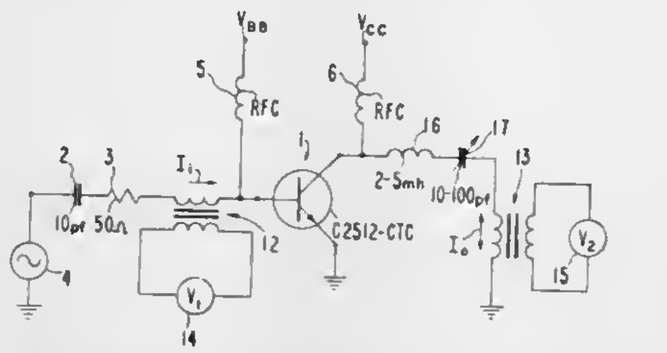


3,707,677

METHOD AND APPARATUS FOR MEASURING R. F. CURRENT GAIN OF A TRANSISTOR

David M. Duncan, San Francisco, Calif., assignor to Communications Transistor Corporation, San Carlos, Calif.

Filed March 8, 1971, Ser. No. 121,909
Int. Cl. G01r *31/22*
U.S. Cl. 324—158 T **6 Claims**



The radio frequency current gain of a high frequency transistor is measured by sensing the radio frequency input and output of the transistor when a variable reactance in the output circuit is tuned to a setting that yields maximum output radio frequency current. The variable reactance in series with the output circuit essentially tunes out the stray capacitance and lead inductances within the transistor package such that the intrinsic current gain of the transistor is measured. The ratio of measured output r.f. current to the measured r.f. input current yields the intrinsic r.f. current gain of the transistor.

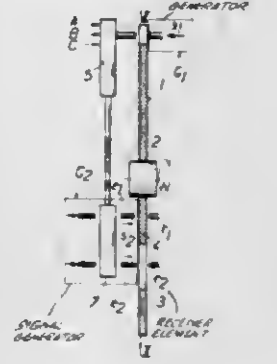
3,707,678

DEVICE FOR DETECTING THE INSTANTANEOUS SPEED OF ROTATION OF A MACHINE

Jean Pierre Champagnon, 5, Allee des Cigognes, 77 Avon, France

Filed April 28, 1970, Ser. No. 32,711
Claims priority, application France, April 29, 1969, 6913526
Int. Cl. G01p *3/42*
U.S. Cl. 324—160 **4 Claims**

A detector device for detecting the instantaneous speed of rotation of a machine, e.g., a turbomachine, comprising: a disc rotated by the machine; a first signal generator producing a first signal each time said disc occupies a predetermined angular position; a second signal generator receiving the signals coming from the first generator and, each time it receives such a signal, producing a second signal; a timer device inserted between the first and second signal generators and designed to introduce a delay in the transmission of the first signal; and a device for detecting the angular position occupied, at the instant at which the second signal is emitted, by the disc, said angular position being a function of the speed of rotation of the machine.

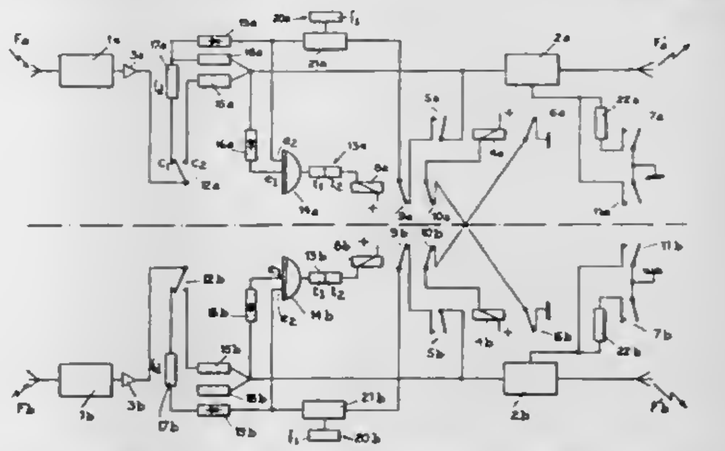


3,707,679

AUTOMATIC MOBILE RADIO TELEPHONE SYSTEM

Maurice Georges Marie Bruley, Paris, and Pierre Ferret, Versailles, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed March 31, 1970, Ser. No. 24,116
Claims priority, application France, Dec. 2, 1969, 6910036
Int. Cl. H04b *1/40*
U.S. Cl. 325—5 **6 Claims**



An automatic mobile radio telephone system employs a number of mobile subsets interconnectable through a radio relay station. The station includes two or more duplex channels and marks a selected free channel with a tone f_t and transmits at a reduced power. A calling mobile set sends out a tone f_d and the relay station in response stops sending tone f_t and starts transmitting tone f_d at full power. Free sets in standby condition on f_t catch f_d and wait for the called number. Sets that are not concerned with the call search for another channel marked f_t by the station, since the first said channel has been taken by the call. Signals from a set cannot be received directly by other sets, and secrecy of each communication is insured.

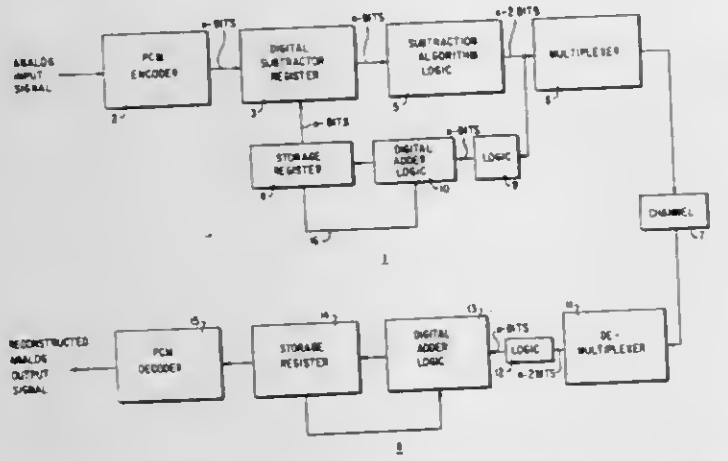
3,707,680

DIGITAL DIFFERENTIAL PULSE CODE MODULATION SYSTEM

O. Gene Gabbard, Germantown, Md., and Pradman Kaul, Berkeley, Calif., assignors to Communication Satellite Corporation

Filed May 20, 1970, Ser. No. 38,951
Int. Cl. H04b *1/00*
U.S. Cl. 325—38 B **14 Claims**

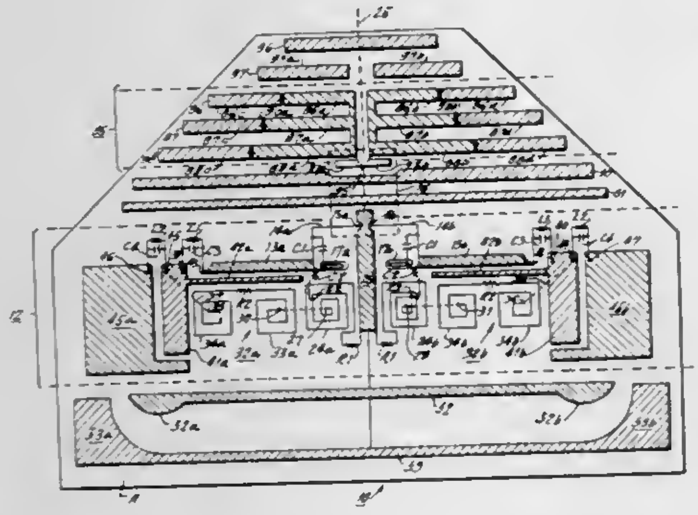
Apparatus and method are disclosed for a differential pulse code modulated system. The system transmits the difference between a given sample of the input signal and an estimated value of the given sample which is determined from previous



estimated samples. The differential signal is fed back to an all digital loop to provide an estimated sample without undue delay.

3,707,681
MINIATURE TV ANTENNA
Ronald D. Grant, Urbana, Ill., assignor to JFD Electronics Corporation, Brooklyn, N.Y.

Filed March 24, 1970, Ser. No. 22,281
Int. Cl. H04b *1/06*
U.S. Cl. 325—368 **46 Claims**



An antenna for TV reception predominantly in the low band and high band VHF ranges having dipoles of significantly reduced physical length as compared with conventional dipoles for reception of signals respectively in the low and high band VHF ranges. Inductive elements are employed to form a portion of the dipole length to permit significant reduction in the physical length of the dipole. The dipoles are electrically isolated from one another by suitable trap circuits to isolate high band VHF operation from low band VHF operation. Lossy components are deliberately added to the dipole section of the antenna to provide significantly improved noise matching and power transfer between antenna and amplifier. The inductive elements further provide good impedance matching between antenna and amplifier to optimize power transfer. The antenna is provided with end loads of the capacitive-type for improving both current magnitude and current distribution across the dipole in both low band and high band VHF operation. Separate amplifier channels are provided for low band and high band VHF signals to improve gain and reduce intermodulation and cross modulation effects, among other. A passive UHF section may be integrated into the array.

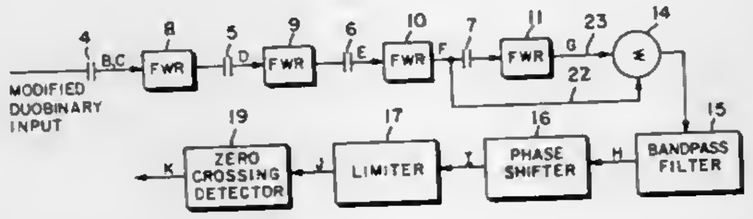
3,707,682
SLAVED VARIABLE POWER CONTROL
Robert L. Harris, North Scituate, R.I., assignor to General Electric Company

Filed May 18, 1970, Ser. No. 38,327
Int. Cl. G05f *1/44*
U.S. Cl. 323—24 **4 Claims**

A dimming circuit is provided which can be included in an essentially unlimited master and slave bank of dimming units controllable from a single master dimmer. The phase control signal on which dimming control of slaves depends is detected from the rapid rise in turn-on current in the master and in each slave coupled to a dependent slave.

3,707,683
TIMING RECOVERY CIRCUIT FOR USE IN MODIFIED DUOBINARY TRANSMISSION SYSTEM
Bertoo E. Dotter, Jr., Belmont, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Nov. 15, 1971, Ser. No. 198,883
Int. Cl. H03b *1/00*
U.S. Cl. 328—139 **10 Claims**

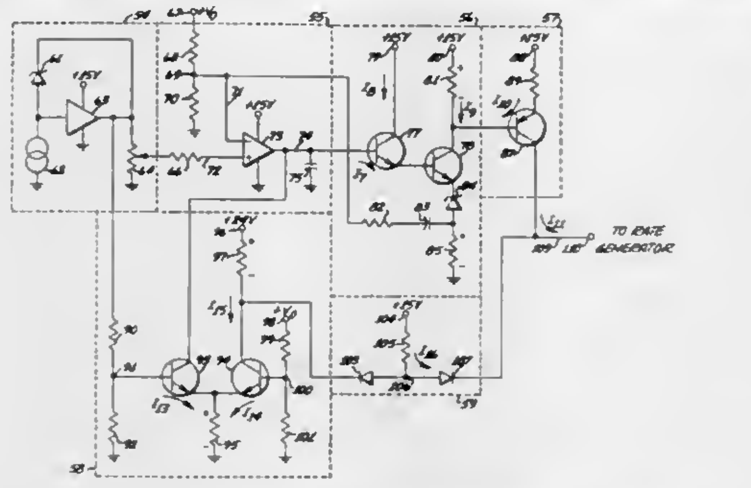


A circuit for producing a timing signal from a modified duobinary data signal. This data signal is capacitively coupled through four full-wave rectifiers that are connected in series. The outputs of the third and fourth rectifiers are DC coupled through an adder to a bandpass filter which passes a timing signal that has a fixed phase relationship with respect to the timing signal that was originally employed to produce the modified duobinary signal. The filtered signal is delayed, squared in a limiter, and applied to a zero crossing detector which produces a train of clock timing pulses.

3,707,684
ERROR AMPLIFIER FOR SWITCHING REGULATOR
John R. Nowell, Phoenix, Ariz., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Nov. 22, 1971, Ser. No. 200,675
Int. Cl. H03f *1/02*
U.S. Cl. 330—9 **8 Claims**

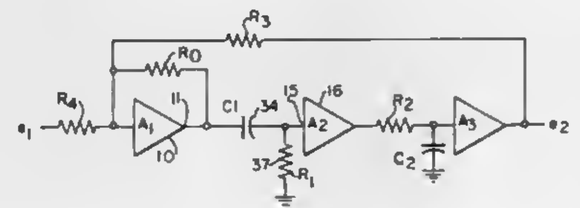
A differential amplifier compares the voltage from a switching regulator with a constant voltage and provides an output current having a value which is determined by the voltage from the switching regulator. A feedback circuit limits the rate at which the output current increases when the voltage



from the switching regulator drops suddenly. Another circuit disables the amplifier and provides a fixed value of output current when the switching regulator is initially turned on.

3,707,685
Q-INVARIANT ACTIVE FILTERS
Philip R. Geffe, Laurel, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

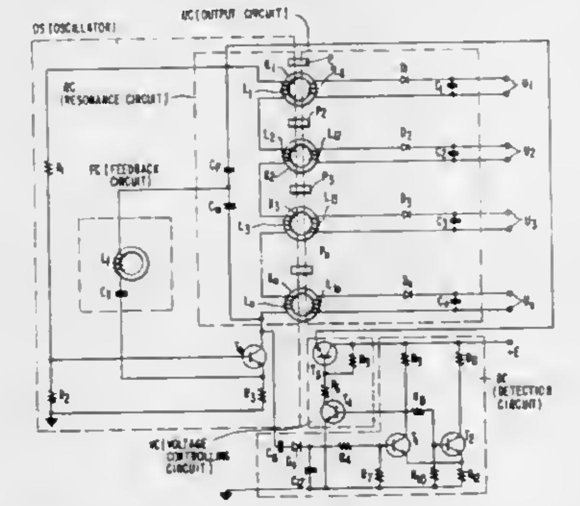
Filed May 21, 1970, Ser. No. 39,277
Int. Cl. H03f *3/04*
U.S. Cl. 330—21 **8 Claims**



Three-amplifier Q-invariant active filters having three forms; low pass, band pass and high pass. In each form, the element values are preselected to provide zero sensitivity of the pole O to the frequency-determining passive elements.

3,707,686
NON-CONTACT SWITCHING DEVICE INCLUDING OSCILLATOR CONTROLLED BY MOVABLE MAGNETS
Genzo Uekusa, Takatsuki; Shigeru Tanimura, Kyoto, and Norio Maejima, Kameoka, all of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

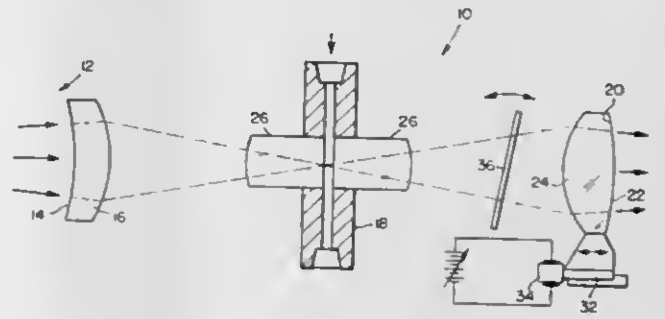
Filed Feb. 23, 1971, Ser. No. 117,913
Claims priority, application Japan, Feb. 23, 1970, 45/15676
Int. Cl. H03b *3/00, 5/12;* **H01h** *36/00*
U.S. Cl. 331—65 **14 Claims**



Non-contact switching is attainable with a non-contact switching device which comprises movable permanent magnets, inductors having at least one coil wound around a magnetic core of ferro-magnetic or ferri-magnetic material magnetically coupled with said permanent magnet, and an oscillating circuit including said inductor as its resonance inductor.

3,707,687
DYE LASER TUNABLE BY LONGITUDINAL DISPERSION IN THE DYE CELL
Michael Hercher, and Harold Alan Pike, both of Rochester, N.Y., assignors to Spectra Physics, Inc., Mountain View, Calif.

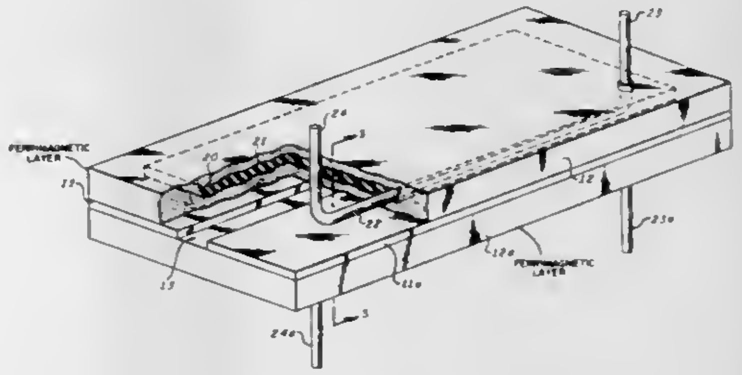
Filed Dec. 29, 1970, Ser. No. 102,285
Int. Cl. H01s *3/08*
U.S. Cl. 331—94.5 **2 Claims**



A single mirror serves both as the output mirror for the pumping gas laser and the high reflectance mirror for the dye laser. THe mirror is formed on one surface of a lens having a low dispersion characteristic. The dye cell is positioned at the focus of the lens on the opposite side of the lens from the common mirror. The output of the dye laser is taken through a second mirror formed on an output lens of high dispersion material. Tuning is done by moving the output lens toward and away from the dye cell, or by varying the tilt of an etalon plate positioned between the dye cell and the output lens, or both.

3,707,688
HIGH FREQUENCY GYROMAGNETIC DEVICE EMPLOYING SLOT TRANSMISSION LINE
Gerald H. Robinson, Dunedin, and Harry F. Strenglein, Clearwater, both of Fla., assignors to Sperry Rand Corporation

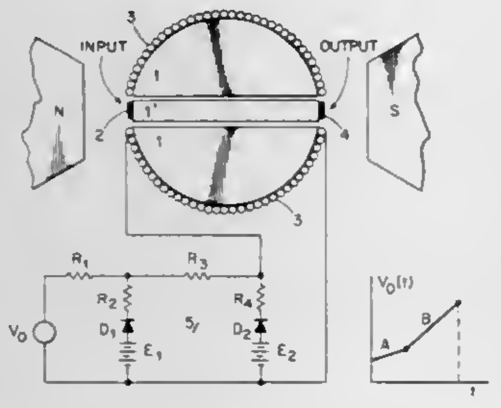
Filed March 31, 1971, Ser. No. 129,749
Int. Cl. H01p *1/32*
U.S. Cl. 333—24.1 **1 Claim**



A high frequency gyromagnetic electromagnetic wave transmission device has a symmetric structure including planar high frequency energy conductors defining a wave guiding slot, the conductors being based on a dielectric substrate and covered by a similar superstrate, in which the dielectric strata are formed with gyromagnetic toroids which may be excited to produce static magnetic bias fields for the control of the velocity of propagation of high frequency energy along the transmission device.

3,707,689
ELECTRICAL SIGNAL PROCESSING METHOD AND APPARATUS

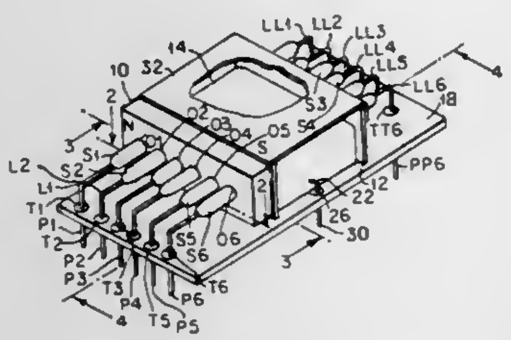
Frederic R. Morgenthaler, Winchester, Mass., assignor to Chu Associates, Inc., Littleton, Mass.
Filed March 26, 1970, Ser. No. 22,866
Int. Cl. H03h *7/30, 9/30*
U.S. Cl. 333—30 R **13 Claims**



This disclosure involves a novel and compact pulse network or filter and the like, employing elastic wave-spin wave transduction by means of a non-linear time-varying magnetic bias field, providing increased power handling capability and greater compression ratios than present-day filters, and, in addition, variable broad bandwidth adjustment.

3,707,690
REED SWITCH APPARATUS

Michael Sakatos, Union, N.J., assignor to Sigma Instruments, Inc., Braintree, Mass.
Filed March 29, 1971, Ser. No. 128,796
Int. Cl. H01h *51/22, 51/28*
U.S. Cl. 335—153 **18 Claims**

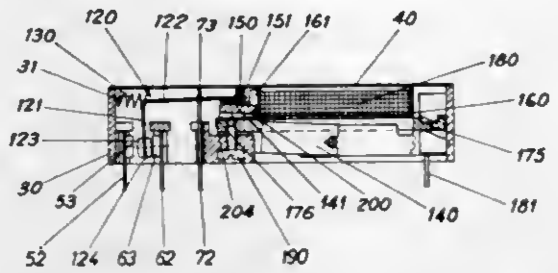


Two or more reed switches project through a single magnetic body. Winding means surround the reed switches to make them alternately pick up and drop out. The flux of the magnetized body latches the switches in the conductive state and, when the switch is made to drop out, allows it to remain in the non-conductive state.

3,707,691
ELECTROMAGNETIC FLAT-TYPE RELAY

Werner Minks, Nurnberg, Germany, assignor to International Standard Electric Corporation, New York, N.Y.
Filed June 2, 1971, Ser. No. 149,180
Claims priority, application Germany, June 3, 1970, P 20 27 330.7
Int. Cl. H01h *3/46*
U.S. Cl. 335—192 **17 Claims**

An electromagnetic flat-type relay with a pressure spring permanently biased engages a slewably supported tilting member carrying the movable contact member, exerting opposite torques thereupon in both the normal and the operating position of the magnet armature. In order to avoid a sticking of the contacts said magnet armature merely performs the task of lifting the movable contact member off the respective stationary contact member until the pressure spring has reached its tilting point.



3,707,692
METHOD OF TREATING CELLULOSIC MATERIAL TO IMPROVE THE USEFULNESS THEREOF AS AN INSULATOR IN ELECTRICAL APPARATUS

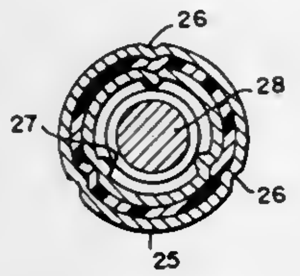
William R. Reeder, South Milwaukee, and Fred S. Sadler, Racine, both of Wis., assignors to McGraw-Edison Company, Milwaukee, Wis.
Filed March 10, 1969, Ser. No. 805,809
Int. Cl. H01f *27/32, 27/00;* **D06m** *15/54*
U.S. Cl. 336—94 **4 Claims**

A method of increasing the dimensional stability of cellulosic material by impregnating the cellulose with a composition including a cellulose swelling agent and a compound capable of crosslinking with the cellulose molecules. The swelling agent is capable of swelling the cellulose beyond its full water swollen condition and the crosslinking compound crosslinks with the cellulose molecules to thereby reduce the number of potential water absorbing sites and render the cellulose more dimensionally stable.

The cross-linking takes place at elevated temperatures in the absence of an acidic catalyst and the cross-linked cellulosic materials are useful as insulators in electrical apparatus. Aminoplasts may be used as cross-linkers and, among others, nitrogen containing compounds such as dimethyl formamide and various amines may be used as swelling agents.

3,707,693
VARIABLE INDUCTOR AND METHOD

Richard L. Hatton, North Barrington, Ill., assignor to Precision Paper Tube Company, Wheeling, Ill.
Filed April 19, 1971, Ser. No. 135,015
Int. Cl. H01f *21/06*
U.S. Cl. 336—136 **17 Claims**

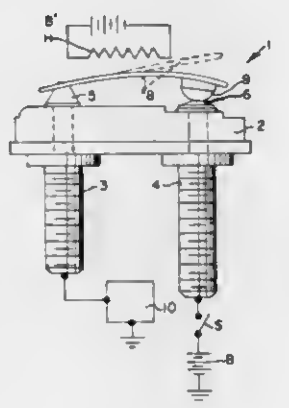


A coil form for electrical inductances is provided which is impregnated with a flame-retardant resin and cured but which maintains sufficient flexibility and resiliency to permit operations such as forming, punching, notching, slitting and the like after curing. The coil form is formed by a plurality of layers of spirally wound strips of kraft paper which enclose one or more layers of spirally wound strips of high temperature resistant polyamide. After the tube is formed it is impregnated by immersing in a vat of flame-retardant phenolic resin and cured.

Thereafter a coil winding is placed on the tube. A core is placed within the tube to form a variable inductor.

3,707,694
THERMALLY SENSITIVE CIRCUIT CONTROL APPARATUS

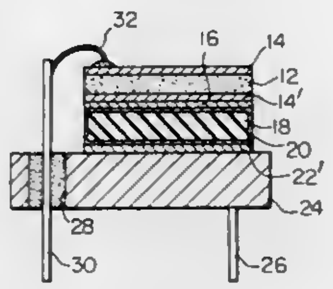
Gideon A. DuRocher, Mt. Clemens, Mich., assignor to Essex International, Inc., Fort Wayne, Ind.
Filed March 9, 1970, Ser. No. 17,420
Int. Cl. H01h *37/46, 61/00;* **G01k** *5/48*
U.S. Cl. 337—139 **17 Claims**



Circuit control apparatus responsive to temperature variations comprises an electrical conductor having an initial configuration and composed of a homogeneous nickel-titanium alloy in such proportions that its shape changes to a different, predetermined configuration in response to its temperature reaching a predetermined, critical temperature. Until the temperature of the conductive member reaches its critical temperature, the member is substantially immune to temperature variations.

3,707,695
INFRARED INTENSITY DETECTOR USING A PYROELECTRIC POLYMER

Eiso Yamaka, Osaka, Japan, assignor to Matsushita Electric Industrial Company, Limited, Osaka, Japan
Filed Oct. 19, 1971, Ser. No. 190,498
Claims priority, application Japan, Oct. 20, 1970, 45/92962; Oct. 20, 1970, 45/92963
Int. Cl. H01c *7/08*
U.S. Cl. 338—18 **5 Claims**

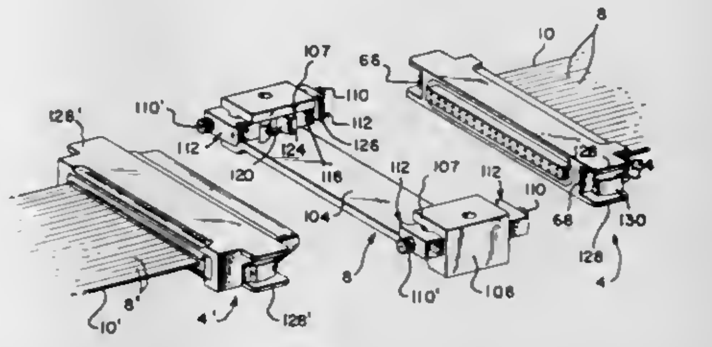


An infrared sensitive thin film composed of a polymer compound having a pyroelectric property. Because of high formability of the polymer, the infrared sensitive thin film is readily formed into a desired configuration to have quick responsiveness and high sensitivity.

3,707,696
MULTI-CONTACT ELECTRICAL CONNECTOR FOR FLAT CABLE

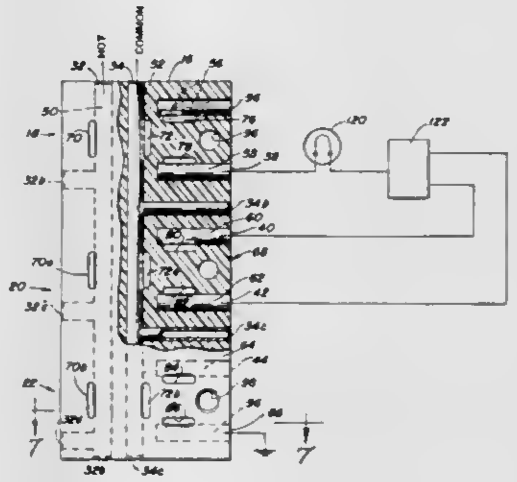
Clyde Thomas Carter, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Jan. 11, 1971, Ser. No. 105,207
Int. Cl. H01r *13/54, 13/58;* **H05k** *1/07*
U.S. Cl. 339—17 F **9 Claims**

Multi-contact electrical connector for flat cable comprises two matable connector parts. Each connector part is made up of an outer metallic shell, a central insert containing contact terminals, and a sealing gland surrounding the insert and disposed against the internal walls of the shell. The cable to which the terminals are attached extends through the rearward end of the sealing gland and into the insert, and is clamped by the sealing gland at the rearward end of the connector part.



3,707,697
INTERCHANGEABLE ELECTRICAL DEVICE

John Izumi, 105 E. Ohio Street, Chicago, Ill.
Filed June 9, 1971, Ser. No. 151,267
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 R **5 Claims**

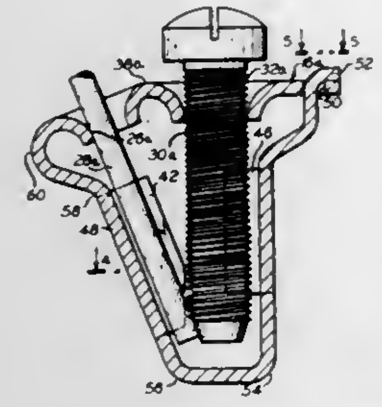


An electrical connecting and mounting frame for use in standard 115 AC electrical wiring systems, the frame containing a series of conductors disposed within an insulating block, openings in the block through which wiring devices such as AC outlets, switches and pilot lights can be releasably mounted to the block and simultaneously electrically connected to the respective conductors in the block, the block further containing means for connecting the conductors therein to the hot, neutral and earth ground wires in a standard 115 volts AC supply.

3,707,698
ELECTRICAL TERMINAL STRUCTURE WITH WEDGED CONDUCTOR

Daniel E. Robinson, Metuchen, and Solomon Rubinstein, Fanwood, both of N.J., assignors to General Cable Corporation, New York, N.Y.
Filed April 8, 1971, Ser. No. 132,295
Int. Cl. H01r *9/00*
U.S. Cl. 339—198 R **14 Claims**

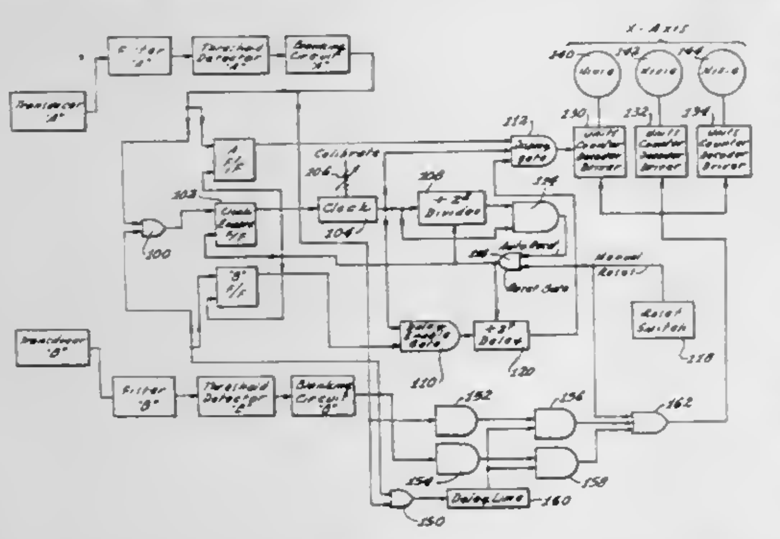
A terminating structure in which a tight mechanical grip on a conductor is achieved by wedging the conductor in a hole which is at a slight angle to the vertical tapped hole for a set screw. The screw may be self tapping. The holes are preferably in the front of the terminating structure and in a position where the conductors can be inserted in a straight or



almost straight position without having to bend the conductor. The structure can be fabricated from a stamped blank of metal.

3,707,699
REMOTE SCORING SYSTEM FOR BOMBING OR ROCKET RANGE

Clifford Sanctuary, Palos Verdes Estates, Calif., assignor to Del Mar Engineering Laboratories, Los Angeles, Calif.
Filed Aug. 7, 1970, Ser. No. 62,065
Int. Cl. G01s *5/18*
U.S. Cl. 340—16 M **5 Claims**

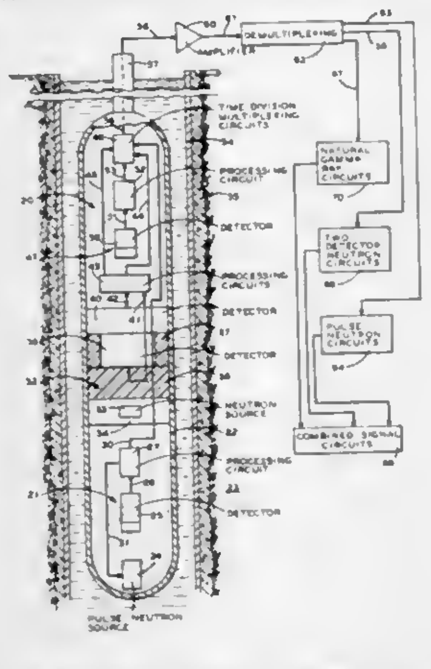


An improved scoring system is provided for use in conjunction with land or water ordnance ranges for training military personnel. The system to be described utilizes two pairs of pressure transducers positioned at right angles to one another around the perimeter of the target area. The differential time of arrival of seismic pressure waves at the transducers is sensed and data is made available at a remote read-out station. The resulting data may be presented on two electrical displays connected to corresponding electronic counters. The resulting data may be plotted on a plotting board, for example, to provide polar coordinates representative of range and bearing from an aiming point. Alternately, the polar coordinates may be derived by means of an appropriate electronic digital computer.

3,707,700
TELEMETRY SYSTEM INCORPORATING SYNCHROMIZATION OF RECEIVER WITH TRANSMITTER

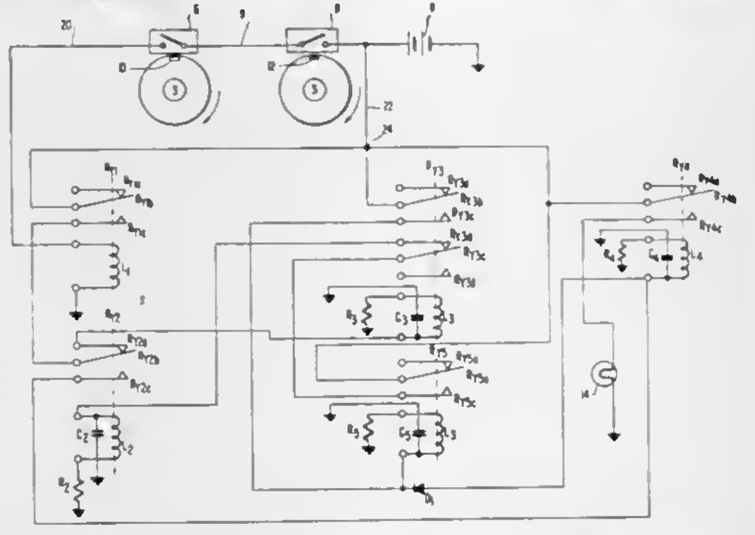
Guy Lafont, Paris, France, assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Aug. 21, 1969, Ser. No. 851,868
Int. Cl. G01v *1/16*
U.S. Cl. 340—18 **10 Claims**

An embodiment of the invention transmits signals from a borehole logging sonde through an armored cable to the earth's surface. In order to transmit different logging information signals through the cable, a time division multiplexing system is used. Individual time slots in a repeated sequence are each allocated to respective information signals. Although an information pulse will not appear in each of these time slots, one time slot is set aside for a sync pulse that does recur in each sequence. On the earth's surface, a demultiplexing circuit synchronizes itself with the downhole multiplexer through the assumption that any first-received pulse is the sync pulse. In response to this pulse, the demultiplexer segregates and distributes the succeeding time slot information in accordance with a predetermined program. The demultiplexer, on termination of the first sequence, once more reproduces the signal distribution cycle in response to the very next-received pulse. Because the sync pulse is the only pulse that is certain to occur in every sequence, the demultiplexer quickly locks into phase with the downhole multiplexer.



3,707,701
DEVICE FOR MEASURING CHANGES IN RADIUS OF RUBBER TIRED VEHICLE WHEELS

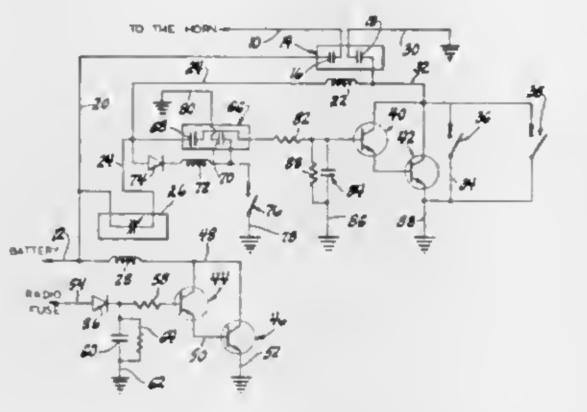
Wallace I. Neu, 1601 N. 5th Street, Alpine, Tex.
Filed Feb. 18, 1971, Ser. No. 116,353
Int. Cl. B60c *23/06*
U.S. Cl. 340—58 **8 Claims**



A system for detecting a change in the effective radii of rubber tired wheels mounted on vehicles with the vehicle in motion. The number of complete rotations made by a monitored wheel is detected and compared with a reference to determine the time interval defined as the time required for the monitored wheel to move from an in phase condition, out of phase, and back into phase again with respect to the reference. A wheel is in phase with its reference when both simultaneously produce a pulse signal. When this time period is less than a predetermined time interval, a warning signal is sent to the vehicle operator.

3,707,702
ANTITHEFT DEVICE FOR VEHICLES

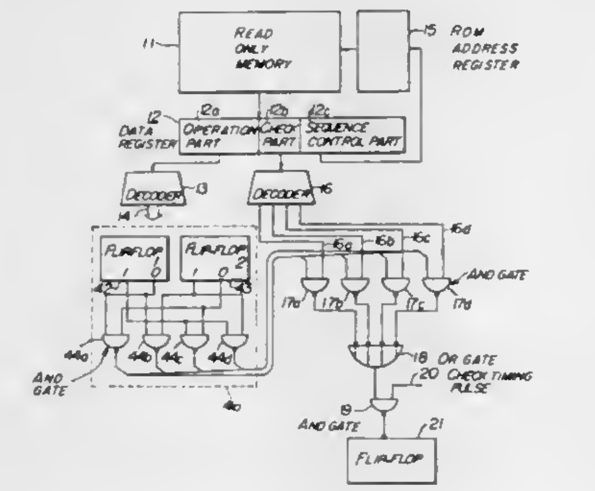
Andrew J. Plattner, Detroit, Mich., assignor to Kem Krest Products Company, Farmington, Mich.
Filed Dec. 14, 1970, Ser. No. 97,679
Int. Cl. B60r *25/04*
U.S. Cl. 340—64 **5 Claims**



An electrical alarm system for use with a vehicle comprising circuitry that activates an alarm, such as the vehicle horn when the vehicle door is opened or when the vehicle engine hood or vehicle rear deck lid is opened, including a time delay circuit for keeping the horn in an open circuit condition during a predetermined time interval following the opening of the door or following the opening of the hood or rear deck lid, and a de-activating circuit connected to the vehicle engine ignition switch for disabling the system.

3,707,703
MICROPROGRAM-CONTROLLED DATA PROCESSING SYSTEM CAPABLE OF CHECKING INTERNAL CONDITION THEREOF

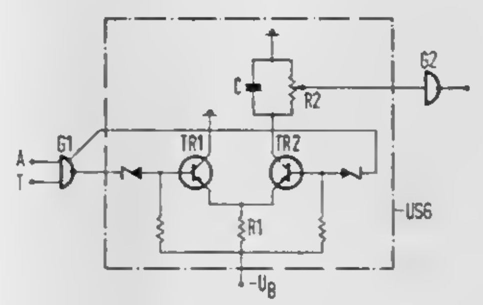
Toshinori Sakai, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Nov. 17, 1970, Ser. No. 90,391
Claims priority, application Japan, Nov. 19, 1969, 44/92167
Int. Cl. G06f *9/12*
U.S. Cl. 340—172.5 **11 Claims**



A microprogrammed data processing system which makes certain that the sequence control of instructions is being performed correctly and that the data processing system has predetermined internal conditions needed to carry out the instructions.

3,707,704
SELECTIVE CIRCUIT FOR A DATA STORER WITH OPTIONAL ACCESS

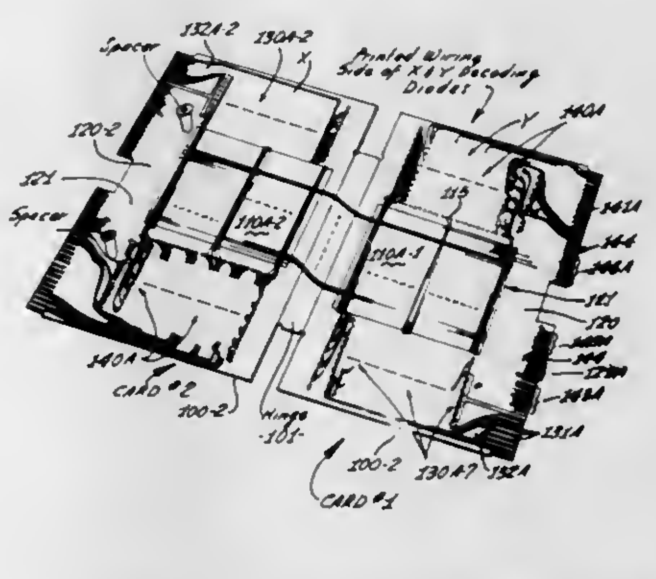
Hermann Kadow, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Sept. 9, 1970, Ser. No. 70,752
Claims priority, application Germany, Sept. 30, 1969, P 19 49 388.0
Int. Cl. G11c *11/24*
U.S. Cl. 340—173 R **7 Claims**



A selective circuit with optional access is provided with means for preventing overload of the circuit in case of repetitive or continuous call by the same address. The prevention of overload is effected by a technique which provides a simulation of the thermal state of the circuit. Also, a control unit is provided to limit the call succession of frequently used addresses.

3,707,705
MEMORY MODULE

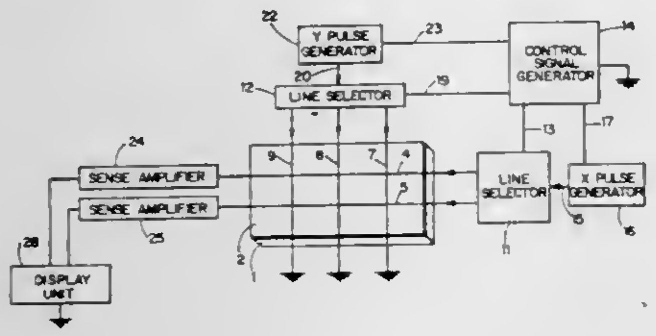
Jones V. Howell, Jr., 9201 Vanalden Avenue, Northridge, Calif., and David W. Mayne, 18408 Clifftop Way, Malibu, Calif.
Filed Dec. 20, 1967, Ser. No. 692,101
Int. Cl. G11c *11/06, 5/04*
U.S. Cl. 340—174 MA **40 Claims**



A core memory unit is disclosed using double card modules with each module having an X wire system common to both cards, and further having several Y wire systems, one per bit position (bit plane). The module holds decoders for X and Y wire systems, driven by a predecoder system common to all modules and external thereto. The Y wire systems operate with anticoincidence, the sense wire system is a double wire system, each wire being rectangularly looped as threaded through half of the cores of the bit locations of each bit position to suppress noise.

3,707,706
MULTIPLE STATE MEMORY

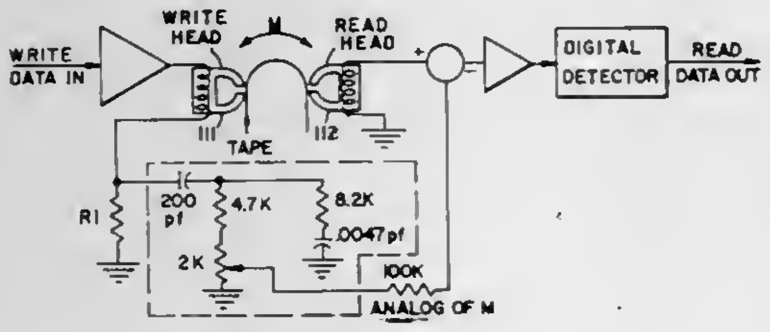
John H. Kefalas, North Billerica, Mass., assignor to Honeywell Information Systems, Inc., Waltham, Mass.
Filed Nov. 4, 1970, Ser. No. 86,918
Int. Cl. G11c *11/10, 11/14*
U.S. Cl. 340—174 CB **6 Claims**



A thin film memory has an isotropic magnetic layer and a plurality of conductors arranged in columns and rows disposed over the magnetic layer. The points of intersection of the column and row conductors define storage locations within the magnetic layer which are capable of being assigned one of several storage states.

3,707,707
DIGITAL CASSETTE MAGNETIC TAPE RECORDER AND REPRODUCER

Dale A. Spencer, and William M. Barton, Jr., both of San Diego, Calif., assignors to Cipher Data Products, Inc., San Diego, Calif.
Filed Nov. 12, 1970, Ser. No. 88,884
Int. Cl. G11b *5/44;* **B65b** *17/42, 23/08*
U.S. Cl. 340—174.1 B **24 Claims**

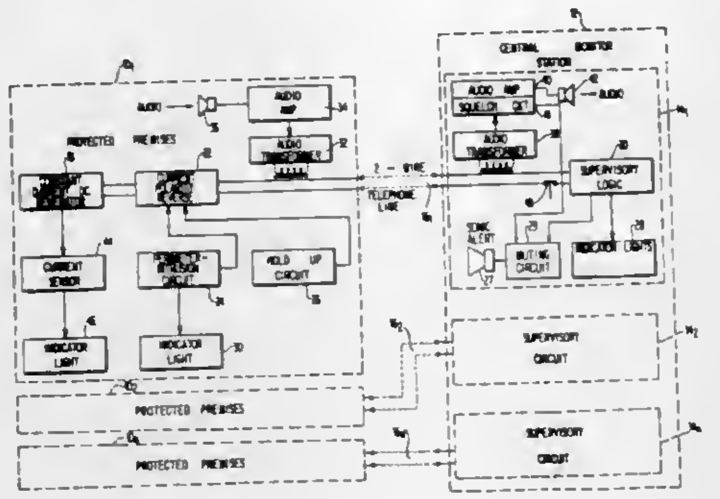


Digital cassette magnetic tape recorder and reproducer having dual capstans with phase-locked loop means for synchronizing operation of the capstans for maintaining a substantially fixed tension on the tape loop of the cassette during starting, stopping and running conditions.

3,707,708
MUTING CIRCUIT FOR A SECURITY ALARM SYSTEM PROVIDING A SONIC ALERT

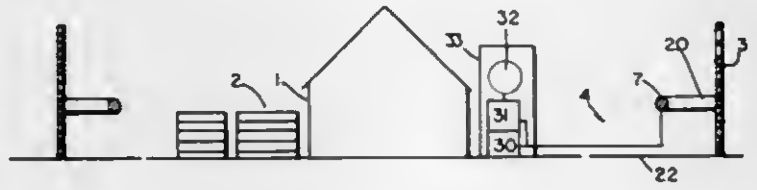
Carlo Dan, Bethesda, Md., assignor to Multra-Guard, Inc., Rockville, Md.
Filed Dec. 16, 1970, Ser. No. 98,588
Int. Cl. G08b *7/06, 13/22*
U.S. Cl. 340—213.2 **14 Claims**

An electronic circuit enabling an operator at a central station to mute a sonic alarm device energized in the event of an emergency condition occurring at a remote station under surveillance at any time from the moment the alarm is heard and identified at the central station to the time when a normal condition is restored. The circuit additionally includes means which reenergizes the sonic device automatically as soon as the normal condition is restored to remind the operator that muting had previously occurred and further requiring the operator to manually reset the circuit to deactivate the reenergized sonic alarm device.



3,707,709
DETECTION SYSTEM

David Wolf, 67 Bracket Road, Newton, Mass., and Edward Blank, 229 Billings Street, Sharon, Mass.
Filed Sept. 24, 1970, Ser. No. 74,957
Int. Cl. G08b *13/26*
U.S. Cl. 340—258 R **5 Claims**

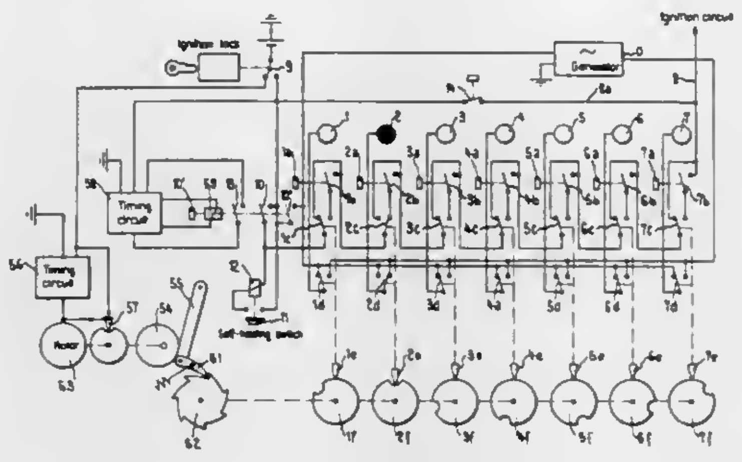


A detection system designed primarily for detecting intruders of fenced-in areas such as yards, compounds, factory areas and the like. In the preferred embodiment, a chain-link metal fence extends about the area being monitored. A conductive cable extends parallel to the fence either on its inner or outer side. The cable is spaced uniformly from the fence which functions as an electrical ground. The cable is selected with a dimension and is spaced at a distance such as to establish uniform characteristic impedance between the cable and the grounded fence with the characteristic uniform impedance preferably in the order of 100 to 1,000 ohms. The cable is connected to a pulsing circuit and receiver so that the cable may be pulsed and reflections or partial reflections of the pulse signal received and displayed on an oscilloscope which is calibrated for a visual display and indication of the cable being monitored. Movement of people over or adjacent to the cable or the severing of the cable cause immediate mismatches which are reflected and suitably displayed on the oscilloscope at a location corresponding to the occurrence of the mismatch.

3,707,710
DEVICE FOR TESTING THE VIGILANCE OF A PERSON

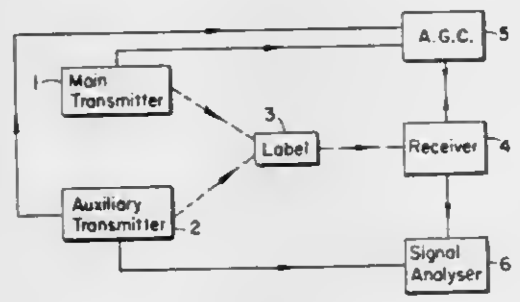
Karl Adler, Grenchen, and Wolfgang Karger, Bochum, both of Germany, assignors to Biviator S.A., Geneva, Switzerland
Continuation-in-part of Ser. No. 776,702, Nov. 18, 1968, abandoned. This application Dec. 15, 1970, Ser. No. 98,330
Int. Cl. B60k *27/08*
U.S. Cl. 340—279 **28 Claims**

A device for testing the vigilance of a person based on his flicker fusion threshold, having at least two luminous indicators of which at least one is flickering, whereby selection of the flickering indicator or comparison of flickering frequencies is possible.



3,707,711
ELECTRONIC SURVEILLANCE SYSTEM

Peter Harold Cole, 3 Strangways Terrace, North Adelaide, and Richard Vaughn, 6 Taylor Street, Maroubra, New South Wales, both of Australia
Filed April 2, 1970, Ser. No. 25,232
Int. Cl. G08b *21/00*
U.S. Cl. 340—280 **16 Claims**

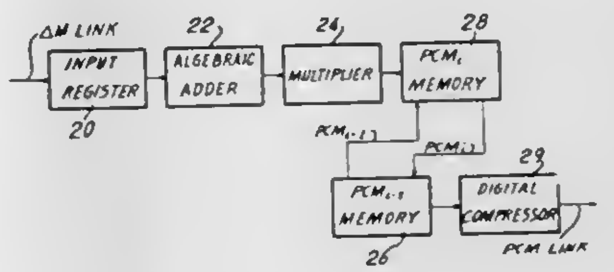


An electronic surveillance system in which a passive label is attached to goods to be placed under surveillance and the label is interrogated by electromagnetic signals from a transmitter, the label acting to transmit a reply signal to a receiver which gives a characteristic response in the presence of a label, the transmitter being arranged to transmit signals, preferably two, at widely different frequencies and the label acts to mix these frequencies to produce a reply signal which is distinct from the original transmitted signal. The receiver is provided with a signal processing system which analyses and compares characteristics of the transmitted signal and the reply signal and produces different responses in the presence or absence of a label.

3,707,712
CONVERTER FROM DELTA MODULATION TO PULSE CODE MODULATION

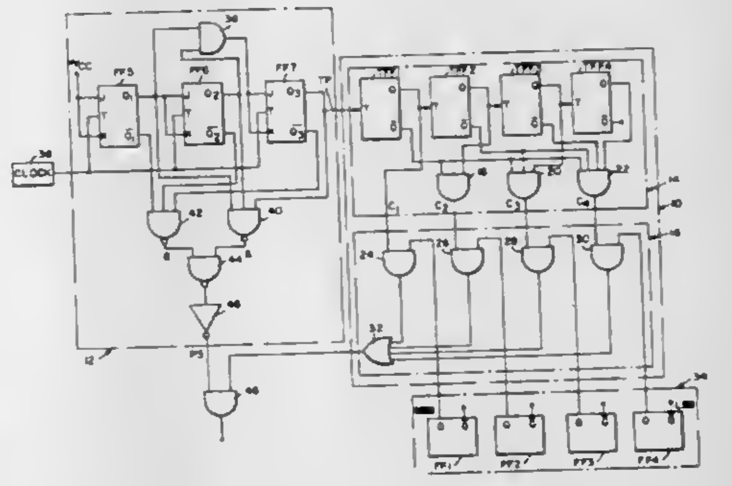
Pierre A. Deschenes, Sherbrooke, Quebec, Canada, and Michel Villeret, Gisors, France, assignors to Universite de Sherbrooke, Sherbrooke, Quebec, Canada
Filed June 10, 1970, Ser. No. 44,994
Int. Cl. H03k *11/00, 13/00, 13/24*
U.S. Cl. 340—347 DD **10 Claims**

A system for the conversion of a delta modulation (ΔM) signal into a pulse code modulation (PCM) signal and vice versa. The system for the conversion of a ΔM modulation signal into a PCM modulation signal comprises: register means for storing an input signal consisting of *n* binary digits generated by a ΔM modulator during a time period corresponding to a normal PCM modulation sampling period T_i, each binary digit representing a positive or negative ΔM modulation quantization step of a quantized signal; means for effecting the algebraic sum of the positive and negative quantization steps to obtain the increase or decrease of the quantized signal during the sampling period; means for multiplying the algebraic sum by a constant K representing the ratio of the value of a ΔM modulation quantization step over the value of a PCM modulation quantization step to obtain a binary signal representing the increase or decrease of the quantized signal in pulse code modulation quantization steps; and means for adding the binary signal obtained by the above multiplication to the binary signal obtained during the sampling period T_{i-1} to obtain a binary output signal corresponding to the required pulse code modulation signal.



3,707,713
HIGH RESOLUTION PULSE RATE MODULATED DIGITAL-TO-ANALOG CONVERTER SYSTEM

Richard A. Diaz, Pittsburgh, and Andras I. Szabo, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 13, 1970, Ser. No. 80,358
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 DA **4 Claims**



This disclosure relates to a pulse rate modulated digital-to-analog converter system which translates the digital information into a train of identical pulses, with the pulse rate proportional to the digital data. The pulse train produced by the encoder drives an analog switch, which in cooperation with a filtering analog circuit, converts the pulse train to an analogous DC voltage.

3,707,714

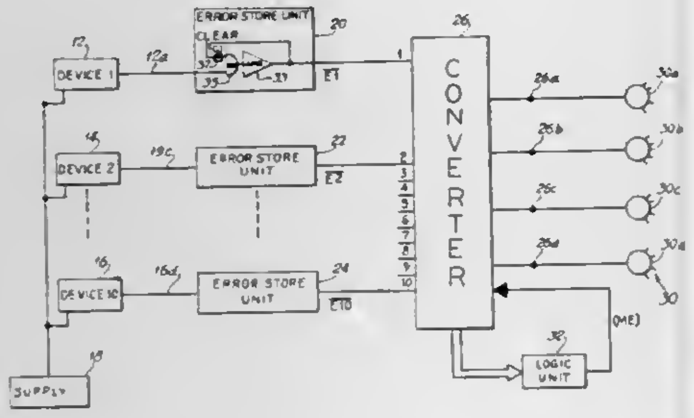
MULTIPLE ERROR DETECTOR

Christopher Plumley, Middlesex, Mass., assignor to Honeywell Inc., Minneapolis, Mich.

Continuation of Ser. No. 771,186, Oct. 28, 1969, abandoned. This application Jan. 8, 1971, Ser. No. 105,127

Int. Cl. H04l *3/00*

U.S. Cl. 340—347 DD **8 Claims**



Apparatus for producing a coded indication of which single incoming line carries an error signal responds to the receipt of plural error signals concurrently on different lines by producing an unambiguous multiple error signal.

3,707,715

DATA INPUT DEVICE

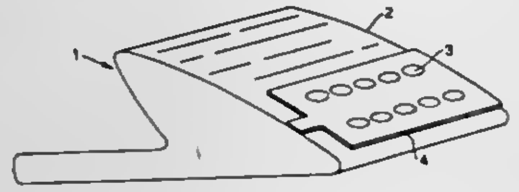
Pier Giorgio Perotto, Torino, Italy, assignor to Ing. C. Olivetti & C.,S.p.A., Ivria(Torino), Italy

Filed Jan. 19, 1971, Ser. No. 107,718

Claims priority, application Italy, Jan. 21, 1970, 67158 A/70

Int. Cl. G08b *5/36*

U.S. Cl. 340—365 P **10 Claims**



A data input device comprises a single cathode ray tube whose screen is divided into a plurality of zones. Each zone is scanned with a pattern characteristic of a corresponding code by means of a code matrix. Each pattern excites a zone of the screen to display a corresponding alphanumeric or other symbol with an intensity sufficient to excite a photodetector, which provides an output signal indicative of the code corresponding to a zone when this zone is at least partially obscurated, for increasing the luminous intensity of the character on the screen.

3,707,716

MULTI-TONE PUSH BUTTON CONTROLLED ELECTRONIC HORN

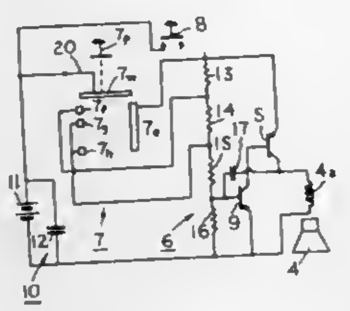
Norman S. Goralnick, 233 Worthen Road, Lexington, Mass.

Filed Sept. 23, 1970, Ser. No. 74,788

Int. Cl. G08b *3/10*

U.S. Cl. 340—384 E **3 Claims**

Transistorized electronic circuitry for producing audio-frequency output signals is manually switched to vary circuit constants and effect controlled multi-tone outputs in desired automatic dequence. Battery voltage variations are avoided and tone control is simplified by way of special capacitor connections.



3,707,717

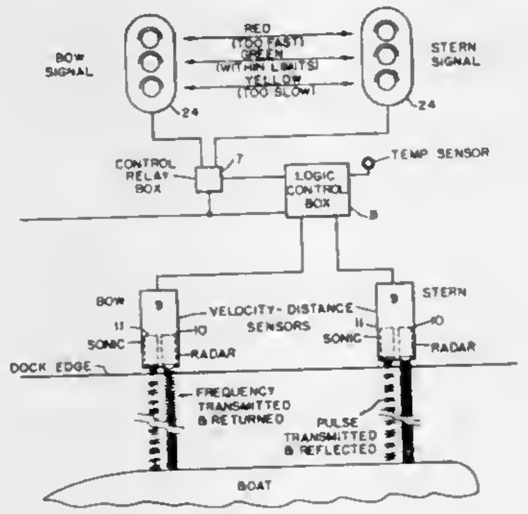
BOAT BERTHING MONITOR INCORPORATING SONAR AND DOPPLER RADAR TECHNIQUES

Klaus H. Friellnghaus, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y.

Filed June 25, 1971, Ser. No. 156,678

Int. Cl. G01s *9/02;* C01s *9/68*

U.S. Cl. 343—6 R **8 Claims**



A system has been provided for generating correction command signals relative to the berthing velocity profile of a vehicle in approach of a docking position. A doppler radar system including a radar transceiver projects signals between the docking position and the vehicle and respondingly generates doppler shift frequency signals indicative of the velocity of the vehicle and the relative displacement thereof. A radar counter having preset initial counts stored therein indicative of anticipated initial berthing conditions, responds to the frequency shift signals by counting down from the initial counts in accordance with the doppler shift. Means is included for updating the radar counter in accordance with actual conditions and includes a sonic detector which periodically projects sonic signals between the vehicle and the docking position and respondingly generates corrected count signals in accordance with the reflected sonic energy, indicative of actual distance of the vehicle to the docking position. Means is utilized which periodically transfers the corrected count signals to the radar counter, correcting for errors between actual nd preset initial conditions.

A velocity profile generator responds to the radar counter output and generates a programmed desired berthing velocity profile which a comparator responds to the velocity profile generator and the counter for generating command signals indicative of any discrepancy between the actual and desired vehicle berthing profile.

3,707,718

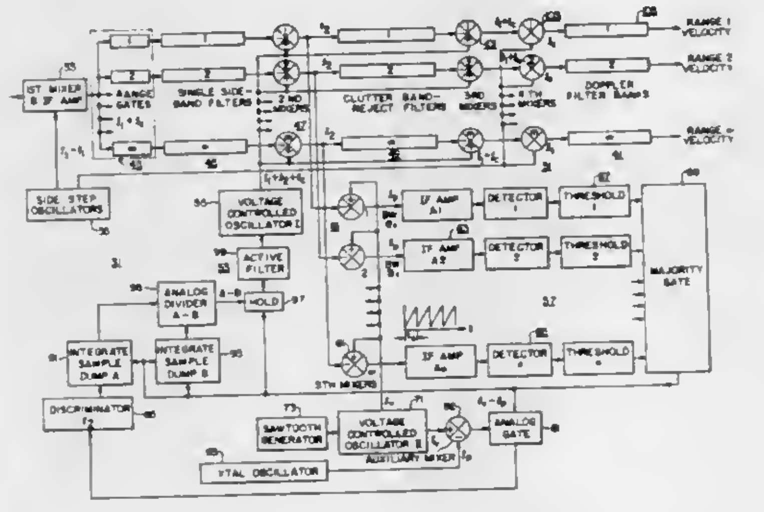
RADAR SYSTEM

Stephen A. Ames, Owing Mills, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 18, 1969, Ser. No. 800,140

Int. Cl. G01s *9/42*

U.S. Cl. 343—7.7 **6 Claims**



There is disclosed a pulse-doppler, moving-target, airborne, radar with a plurality of range-gating channels and a novel clutter tracker for suppressing, from the intelligence correlated to obtain range and velocity, the clutter reflected from ground. The clutter is suppressed by filters and the frequency of the clutter is maintained within the notch of the filters by an AFC. The mixer of this AFC which sets this notch frequency is driven from an oscillator whose frequency is set in dependence upon the frequency of the clutter signal without confusion (centroiding) from large target signals near in frequency to the clutter signal. The clutter signal is isolated from the confusing target signals by reliance on the phenomenon that the clutter alone passes through most of the range channels and may be detected by a gate which responds to the simultaneous passage of signals through this plurality of range channels.

3,707,719

SCANNING AERIAL SYSTEMS AND ASSOCIATED ARRANGEMENTS THEREFOR

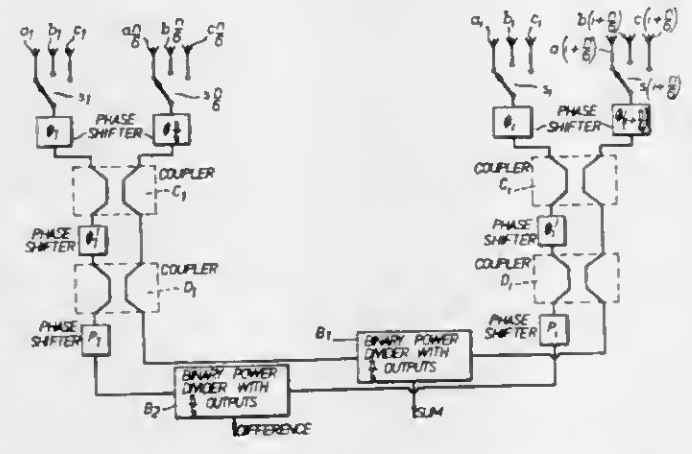
John Richard Mark, Essex, England, assignor to The Marconi Company Limited, London, England

Filed April 9, 1971, Ser. No. 132,765

Claims priority, application Great Britain, April 18, 1970, 18,642/70

Int. Cl. H01q *3/26*

U.S. Cl. 343—100 SA **7 Claims**



An electronic scanning aerial system and associated feeder arrangement has at least one circular aerial array. Elements of the array are divided into sets and units, each set comprising the same number of adjacent equally spaced elements and each unit comprising a number of different corresponding aerial elements, at least one in each set. A power dividing system provides power to different combinations of aerial elements, the combinations depending upon the general direction of radiation. The power dividing system includes a four port coupler, the ports remote from the aerial units being connected to two binary branching arrangements whereby sum signals are produced at one of the binary branching arrangements and difference radiation pattern signals at the other binary branching arrangement.

3,707,720

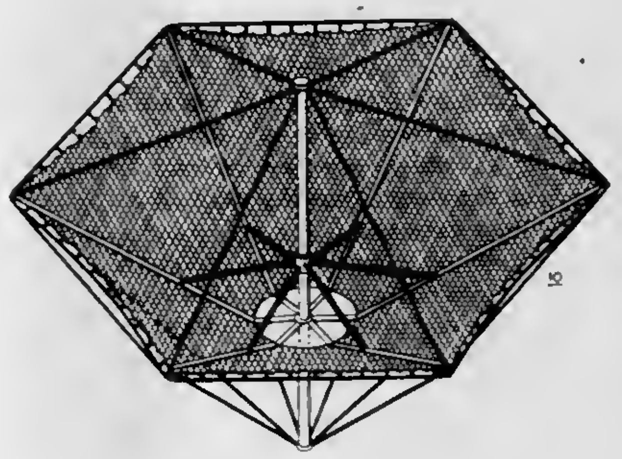
ERECTABLE SPACE ANTENNA

John H. Staehlin, Baltimore, and Philip S. Hacker, Silver Spring, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 2, 1970, Ser. No. 77,552

Int. Cl. H01g *15/20*

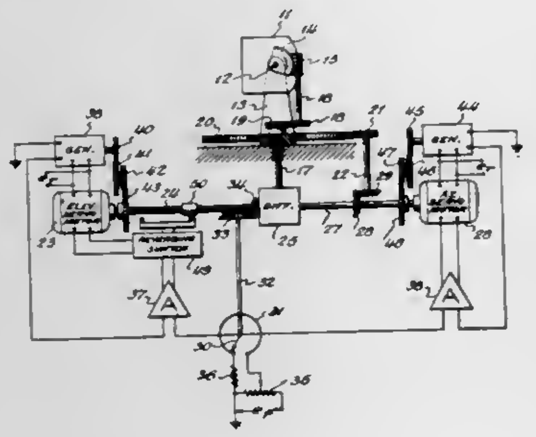
U.S. Cl. 343—755 **8 Claims**



An umbrella type antenna for delivery and use in space which includes an elongated tube and a cellular panel extending substantially radially of one end of the tube; the panel having support means for holding the panel in a collapsed or closed position during the delivery phase to a desired location and for maintaining the panel radially in an open, position during use, the support means also including a number of support ribs that are pivotally mounted at spaced intervals circumferentially of the tube and at one end thereof; the panel being composed of a plurality of expandable adjacent honeycomb-like cells which cells are disposed in closed condition when the panel is disposed in a closed position on the tube, the cells being disposed in open condition with the panel extending substantially radially outwardly from the tube in the open position, the honeycomb-like cells being formed of interconnected sheets of material which are preliminarily assembled with the cells in the opened positions and the sheets being in tension in the cell-closed condition when the panel is disposed in the closed position whereby the tension sustained in the interconnected sheets forming the closed cells if unrestrained, will cause the panel and ribs to expand from the closed position to the open position, means for releasably holding the ribs and panel in the closed position, each cell containing means for reflecting electromagnetic waves to a focus point on the tubular member, electromagnetic wave-receiving means on the tubular member at the focus point, the whole being coordinated so that the tension-sustained sheets forming the closed cells cause the panel and ribs to expand from the closed position to the open position upon release of the means for holding the ribs and panel in the closed position.

3,707,721
SERVO CONTROL SYSTEM

Earl J. McCartney, Rockville Center, N.Y., assignor to The Sperry Rand Corp., Great Neck, N.Y.
Filed Oct. 5, 1954, Ser. No. 460,295
Int. Cl. H01q *3/10*
U.S. Cl. 343—759 **12 Claims**

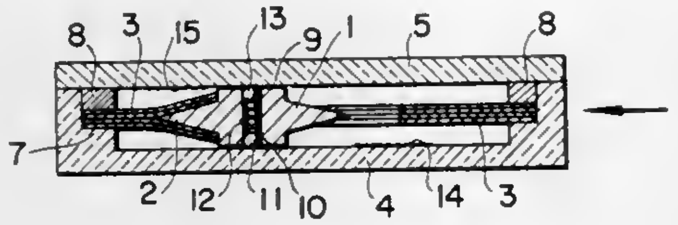


1. A servo system for controlling the scanning speed of a directive hemispherical search antenna, comprising in combination, first servomotor means adapted to be coupled to said antenna for rotating said antenna about a vertical axis whereby to rotate the directive axis thereof in azimuth, the speed of rotation of said antenna varying according to the magnitude of a voltage supplied to said first servomotor means, second servomotor means adapted to be coupled to said antenna for rotating said antenna about a horizontal axis whereby to rotate the directive axis thereof in elevation; the movement of said antenna about said horizontal axis varying according to the magnitude of a voltage supplied to said second servomotor means, means coupled to said second servomotor means and responsive to the movement of said antenna about said horizontal axis, said means receiving an applied voltage of constant magnitude and supplying an output voltage varying in magnitude according to the secant of the elevation angle of said antenna, means coupling said output voltage to said first servomotor means for varying the speed of said first servomotor means according to the secant of the elevation angle of said antenna, reversing switch means coupled to said second servomotor means and responsive to the movement of said antenna about said horizontal axis, means coupling said output voltage varying according to the secant of said elevation angle to said reversing switch means, and means coupling the voltage from said reversing switch means to said second servomotor means for varying the speed of said second servomotor means according to the secant of the elevation angle of said antenna, said second servomotor means and said reversing switch means causing the elevation angle of said antenna to oscillate about said horizontal axis through an angle less than 90°.

3,707,722
IMPACT ACCELERATION RECORDING DEVICE

Kazu Itoh, No. 14-30 Sakuragaoka 4-chome, Setagaya-ku, Tokyo, Japan
Filed Oct. 5, 1971, Ser. No. 186,751
Int. Cl. G01p *15/04*
U.S. Cl. 346—7 **10 Claims**

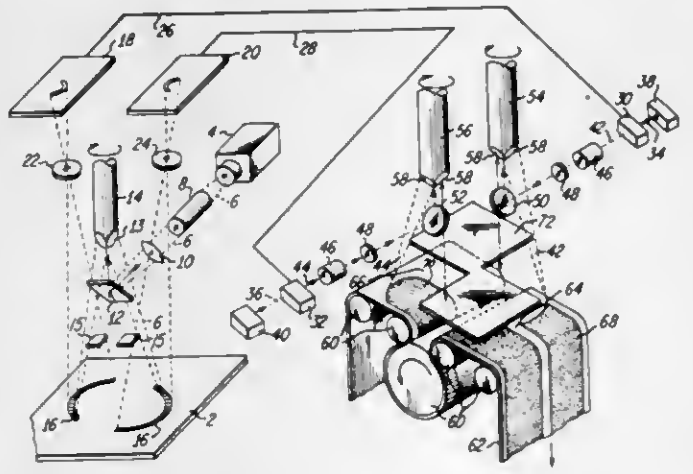
A weight disc has a wedge-like perimeter and is held between and by the inner edges of thin annular plates of plastic material in coaxial laminated state, the outer edges of the plates being fixedly held by an outer case which is secured to an object subject to possible impact. The disc responds to such impact by shifting from its original position to an impact position, its wedge-like perimeter driving into and along the interfacial seam between the plates to deform the same apart.



The distance of the shifting of the disc is measured and referred to previously obtained data to determine the acceleration due to impact.

3,707,723
LIGHT BEAM SCANNING

Martin Lewis Levene, Cherry Hill, N.J., assignor to RCA Corporation
Filed Oct. 14, 1970, Ser. No. 80,571
Int. Cl. H04n *1/00*
U.S. Cl. 346—108 **3 Claims**



There is described an arrangement for illuminating a rotatable planar reflector so as to produce a conically swept light beam whose intersection with a substantially planar or spherical surface provides an arcuate illuminated scan locus.

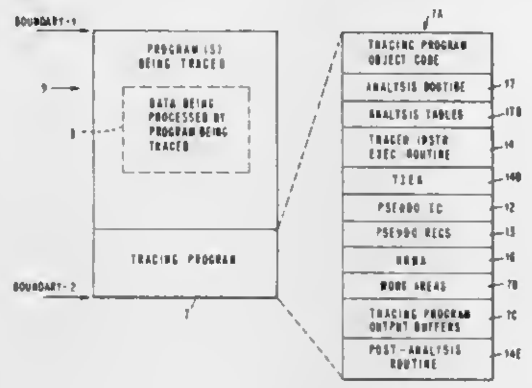
3,707,724

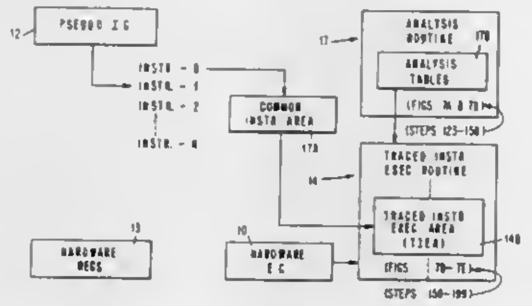
Patent Not Issued For This Number

3,707,725
PROGRAM EXECUTION TRACING SYSTEM IMPROVEMENTS

John L. Dellheim, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 19, 1970, Ser. No. 47,705
Int. Cl. G06f *11/04;* **9/18; G05b** *17/02*
U.S. Cl. 444—1 **12 Claims**

A tracing program method that copies into an area within a tracing program each instruction to be executed and traced in a manner which makes each traced instruction subservient to the tracing program. A hardware instruction counter of the computer system addresses the tracing program, rather than the program being traced. A programmed instruction counter controlled by the tracing program maintains the address within the traced program of its next instruction to be executed and traced. While being traced, the traced program is effectively executing its data using the same instruction sequence that it would use on the same data as if the tracing program was not in the system and as if the traced program was alone operating on its data.





The tracing method can control the entire computer system while tracing the programs that are being executed by the system. The tracing method can wholly or partially trace a program by sampling it over a cycle determined by time or by instruction count, or by an overriding manual control. When not tracing, the tracing program can go into a quiescence state, therein it retains control of the system in preparation for later tracing, but permits a speedup in the execution of subservient instructions.

The tracing method requires neither machine interrupts, nor modifications to the hardware or to the traced program code, for control of the computer system.

The tracing method provides data for each traced instruction in a form that can be subsequently analyzed by a disclosed trace analysis program so that the output from a single run of the tracing method can be used any number of times for varying types of analyses.

3,707,726

Patent Not Issued For This Number

3,707,727

Patent Not Issued For This Number

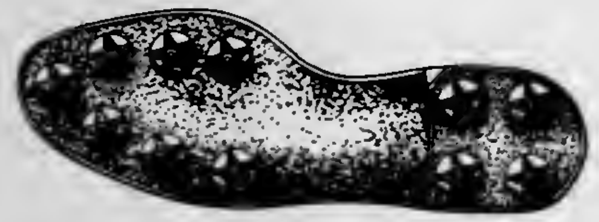
3,707,728

Patent Not Issued For This Number

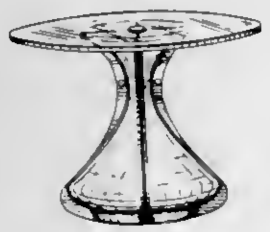
DESIGNS

DECEMBER 26, 1972

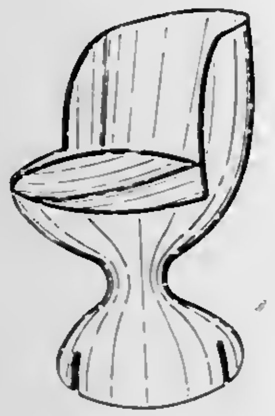
225,595
SPIKE SHOE SOLE
Daniel J. McCarthy, Somerville, Mass., assignor to Converse Rubber Corporation, Malden, Mass.
Filed Oct. 9, 1970, Ser. No. 25,411
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—321



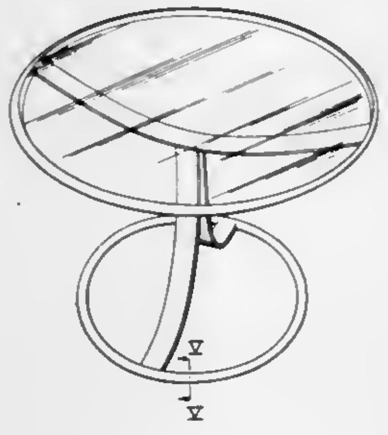
225,596
TABLE
Bernard Locas, Montreal, Quebec, Canada, assignor to Geoform Designs, Inc., Montreal, Quebec, Canada
Filed Feb. 22, 1971, Ser. No. 117,877
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—20



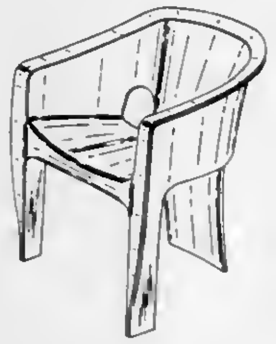
225,597
CHAIR
Stanley H. Hutchinson, Sierra Madre, Calif., assignor to David E. Vaughn, Owosso, Mich.
Filed Mar. 22, 1971, Ser. No. 127,061
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—20



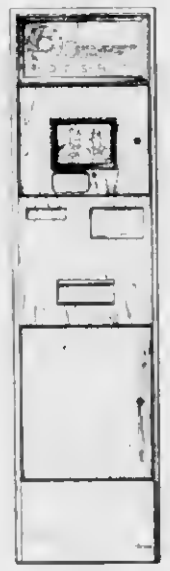
225,598
TABLE
Gardner Leaver, New York, N.Y., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed Apr. 5, 1971, Ser. No. 131,593
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—29



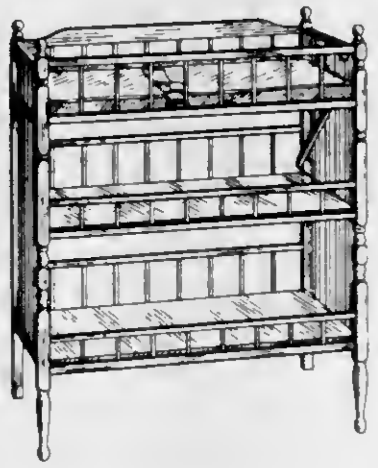
225,599
CHAIR
Stanley H. Hutchinson, Sierra Madre, Calif., assignor to David E. Vaughn, Owosso, Mich.
Filed Mar. 22, 1971, Ser. No. 127,065
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—55



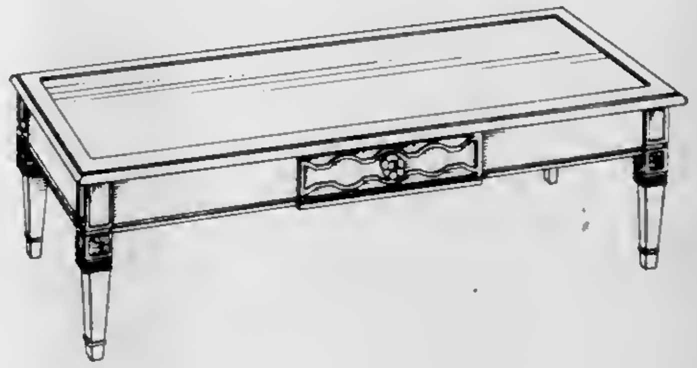
225,600
COMBINED ADVERTISING CABINET AND FILM DEPOSITORY
David L. Hill, Dunwoody, Ga., assignor to Leonard Wayne Johnson, Atlanta, Ga.
Filed Jan. 20, 1971, Ser. No. 108,248
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D6—167



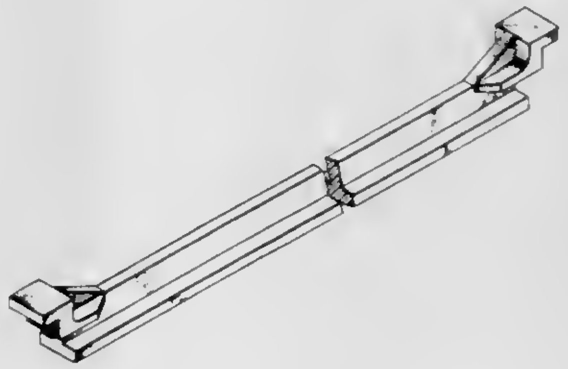
225,601
INFANT'S DRESSING TABLE
Raymond G. Pierson, Jr., Bedford, and Charles L. Voytko, Johnstown, Pa., assignors to Hedtrom Company, Bedford, Pa.
Filed Feb. 16, 1971, Ser. No. 115,920
Term of patent 7 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



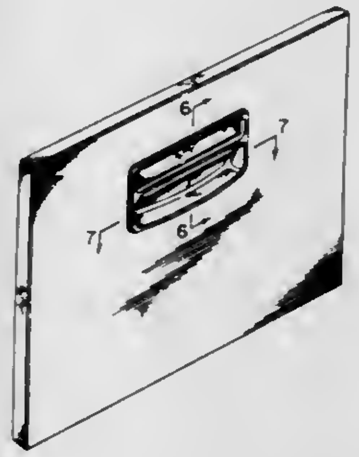
225,602
TABLE
Thomas Winrow, Naperville, Ill., assignor to Futorian Corporation, Amsterdam, N.Y.
Filed Nov. 30, 1970, Ser. No. 26,212
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—179



225,603
DRAWER GUIDE OR SIMILAR ARTICLE
Robert L. Jones, 308 Oxfordshire Lane, Louisville, Ky. 40207
Filed July 13, 1970, Ser. No. 23,933
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—191



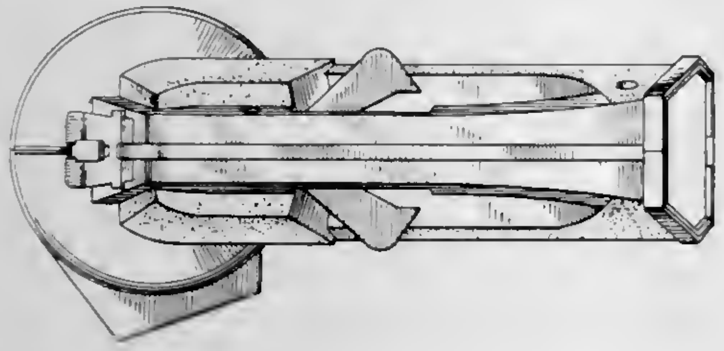
225,604
FILE DRAWER FACE PANEL
Iwawo Miyoshi, Tokyo, Japan, assignor to Kyoeikogyo Kabushikikaisha, Tokyo, Japan
Filed Feb. 22, 1971, Ser. No. 117,881
Term of patent 14 years
Int. Cl. D6—*95*
U.S. Cl. D6—192



225,605
GRASS TRIMMER

John S. Doyel, 404 W. 20th St., Brooklyn, N.Y. 10011
Filed Feb. 19, 1971, Ser. No. 117,172
Term of patent 14 years
Int. Cl. D8—*03*

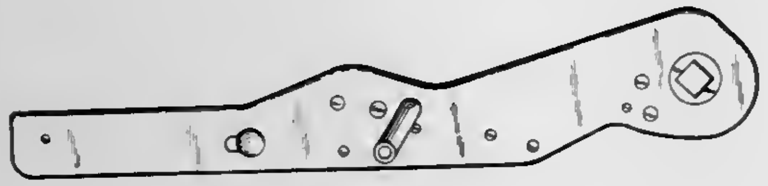
U.S. Cl. D8—8



225,606
RATCHET WRENCH WITH OFFSET HANDLE

Franklin J. Teichmeier, Rte. 2, Ravenna, Nebr. 68869
Filed Aug. 14, 1970, Ser. No. 24,504
Term of patent 14 years
Int. Cl. D8—*05*

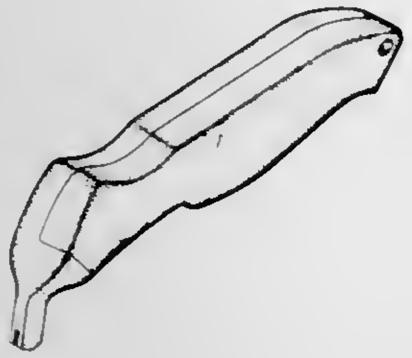
U.S. Cl. D8—25



225,607
HANDLE FOR GLASS CUTTER OR SIMILAR ARTICLE

Thomas A. Insollo, Bristol, Conn., assignor to The Fletcher-Terry Company, Farmington, Conn.
Filed Apr. 29, 1971, Ser. No. 138,850
Term of patent 14 years
Int. Cl. D8—*03*

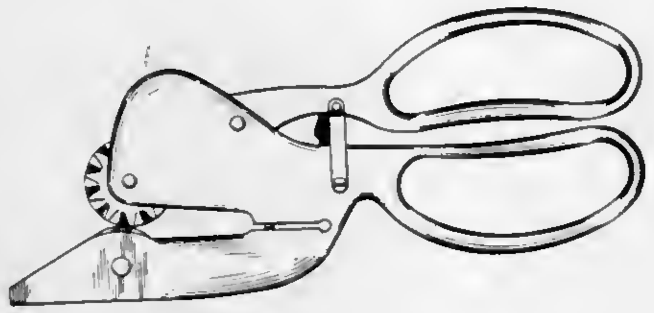
U.S. Cl. D8—51



225,608
PINKING SHEARS OR SIMILAR ARTICLE

Werner W. Schwartz, Jackson Heights, N.Y., assignor to U.S. Industries, Inc., New York, N.Y.
Filed Mar. 8, 1971, Ser. No. 122,270
Term of patent 14 years
Int. Cl. D8—*03*

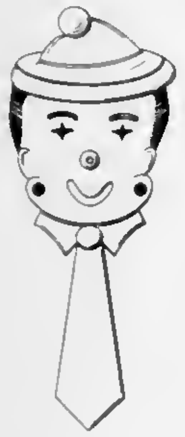
U.S. Cl. D8—57



225,609
LIGHT SWITCH ACTUATOR

James C. Corbett, Salt Lake City, Utah, assignor to Bonnie L. Bricker, Bountiful, Utah
Filed Nov. 13, 1970, Ser. No. 25,954
Term of patent 14 years
Int. Cl. D8—*08*

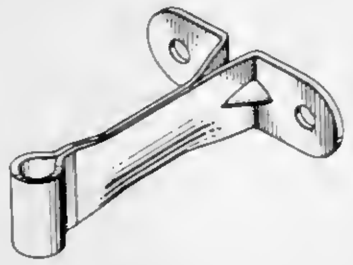
U.S. Cl. D8—183



225,610
STRIKE FOR A DOOR CATCH

Robert E. Bunch, La Verne, Calif., assignor to Zenith Manufacturing, Inc., South El Monte, Calif.
Filed Mar. 8, 1971, Ser. No. 122,260
Term of patent 14 years
Int. Cl. D8—*03*

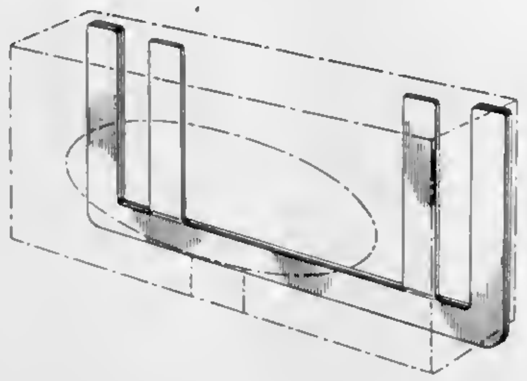
U.S. Cl. D8—203



225,611
TISSUE DISPENSER HOLDER

Arend M. Roskamp, 650 Constance Lane; Gresham R. Roskamp, 634 Westgate; and Robert G. Roskamp, 3005 Ierman, all of Deerfield, Ill. 60015
Filed Jan. 19, 1971, Ser. No. 107,873
Term of patent 14 years
Int. Cl. D8—*08*

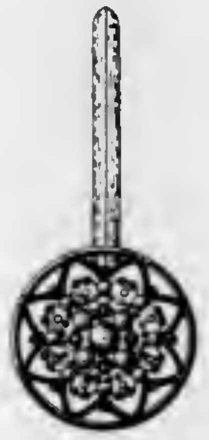
U.S. Cl. D8—233



225,612
HOOK FOR SHOWER CURTAINS OR THE LIKE

Heinz Nathanson, New York, N.Y., assignor to Heinz Nathanson Incorporated, New York, N.Y.
Filed Oct. 28, 1971, Ser. No. 193,616
Term of patent 14 years
Int. Cl. D8—*08*

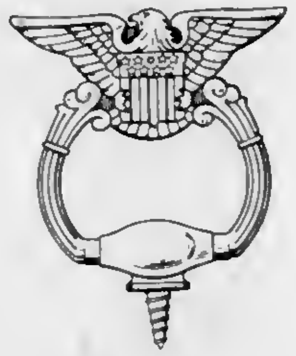
U.S. Cl. D8—248



225,613
HANGER, FOR PICTURES, MIRRORS, PLAQUES OR THE LIKE

L. Richard Chasen, Port Chester, N.Y., assignor to Coats & Clark, Inc., New York, N.Y.
Filed June 11, 1971, Ser. No. 152,480
Term of patent 14 years
Int. Cl. D8—*08*

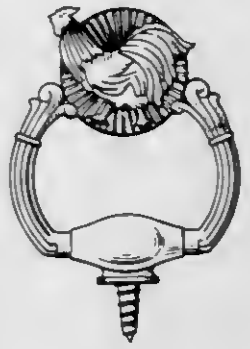
U.S. Cl. D8—257



225,614
HANGER FOR PICTURES, MIRRORS, PLAQUES OR THE LIKE

L. Richard Chasen, Port Chester, N.Y., assignor to Coats & Clark, Inc., New York, N.Y.
Filed June 11, 1971, Ser. No. 152,479
Term of patent 14 years
Int. Cl. D8—*08*

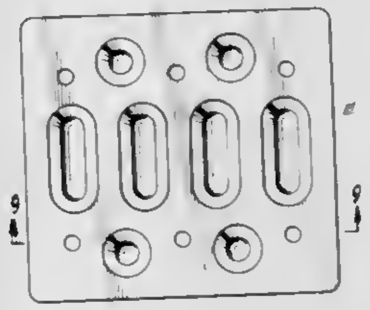
U.S. Cl. D8—257



225,615
TRUCK DOCK BUMPER

John L. Bishop, Bethany, Okla., assignor to DLM, Inc., Oklahoma City, Okla.
Filed Nov. 6, 1970, Ser. No. 25,862
Term of patent 14 years
Int. Cl. D8—*99*

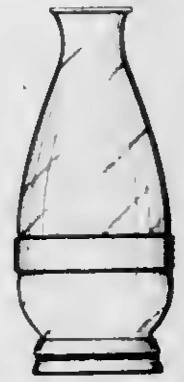
U.S. Cl. D8—263



225,616
BOTTLE

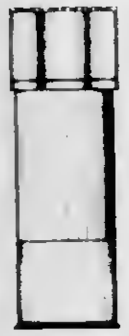
Bjorn Bagn, New Hartford, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Filed Sept. 3, 1970, Ser. No. 24,823
Term of patent 14 years
Int. Cl. D9—*01*

U.S. Cl. D9—12



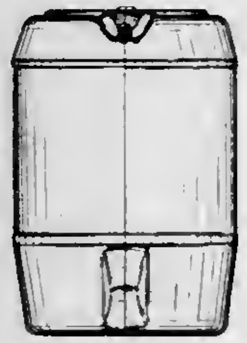
225,617
BOTTLE

Kenji Hanamura, Tokyo, Japan, assignor to Tancho Co., Ltd., Higashi-ku, Osaka, Japan
Filed Feb. 9, 1971, Ser. No. 114,102
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—169



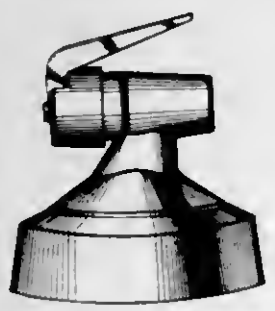
225,618
CONTAINER FOR LIQUIDS

Gaston Cantin, Montreal, Quebec, Canada, assignor to Twinpak Ltd., Quebec, Canada
Filed Jan. 21, 1971, Ser. No. 108,668
Claims priority, application Canada Aug. 18, 1970
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—175



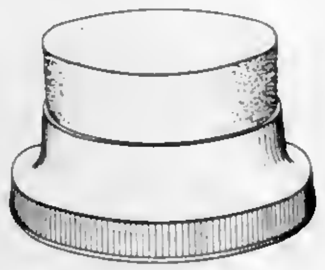
225,619
DISPENSING VALVE FOR PRESSURIZED DISPENSERS

Roger K. Bruce, Mission Viejo, Werner Marhold, Huntington Beach, and Cecil F. Adickes, Playa Del Rey, Calif., assignors to Sterigard Corporation, Santa Ana, Calif.
Filed Apr. 29, 1971, Ser. No. 138,863
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—258



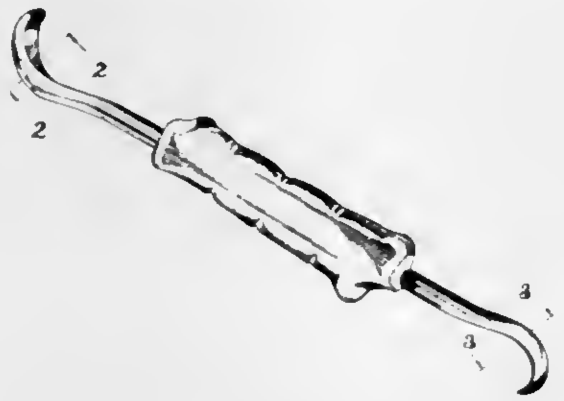
225,620
CLOSURE CAP FOR A CONTAINER

Carl F. Schmid, Park Ridge, Ill., assignor to Turtle Wax, Inc., Chicago, Ill.
Filed Dec. 29, 1970, Ser. No. 26,695
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—261



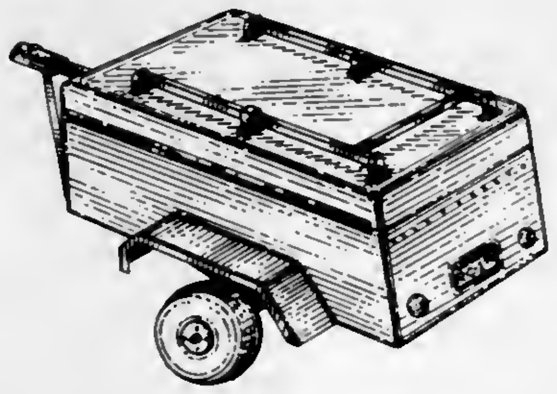
225,621
BUTCHER'S SPINAL CORD REMOVER

John D. Malkovich and Vernie M. Malkovich, both of 4420 Bela Way, Carmichael, Calif. 95608
Filed May 3, 1971, Ser. No. 140,005
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D11—1



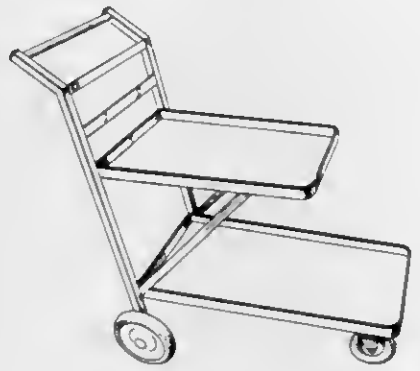
225,622
CAMPING TRAILER

Richard I. Carroll, 1726 E. 1st Ave., Mesa, Ariz. 85204
Filed Feb. 1, 1971, Ser. No. 111,805
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D14—3



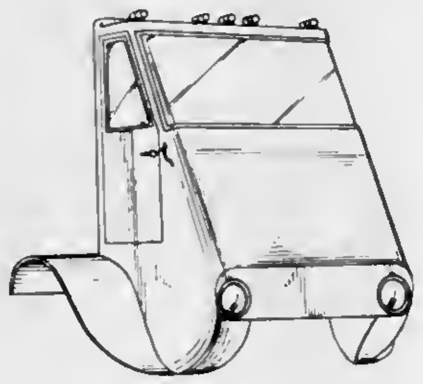
225,623
SHOPPING CART

Fred Pankiw, Weston, Ontario, Canada, assignor to Pan-Wal Mechanical Services Limited, Weston, Ontario, Canada
Filed May 4, 1971, Ser. No. 140,316
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D14—3



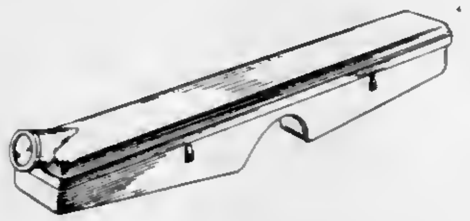
225,624
TRUCK CAB

Dean Hobbensiefken, Rte. 1, P.O. Box 241, Lyons, Oreg.
Filed Nov. 23, 1971, Ser. No. 201,625
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D14—3



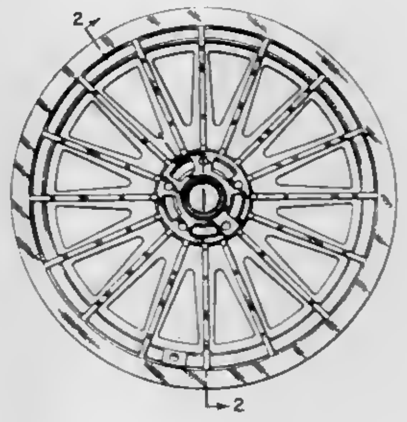
225,625
COMBINATION TRAILER FENDER AND COMPARTMENT

Arlen L. Huff, South Bend, Ind., assignor to Sellers Manufacturing, Inc., Wakarusa, Ind.
Filed Apr. 1, 1971, Ser. No. 130,558
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—6



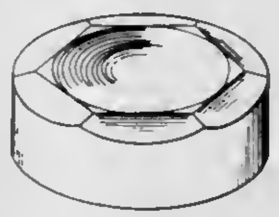
225,626
MOTORCYCLE WHEEL

William G. Davidson, Elm Grove, Wis., assignor to AMF Incorporated
Filed Oct. 30, 1970, Ser. No. 25,727
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—30



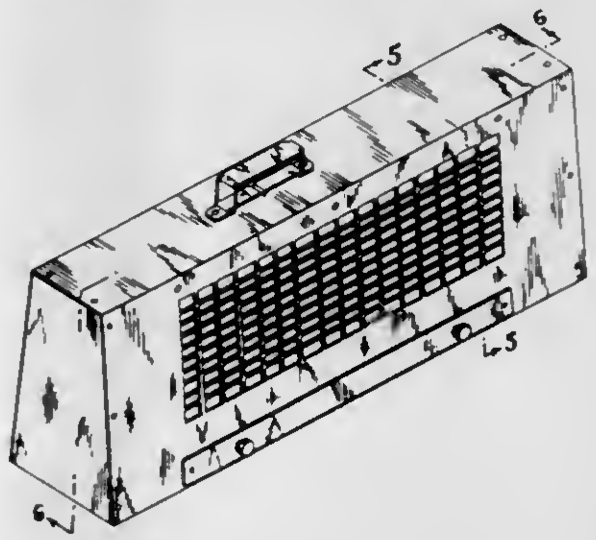
225,627
PHARMACEUTICAL TABLET

Richard Herbert Gomel, Frank Leon Ogar, and George Ronald Tomaich, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.
Filed Mar. 25, 1971, Ser. No. 128,203
Term of patent 14 years
Int. Cl. D28—*01;* D1—*01*
U.S. Cl. D16—3



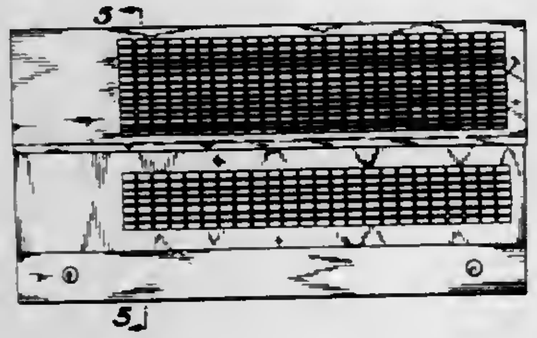
225,628
ELECTROCUTING TRAP FOR FLYING INSECTS

Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed May 7, 1971, Ser. No. 141,460
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



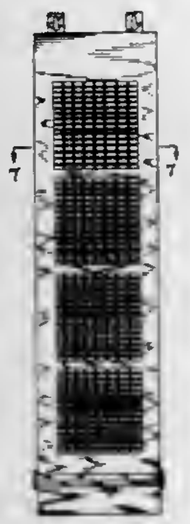
225,629
INSECT ELECTROCUTOR

Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed May 20, 1971, Ser. No. 145,596
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



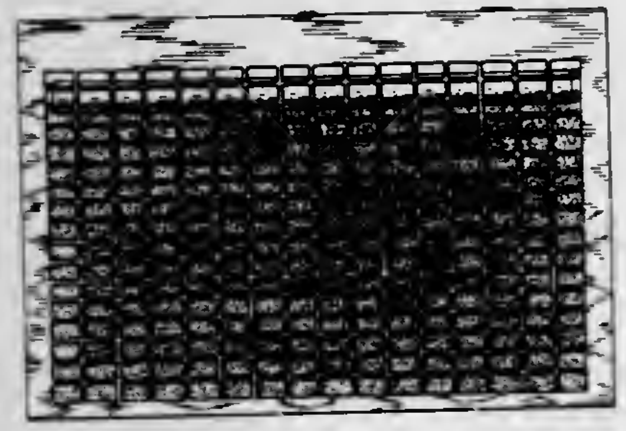
225,630
WALL-TYPE INSECT ELECTROCUTOR

Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed June 1, 1971, Ser. No. 149,107
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



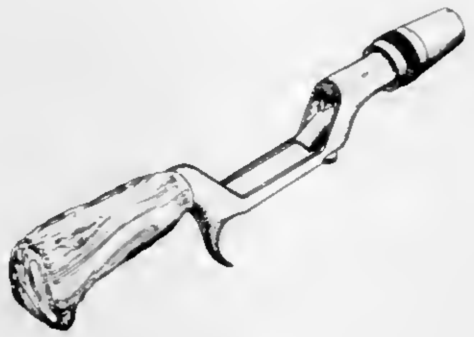
225,631
LIGHT ATTRACTING ADHESIVE INSECT TRAP

Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed June 10, 1971, Ser. No. 152,008
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



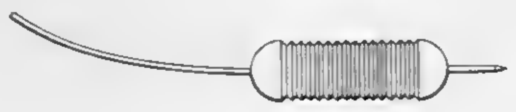
225,632
FISHING ROD HANDLE

Bob G. Reddin, 3609 Winifred Drive, Fort Worth, Tex. 76109, and Foy D. Bostic, 220 NE. Craig, Burleson, Tex. 76028
Filed Feb. 22, 1971, Ser. No. 117,879
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—23



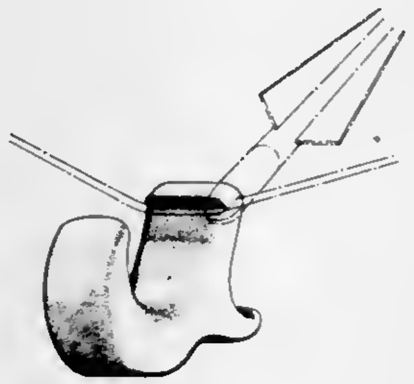
225,633
FISH KILLING TOOL

Billy B. Teter, 2532 Greenwood, Wichita, Kans. 67202
Filed Apr. 12, 1971, Ser. No. 133,460
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—31



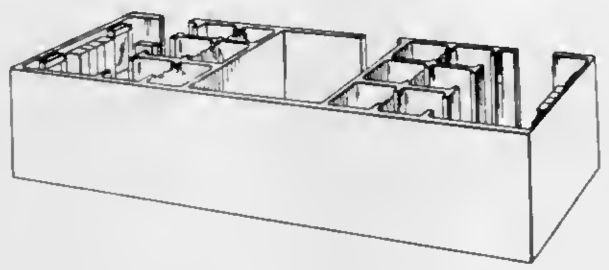
225,634
BOWSTRING DRAWING AND RELEASING DEVICE

Dale F. Halter, 25825 Brynmawr Ave., Hayward, Calif. 94544
Filed Mar. 22, 1971, Ser. No. 127,060
Term of patent 14 years
Int. Cl. D22—*99*
U.S. Cl. D22—99



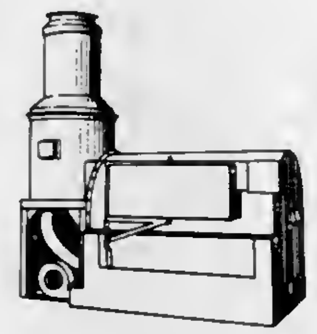
225,635
PORTABLE SHOWER FACILITY OR THE LIKE

Joseph F. Dowd, P.O. Box 82, Hatch, N. Mex. 87937
Filed Feb. 23, 1971, Ser. No. 118,204
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49



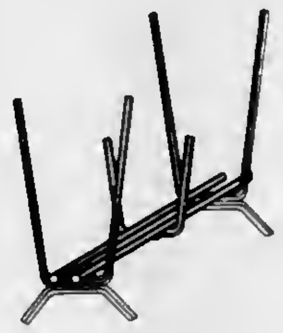
225,636
INCINERATOR

Bruce R. Hutchinson, Andover, and Robert N. Brooks, West Hartford, Conn., assignors to Silent Glow Corporation, Bloomfield, Conn.
Filed July 15, 1970, Ser. No. 23,970
Term of patent 14 years
Int. Cl. D23—*79*
U.S. Cl. D23—85



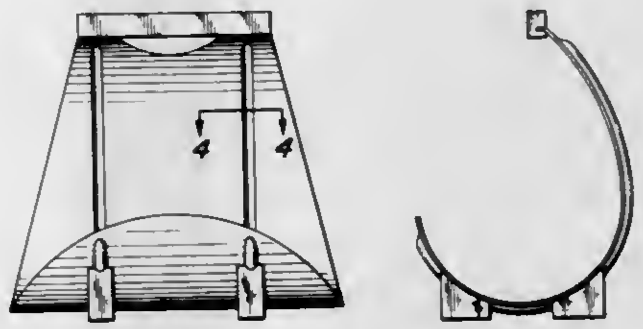
225,637
COMBINED FIREPLACE GRATE AND LOG HOLDER

Robert T. Schmitt, 517 Johnson Road NW., Grand Rapids, Mich. 49504
Filed May 27, 1971, Ser. No. 147,727
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—98



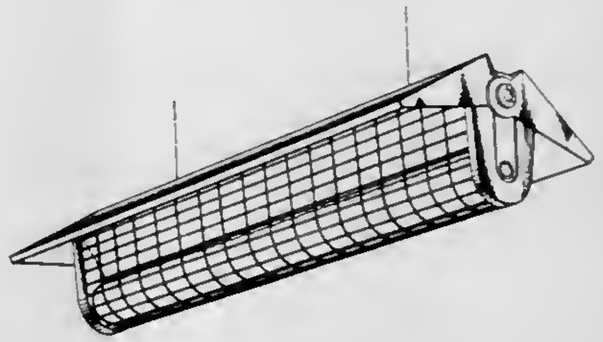
225,638
SCUTTLE FOR FIREWOOD

Neil B. Christianson, 1551 E. Burton Court, R.F.D. 6, Ogden, Utah 84403
Filed Feb. 18, 1971, Ser. No. 116,729
Term of patent 14 years
Int. Cl. D23—*99*
U.S. Cl. D23—104



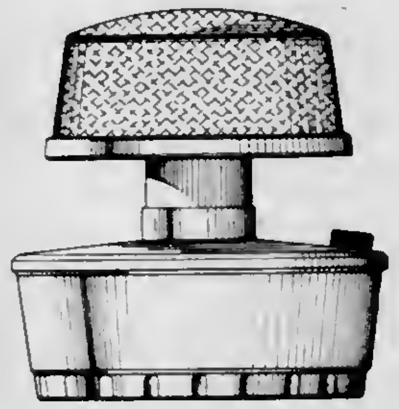
225,639
CATALYTIC HEATER

Jay N. Smith, Wichita, Kans., assignor to Impala Industries, Inc., Wichita, Kans.
Filed Mar. 17, 1971, Ser. No. 125,450
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—110

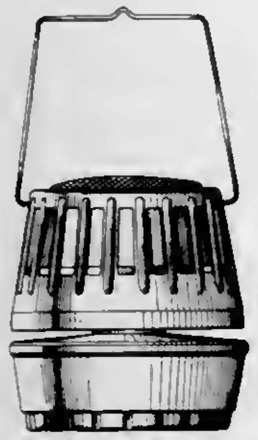


225,640
CATALYTIC HEATER

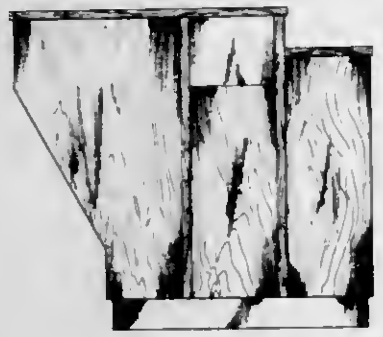
Benjamin C. Baugh, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed Feb. 17, 1971, Ser. No. 116,298
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—122

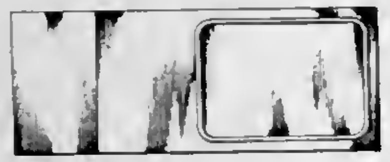


225,641
COMBINED CATALYTIC HEATER AND PROTECTIVE COVER THEREFOR
Benjamin C. Baugh, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed Feb. 17, 1971, Ser. No. 116,300
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—123

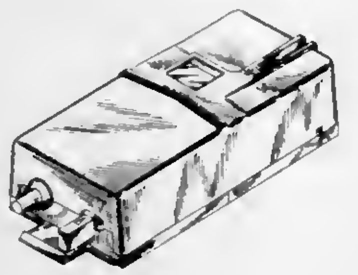


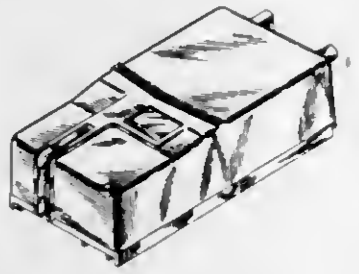
225,642
ORTHODONTIC CABINET
Ransom M. Westover, 4130 Baywood Drive SE., Grand Rapids, Mich. 49501
Filed Oct. 1, 1971, Ser. No. 185,930
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—1



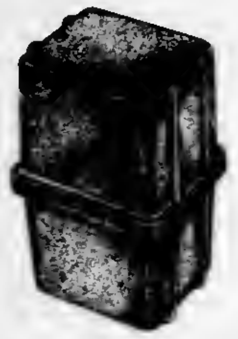


225,643
REACTION TESTING DEVICE
Larry Harrison, Clifton Springs, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed May 19, 1971, Ser. No. 144,937
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1

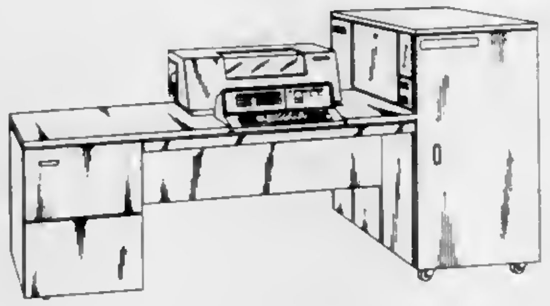




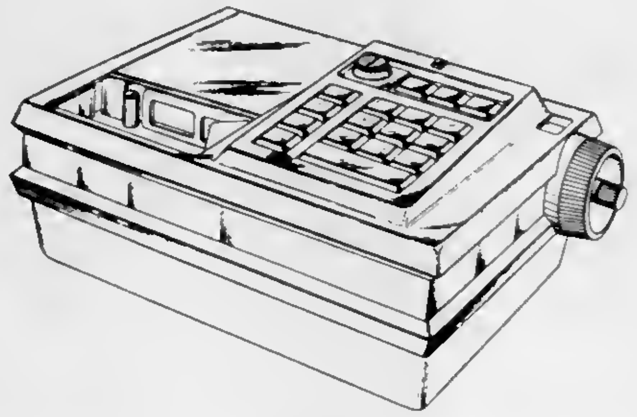
225,644
HOUSING FOR ELECTRICAL APPARATUS
Kenneth E. Beach, Inglewood, Colo., assignor to Honeywell, Inc., Minneapolis, Minn.
Filed Jan. 22, 1971, Ser. No. 109,089
Term of patent 14 years
Int. Cl. D13—*99*
U.S. Cl. D26—5



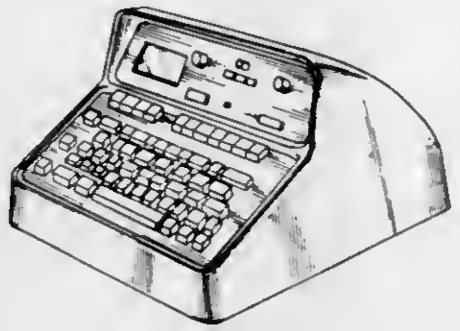
225,645
DATA PROCESSING ENSEMBLE
Loring C. Bixler, Vestal, N.Y., Myron F. Davis and Francis J. Eisenman, Jr., Boca Raton, Fla., and Edward R. Wiener, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 20, 1970, Ser. No. 24,036
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



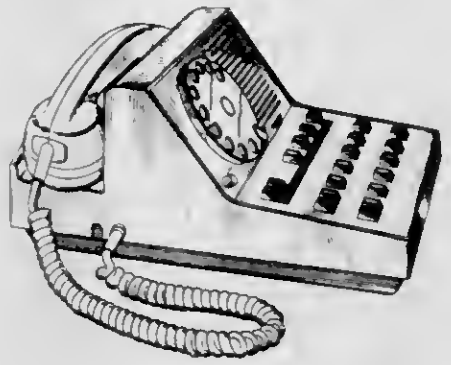
225,646
SUBSCRIBER TERMINAL CONSOLE
Peter P. Klepa and Thomas J. Hermann, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed July 6, 1971, Ser. No. 160,253
Term of patent 7 years
Int. Cl. D14—*02*
U.S. Cl. D26—5

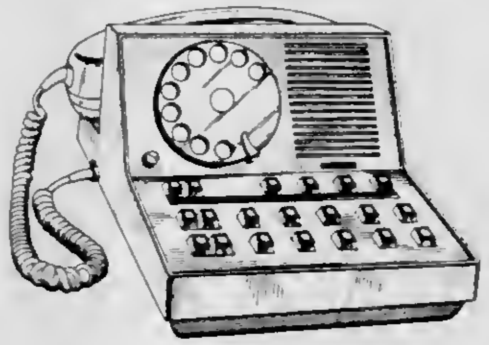


225,647
DIGITAL COMMUNICATIONS TERMINAL
Philip L. Brooks, Menlo Park, Robert W. Davies, Cupertino, Thomas E. Lash, Milpitas, Robert E. Maloney, Sunnyvale, and Svein T. Nordberg, Saratoga, Calif., assignors to GTE Sylvania Incorporated
Filed Aug. 3, 1971, Ser. No. 168,800
Term of patent 14 years
Int. Cl. D14—*02;* D18—*01*
U.S. Cl. D26—5

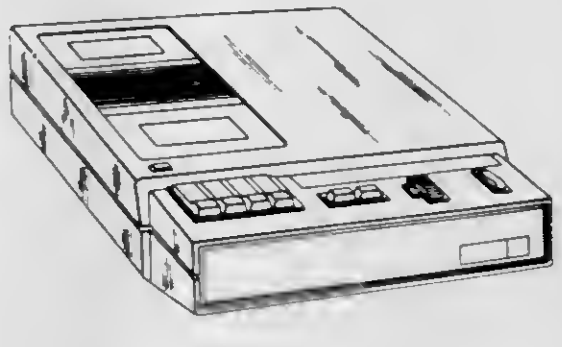


225,648
INTERCOMMUNICATIONS SET
Jean-Louis Barrault, Paris, France, assignor to Compagnie Industrielle des Telecommunications CIT-ALCATEL, Paris, France
Filed Apr. 20, 1971, Ser. No. 135,819
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



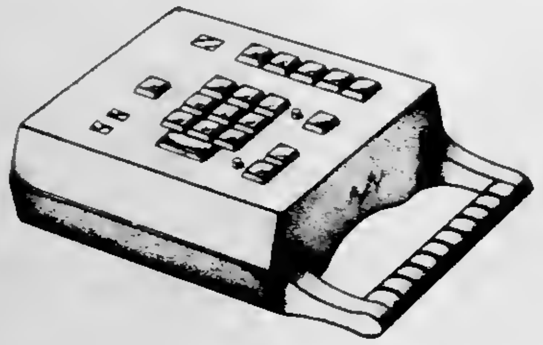


225,649
TELEPHONE ANSWERING MACHINE
Charles W. Ho, San Francisco, Calif.
(3144 Somerset Place, Lafayette, Calif. 94549)
Filed Apr. 30, 1971, Ser. No. 139,305
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



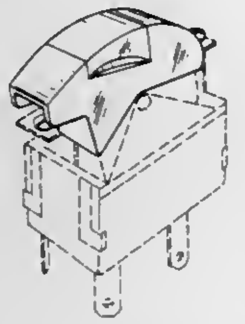
225,650
PORTABLE DATA SET
Robert P. Mulholland, Centerville, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Filed Oct. 22, 1970, Ser. No. 25,606
Term of patent 14 years
Int. Cl. D14—*02*

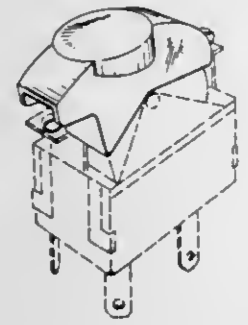
U.S. Cl. D26—5



225,651
SAFETY SWITCH TOGGLE
Ralph W. Shifley, O'Fallon, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Dec. 23, 1970, Ser. No. 26,628
Term of patent 14 years
Int. Cl. D13—*03*

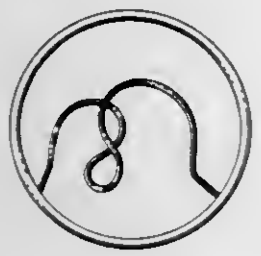
U.S. Cl. D26—13





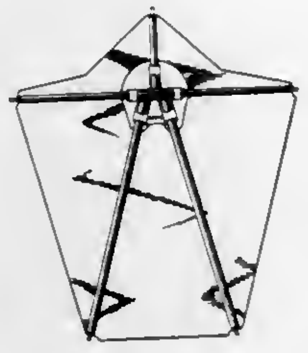
225,652
MEDALLION
Elaine J. Papavasiliou, Shoreham, N.Y., assignor to Symbologics, Inc., Port Jefferson, N.Y.
Filed July 21, 1971, Ser. No. 164,962
Term of patent 3½ years
Int. Cl. D11—*03*

U.S. Cl. D29—19



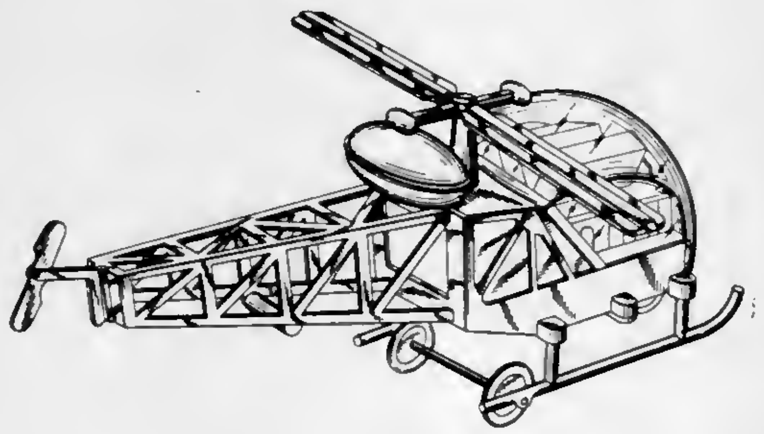
225,653
KITE
Sam Kupperman and Dennis I. Kupperman, both of 4139 Main St., Skokie, Ill. 60603
Filed Jan. 21, 1971, Ser. No. 108,673
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15



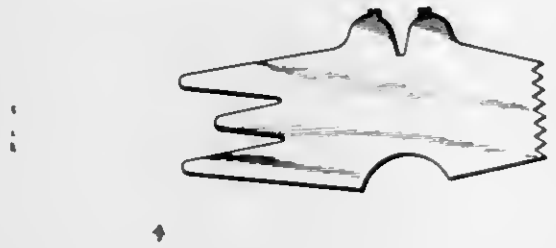
225,654
HELICOPTER TOY
Norman Spiegel, New York, N.Y., assignor to Nasta Industries, Inc.
Filed Apr. 5, 1971, Ser. No. 131,569
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15



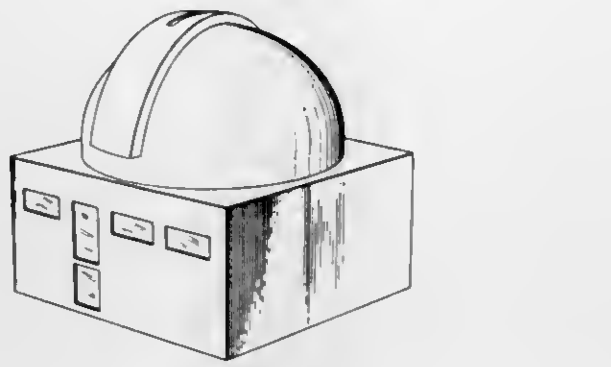
225,655
GOLF CLUB CLEANING TOOL
Frank Masters Johnson, 9542 S. Yates, Chicago, Ill. 60617
Filed Apr. 23, 1971, Ser. No. 137,110
Term of patent 14 years
Int. Cl. D21—*02*

U.S. Cl. D34—5



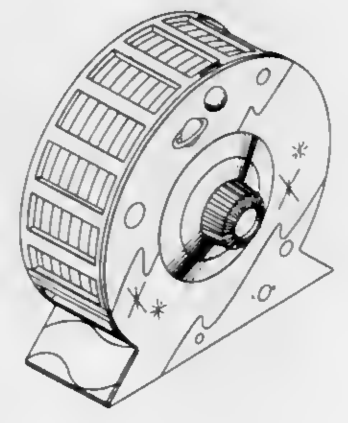
225,656
COIN BANK
George F. Gruskos, 69 Cayuga Ave., Oceanport, N.J. 07757
Filed May 6, 1971, Ser. No. 141,087
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—11



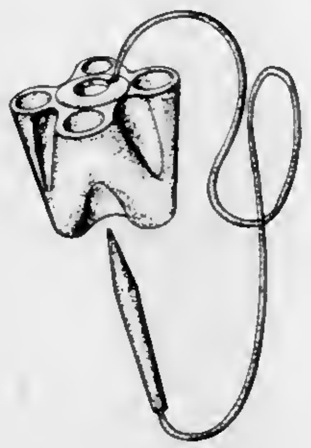
225,657
COMBINED GAME DEVICE AND SAVINGS BANK
Elaine G. Vigan, 1932 Weepah Way, Hollywood, Calif. 90010
Filed July 19, 1971, Ser. No. 164,188
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—11



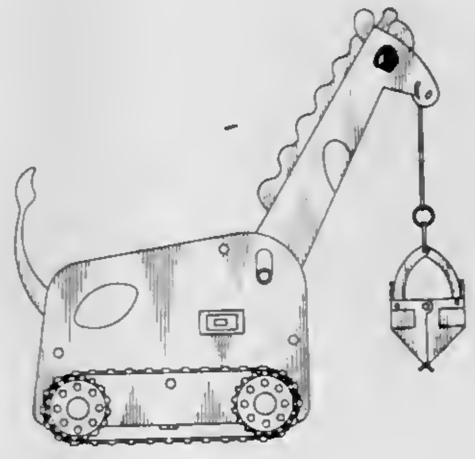
225,658
THREADING BLOCK TOY
Lynn Pressman, 200 5th Ave., New York, N.Y. 10017
Filed Sept. 18, 1970, Ser. No. 25,052
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15



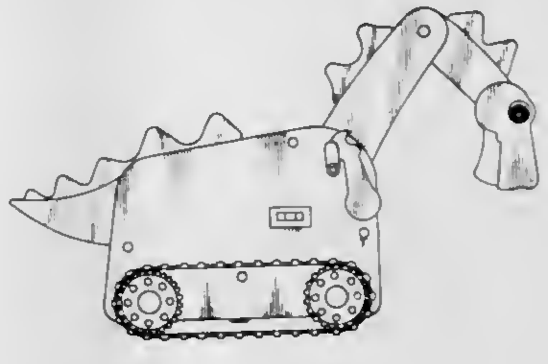
225,659
TOY TRUCK CRANE
Yasuta Satoh, 758, 5-chome, Matsugaoka, Nagareyama, Japan
Filed Mar. 15, 1971, Ser. No. 124,628
Claims priority, application Japan Jan. 30, 1971
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15



225,660
TOY SHOVEL LOADER
Yasuta Satoh, 758, 5-chome, Matsugaoka, Nagareyama, Japan
Filed Mar. 15, 1971, Ser. No. 124,629
Claims priority, application Japan Jan. 30, 1971
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15

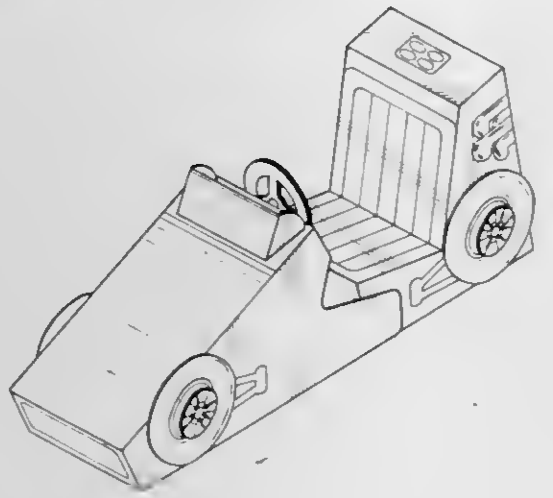


225,661
TOY RACING CAR

Donald Richard Everhart, Prairie Village, and Don Pratt, Mission, Kans., and John W. Chalsson, Kansas City, Mo., assignors to Crescent Interprise, Inc., Prairie Village, Kans.

Filed May 26, 1971, Ser. No. 147,284
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15

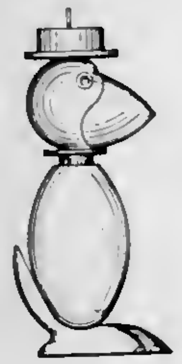


225,662
BIRD WHISTLE

James R. Becker, 200 5th Ave., Kings Point, N.Y. 10010, and Herman Kesler, A-102 Cedarbrook Hill Apts., Greenwood Ave. and Limekiln Pike, Wyncote, Pa. 19095

Filed June 7, 1971, Ser. No. 150,885
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—15

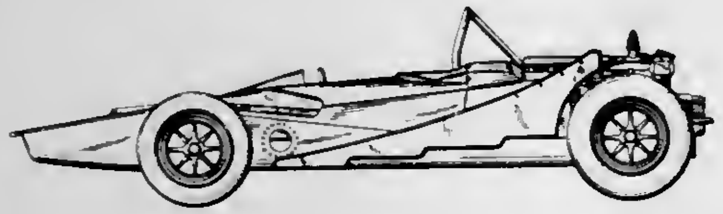


225,663
MODEL RACING CAR

Josef Helmut Karasek, Lenggries, Germany, assignor to McNamara Racing K.G., Urtmuhlweg, Germany

Filed Aug. 12, 1971, Ser. No. 171,415
Claims priority, application Great Britain Feb. 18, 1971
Term of patent 7 years
Int. Cl. D21—*01*

U.S. Cl. D34—15

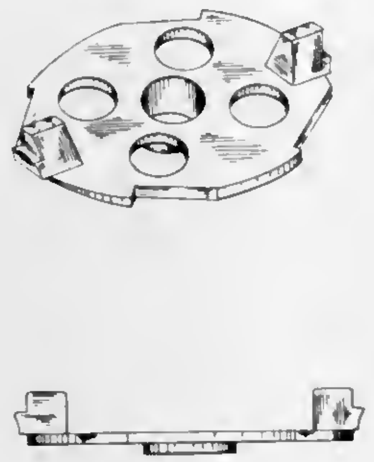


225,664
SEED PLATE ADAPTER

Leonard T. Fleischer, 315 Pershing Road, Columbus, Nebr. 68601

Filed Mar. 4, 1971, Ser. No. 121,224
Term of patent 14 years
Int. Cl. D15—*03*

U.S. Cl. D35—2

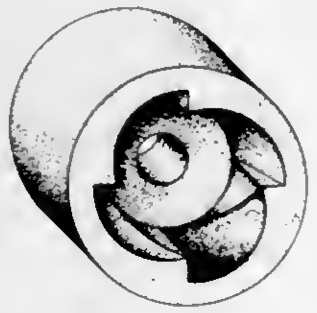


225,665
ABRASIVE GRINDING WHEEL

Johnnie Kuest, P.O. Box 1254, Twin Falls, Idaho 83301

Filed Jan. 25, 1971, Ser. No. 109,731
Term of patent 14 years
Int. Cl. D15—*99*

U.S. Cl. D37—1

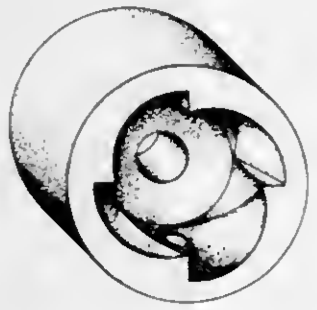


225,666
ABRASIVE GRINDING WHEEL INCLUDING ENTRANCEWAY

Johnnie Kuest, P.O. Box 1254, Twin Falls, Idaho 83301

Filed Jan. 25, 1971, Ser. No. 109,757
Term of patent 14 years
Int. Cl. D15—*99*

U.S. Cl. D37—1

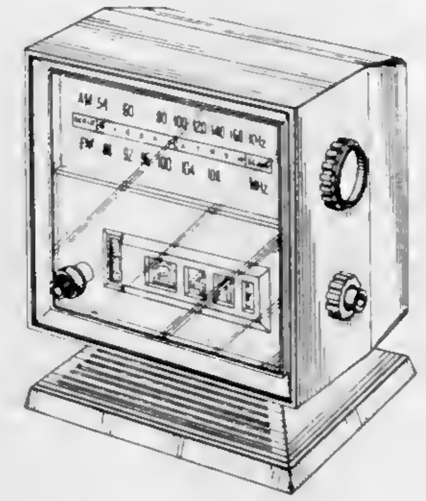


225,667
CLOCK RADIO

John Y. Sugihara, Streamwood, Ill., assignor to Gemini International Corp.

Filed Dec. 28, 1970, Ser. No. 26,672
Term of patent 14 years
Int. Cl. D10—*01*

U.S. Cl. D42—7

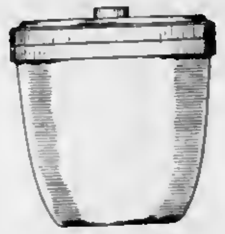


225,668
INSULATED BUCKET FOR ICE OR THE LIKE

David W. Darr, 2727 Spring Garden Road, Winston-Salem, N.C. 27106

Filed Oct. 15, 1970, Ser. No. 25,497
Term of patent 14 years
Int. Cl. D7—*02*

U.S. Cl. D44—1

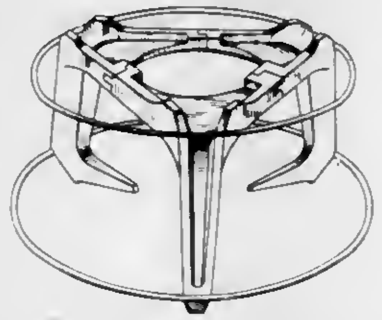


225,669
WARMING STAND

Pierre Maurice Joseph Toiseux, Bellegarde, France, assignor to Ronson Corporation, Woodbridge, N.J.

Filed Jan. 27, 1971, Ser. No. 110,241
Claims priority, application France Aug. 18, 1970
Term of patent 14 years
Int. Cl. D7—*02*

U.S. Cl. D44—10

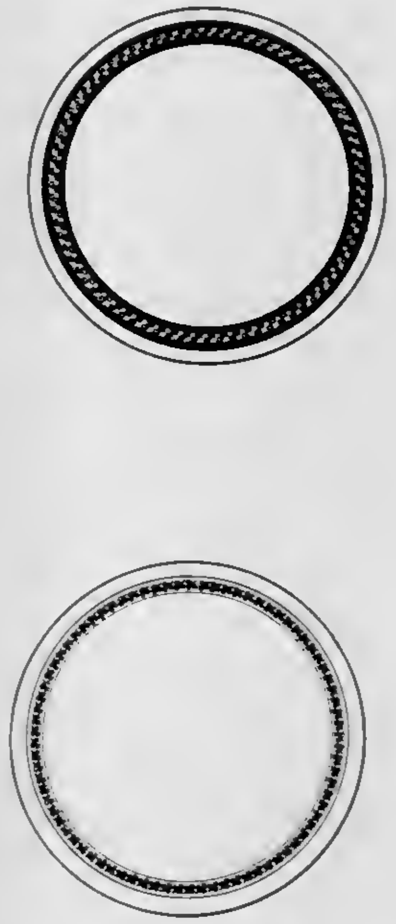


225,670
PLATE OR THE LIKE

Ottorino N. Mercadante, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Continuation of design applications Ser. No. 22,757 and Ser. No. 22,760, both May 1, 1970. This application Jan. 25, 1971, Ser. No. 109,728
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—15

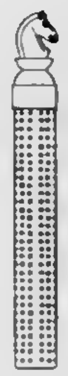


225,671
TEA INFUSER

Teru Tanaka, 8–13 Ohmori Hon-machi 1-chome, Tokyo, Japan

Filed Dec. 24, 1970, Ser. No. 26,635
Claims priority, application Japan Sept. 10, 1970
Term of patent 14 years
Int. Cl. D7—*04*

U.S. Cl. D44—26

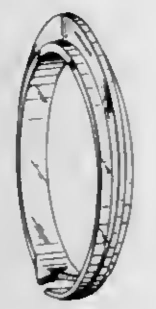


225,672

DECORATIVE ARCH FOR ELECTRIC LAMPS

Rolf Anders Thunman, Skogsstigen 9, Ronninge, Sweden
Filed Dec. 2, 1970, Ser. No. 26,256
Claims priority, application Denmark June 3, 1970
Term of patent 7 years
Int. Cl. D26—*05*

U.S. Cl. D48—14

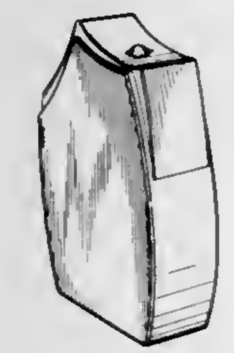


225,673

ELECTRIC LAMP CASING

Rene Marcel Angibaud, Vernon, France, assignor to Societe les Piles Wonder
Filed Apr. 20, 1971, Ser. No. 135,827
Claims priority, application France Oct. 23, 1970
Term of patent 14 years
Int. Cl. D26—*02*

U.S. Cl. D48—24

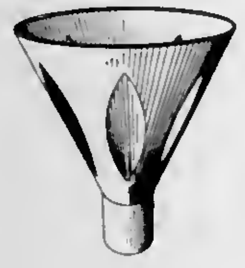


225,674

HEAD FOR A GAS TIKI TORCH

James D. Reese, 11937 Avenue 274,
Visalia, Calif. 91026
Filed June 21, 1971, Ser. No. 155,409
Term of patent 14 years
Int. Cl. D26—*02, 05*

U.S. Cl. D48—24

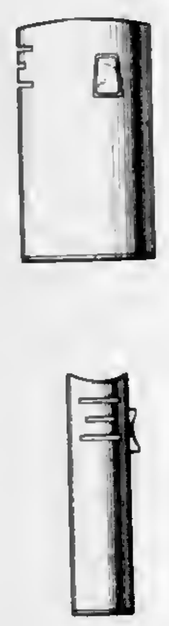


225,675

CIGARETTE LIGHTER

Pierre Toiseux, Bellegarde, France, assignor to Ronson Corporation, Woodbridge, N.J.
Filed May 10, 1971, Ser. No. 142,089
Claims priority, application France Nov. 16, 1970
Term of patent 14 years
Int. Cl. D27—*05*

U.S. Cl. D48—27

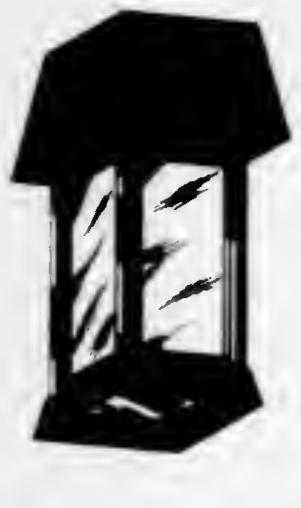


225,676

LIGHTING FIXTURE

Dean W. Bankert, Littlestown, and Douglas L. Wilson, Hanover, Pa., assignors to Hadco Products, Inc., Littlestown, Pa.
Filed June 30, 1971, Ser. No. 158,662
Term of patent 14 years
Int. Cl. D26—*03*

U.S. Cl. D48—31

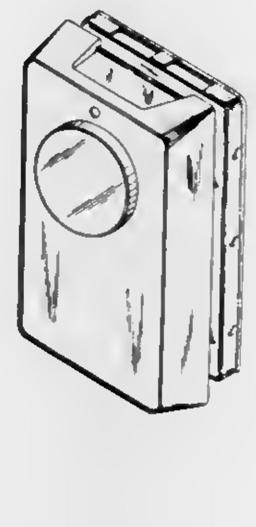


225,677

ELECTRICAL THERMOSTAT

Jean R. Fortier, South Orange, N.J., and Paul S. Martin, Flushing, N.Y., assignors to Federal Pacific Electric Company, Newark, N.J.
Filed June 3, 1971, Ser. No. 149,871
Term of patent 14 years
Int. Cl. D10—*04*

U.S. Cl. D52—7

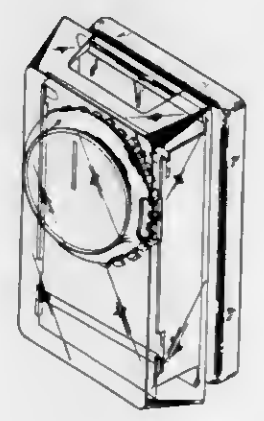


225,678

ELECTRICAL THERMOSTAT

Henry Leong, Kendall Park, Thomas Johnson, Hopewell, and Jean R. Fortier, South Orange, N.J., assignors to Federal Pacific Electric Company, Newark, N.J.
Filed June 3, 1971, Ser. No. 149,885
Term of patent 14 years
Int. Cl. D10—*04*

U.S. Cl. D52—7

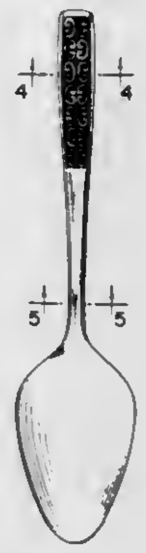


225,679

SPOON OR SIMILAR ARTICLE OF FLATWARE

Siro R. Toffolon, Meriden, Conn., assignor to International Silver Company, Meriden, Conn.
Filed Nov. 19, 1971, Ser. No. 200,646
Term of patent 14 years
Int. Cl. D7—*03*

U.S. Cl. D54—12

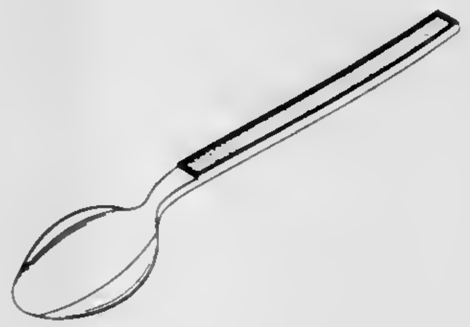


225,680

SPOON OR THE LIKE

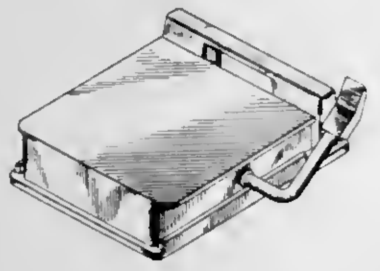
Paul A. Gowell, R.D. P.O. Box 159-B,
Great Barrington, Mass. 01230
Filed Dec. 13, 1971, Ser. No. 207,719
Term of patent 14 years
Int. Cl. D7—*03*

U.S. Cl. D54—12



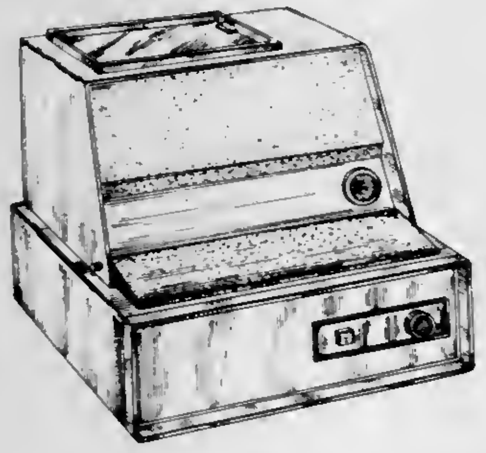
225,681
SUCTION MOUNTING DEVICE

Larry Harrison, Clifton Springs, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed May 19, 1971, Ser. No. 144,936
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D54—13



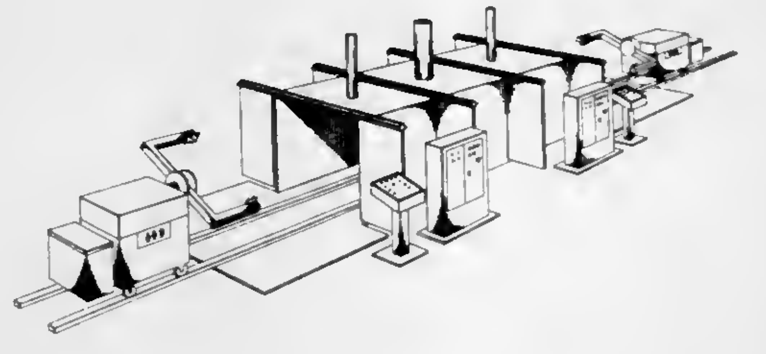
225,682
CRIMPING MACHINE

Thomas Charles Mills, Wheaton, Ill., assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed May 24, 1971, Ser. No. 146,613
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1



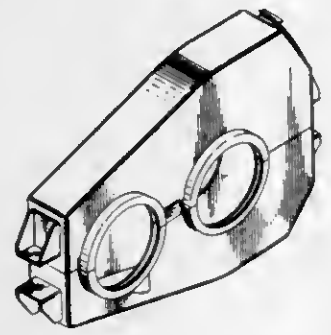
225,683
RESINS CASTING MACHINE

Raymond W. Kerr, 3731 N. 58th St., Lincoln, Nebr. 68529
Filed Nov. 24, 1970, Ser. No. 26,144
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1



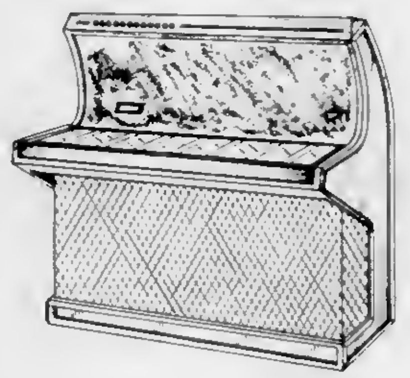
225,684
GEAR HOUSING

David B. Bogan, Los Angeles, Calif., assignor to David B. Bogan Corporation, Sherman Oaks, Calif.
Filed Nov. 30, 1970, Ser. No. 26,229
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1.



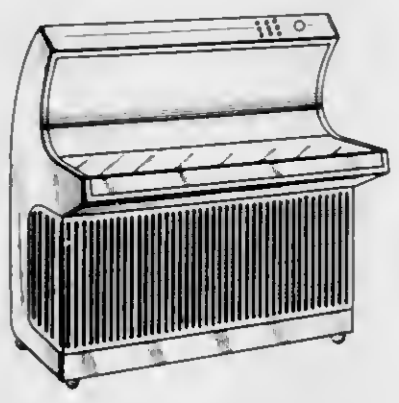
225,685
JUKEBOX

Horst Friedrich, Bad Kreuznach, Germany, assignor to NSM-Apparatebau G.m.b.H., Kommanditgesellschaft, Bingen, Germany
Filed Feb. 22, 1971, Ser. No. 117,856
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4



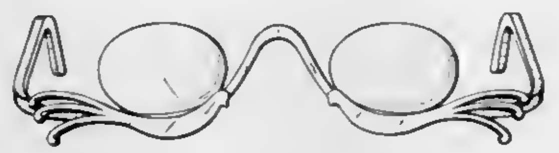
225,686
JUKEBOX OR SIMILAR ARTICLE

Horst Friedrich, Bad Kreuznach, Germany, assignor to NSM-Apparatebau G.m.b.H., Kommanditgesellschaft, Bingen, Germany
Filed Nov. 8, 1971, Ser. No. 196,877
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4



225,687
EYEGLASSES

Mary Irene Wick, 7533 Parkdale, Clayton, Mo. 63105
Filed May 19, 1971, Ser. No. 145,109
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1



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Term of patent 14 years
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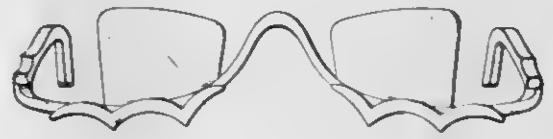

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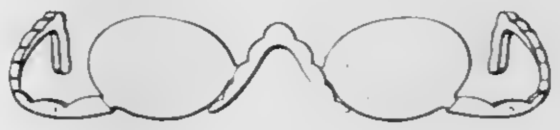
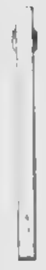


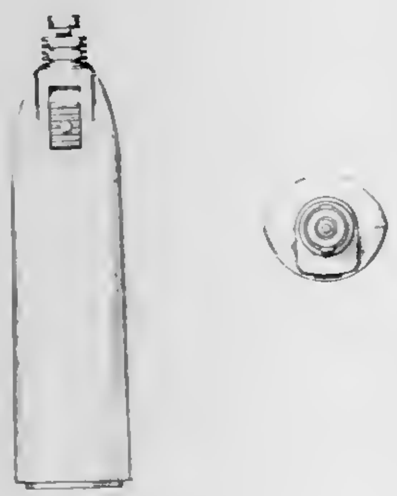
225,690
CLIP FOR A WRITING INSTRUMENT

Michael P. Arnone, North Bergen, N.J., assignor to Kreisler Manufacturing Corporation, North Bergen, N.J.
Filed Apr. 19, 1971, Ser. No. 135,516
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D74—17



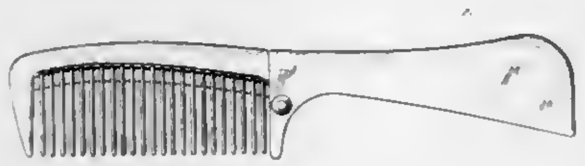
225,691
HANDLE FOR MEDICAL DIAGNOSTIC INSTRUMENTS
Arthur J. Pulos, Fayetteville, N.Y., assignor to Welch Allyn, Inc., Skaneateles Falls, N.Y.
Filed July 14, 1971, Ser. No. 162,757
Term of patent 14 years
Int. Cl. D24—*02*

U.S. Cl. D83—12



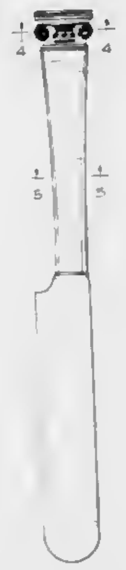
225,693
FOLDING COMB
Murry Abbott, North Providence, R.I., assignor to Cornell Manufacturing Co., Woonsocket, R.I.
Filed Nov. 17, 1971, Ser. No. 199,820
Term of patent 14 years
Int. Cl. D28—*03*

U.S. Cl. D86—8



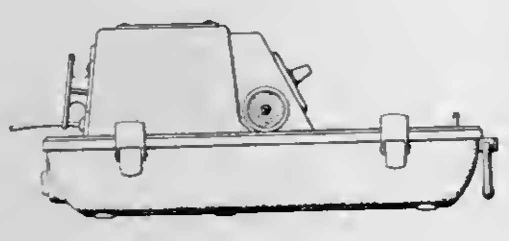
225,694
KNIFE OR SIMILAR ARTICLE OF FLATWARE
Irwin Schneider, Lincolnwood, Ill., assignor to Imperial Arts Corporation, Chicago, Ill.
Filed Oct. 26, 1970, Ser. No. 25,676
Term of patent 14 years
Int. Cl. D7—*03*

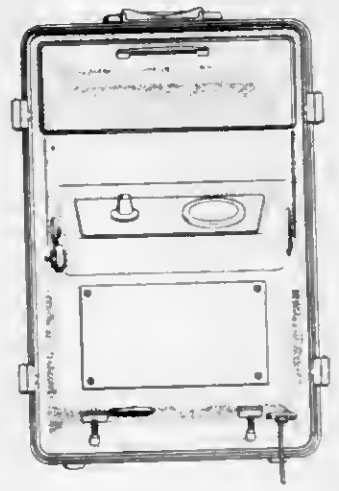
U.S. Cl. D95—3



225,692
PORTABLE RESPIRATOR
Forrest M. Bird, Mark 7, Respirator Lane, and Henry L. Pohndorf, 1227 Brewster Drive, both of Palm Springs, Calif. 91421
Filed July 9, 1971, Ser. No. 161,415
Term of patent 14 years
Int. Cl. D24—*02*

U.S. Cl. D83—1





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TO WHOM
PATENTS WERE ISSUED ON THE 26TH DAY OF DECEMBER, 1972

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  Robinson, Ralph G., 3,707,282.
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Arai, Hiroshi; and Mori, Takakazu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Control for automatic transmission. 3,707,097, Cl. 74-866.000.
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- Badoux, Daniel; and Carry, Robert. Machine for producing articles from a strip of extruded synthetic material. 3,707,343, Cl. 425-394.000.
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- Boileau, Jacques, to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie. Tire tread with variable-width recesses. 3,707,177, Cl. 152-209.000.
- Bokros, Jack C.; and Ellis, Willard H., to Gulf Oil Corporation. Orthopedic device for repair or replacement of bone. 3,707,006, Cl. 3-1.000.
- Boltrek, Henry; and Kraft, Joseph K., to Westinghouse Electric Corporation. Modular passenger conveyor construction. 3,707,220, Cl. 198-16.000.
- Bombardier Limited: *See—*
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- Bradley, William E., to Puredesal, Inc., mesne. Two-stage fluid treatment system. 3,707,231, Cl. 210-98.000.
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- Brazell, James W., to Heath International, Inc., mesne. Gear type coupling. 3,707,081, Cl. 64-9.00r.
- Bretschneider, Hermann; Kraft, Innsbruck; Grussner, Andre; and Zur Nedden, Klaus, to Hoffmann-La Roche Inc. N-phenylsulfonylbornane-carboxamides and narbornane-carboxamides. 3,707,558, Cl. 260-556.0ac.
- Brex Corporation. *See—*
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- Brill, Henry L.; and Stanford, James A., to E.R.E. Laboratory, Inc. Variable projector speed control. 3,707,253, Cl. 226-76.000.
- Brille, Maurice Georges, to Societe Anonyme de Vehicules Industriels et d'Equipements Mecaniques, S.A.V.I.E.M. Device for reducing leakage in rotary engines at low running speeds. 3,707,340, Cl. 418-115.000.
- Brinkmann, Martin, Aktiengesellschaft: *See—*
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  - Carne, Michael; Smith, Kenneth Cecil; and Webber, David Arthur, 3,707,066.
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- Brown International Corporation: *See—*
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- Brown, Melancthen Starr; deceased (by Kohn, Gustave K.; administrator), to Chevron Research Company. Sulfonyl and sulfinyl phenyl ureas. 3,707,557, Cl. 260-553.00a.
- Brown, Morris E., to Eastman Kodak Company. Apparatus for scanning continuously moving film for color television 3,707,599, Cl. 178-7.200.
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- Bruley, Maurice George Marie; and Ferret, Pierre, to International Standard Electric Corporation. Automatic moble radio telephone system. 3,707,679, Cl. 325-5.000.
- Brunelle, William; and Cartwright, James W, to Weatherhead Company, The. Method of farming an abrasion resistant hose assembly. 3,707,032, Cl. 29-460.000.
- Brunhorn, Konrad; and Groschel, Heinz, to Brinkmann, Martin, Aktiengesellschaft. Method and apparatus for segregating strands of tobacco. 3,707,153, Cl. 131-22.00a
- Bryan, Don S. Prepared citrus fruit halves and method of making the same. 3,707,383, Cl. 99-100.000.
- Bryan, George D., Jr., to Reynolds Metals Company Method and apparatus for dispensing stacked and nested articles. 3,707,245, Cl. 221-251.000.
- Bryce, Douglas Maxwell, to Boots Pure Drug Company Limited. Impregnated diaper. 3,707,148, Cl. 128-284.000.
- Brynes, Howard. Inflatable and collapsible pylon. 3,707,320, Cl. 350-97.000.
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- Budnowski, Manfred; and Lieske, Edgar, to Henkel & Cie G.m.b.H. Trifunctional isocyanates prepared from triglycidyl isocyanurate and diisocyanates. 3,707,527, Cl. 260-77.5nc.
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  - Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, 3,707,509.
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- Burns, William F.; and Martin, Robert B., to Petrolite Corporation. Process for clarifying an oil-solids contaminated aqueous stream. 3,707,464, Cl. 210-44.000.
- Burtch, Alfred H.; and Buell, Halsey W., to Carborundum Company, The. Pad for disc sanders. 3,707,059, Cl. 51-358.000.
- Bush, Stephen Frederick; Shires, Michael John; Johnson, Frank Williams; and Williams, Richard Anthony, to Imperial Chemical Industries Limited. Manufacture of adiponetrile. 3,707,547, Cl. 260-465.800.
- Bushman, Ronald C., to Brown International Corporation. Apparatus for extracting citrus peel oil from whole fruit. 3,707,176, Cl. 146-3.00r.
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- Calcagno, Benedetto; Colombo, Paolo; and Livraghi, Giovanni, to Societa Italiana Resine S.p.A. Method for producing polymers of ethylene. 3,707,530, Cl. 260-94.90e.
- Campbell, Kenneth C.; Robinson, Donald E.; Rhinehart, R. Russel; and Truesdale, Wade J., to Celanese Corporation. Process for start-up of fiber spinning solution. 3,707,588, Cl. 264-39.000.
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- Carlson, Clarence C.; and Duquaine, Gordon L., to Build-All Fabricating, Inc. Parts washer and method of solvent cleaning. 3,707,404, Cl. 134-10.000.
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- Carter, William J., to Westinghouse Electric Corporation. Corona discharge detecting apparatus including gatable amplifiers controlled by flip flop means. 3,707,673, Cl. 324-52.000.
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- Charlesworth, David, to Stella-Metafilters Limited. Method of preparing a pre-coat filter. 3,707,398, Cl. 117-72.000.
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- Coffey, William F.; and Coley, Kenneth R., to Westinghouse Electric Corporation. Bus bar interconnection arrangement for stackable electrical panels. 3,707,652, Cl. 317-120.000.
- Coffey, William F.; and Coley, Kenneth R., to Westinghouse Electric Corporation. Front cover assembly for electrical panels. 3,707,653, Cl. 317-120.000.
- Cole, Edward L.; Hess, Howard V.; and Pomatti, Renato C., to Texaco Inc. Decomposable polyolefin agricultural mulch. 3,707,056, Cl. 47-9.000.
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- Cooper, Roy M., to Olin Corporation. Mercury cell having rotating anodes. 3,707,453, Cl. 204-212.000.
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- Corbin, Raymond Le Rae, to Johns-Manville Corporation. Reinforced fibrous felts for roofing shingle manufacture. 3,707,432, Cl. 161-141.000.
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- Costa, Armando; and Cerutti, Giovanni, to Olivetti, Ing. C., & C., S.p.A. High-speed tape perforator. 3,707,262, Cl. 234-119.00.
- Costanza, John R.; and Eisen, Bruce M., to Celanese Corporation. Selectively dispersible sanitary structures. 3,707,430, Cl. 161-123.000.
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- Covey, Rupert A.; Von Schmeling, Bogislav; and Crittendon, Charles E., to Uniroyal, Inc. Alkyl keto-alkyl sulfites and their uses. 3,707,363, Cl. 71-78.000.
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- Crawford, Douglas W. Variable choke valve. 3,707,161, Cl. 137-269.000.

- Creger, Paul L.; and Neuklis, Winifred A., to Parks, Davis & Company. Aryloxypentane compounds. 3,707,566, Cl. 260-613.00d.
- Crespel, Michel; and Valat, Christian, to Telefonaktiebolaget L M Ericsson. Arrangement for operators telephone set. 3,707,606, Cl. 179-81.00b.
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- Davies, Gwyn, to A. B. Electronic Components Limited. Alternate action mechanism for pushbutton switch with flat-headed latching pin. 3,707,610, Cl. 200-153.00j.
- Davis, John A., Jr.; and Rhudy, John S., to Marathon Oil Company. Waterflooding by regulating the total hardness within the drive water. 3,707,190, Cl. 166-273.000.
- Davis, John R.; and Platteschorre, Kornelis, to Oliver Machinery Company. Label machine indexing. 3,707,423, Cl. 156-517.000.
- Davis, Lewis M.; and Warrick, Frank G., to Sealed Power Corporation. Loading sleeve for installing a piston and ring assembly into a cylinder bore. 3,707,027, Cl. 29-222.000.
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- De Angelis, Gerald George; and Hess, Hans-Jurgen Ernst, to Pfizer, Inc. Certain 4-amino-6-aryl-pyrimidines. 3,707,560, Cl. 260-256.50r.
- De Baun, Kenneth W., to Servodyne Corporation. Universal filter holding frame and media assembly. 3,707,046, Cl. 55-483.000.
- De Bretagne, Yves; and Manier, Francis, to Honeywell Inc. Setpoint and actual value indicator. 3,707,676, Cl. 324-157.000.
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- De Santis, G. William, to Essex Chemical Corporation. Polyurethane sealant-primer system isocyanate-reactive surface primer composition for polyurethane sealants. 3,707,521, Cl. 260-37.00n.
- De Witt, David, to International Business Machines Corporation. Transistor comprising layers of silicon dioxide and silicon nitride. 3,707,656, Cl. 317-235.000.
- De Witt, George A., to Cities Service Company. Apparatus for deturbulating turbulent solutions. 3,707,356, Cl. 23-285.000.
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- Kadowaki, Tatsusuke, to Kabushiki Kaisha Ricoh. Automatic film rewind device for movie projectors of the small type. 3,707,326, Cl. 352-124.000.
- Kaiser, Agnes: *See—*
  - Kaiser, Henry J., 3,707,279.
- Kaiser, Henry J.; deceased (by Kaiser, Agnes; heir). Golf club and ball warmer. 3,707,279, Cl. 263-2.00r.
- Kaiser, Willard D.: *See—*
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- Kallrath, Gottfried: *See—*
  - Reinhardt, Helmut; Trebinger, Karl; and Kallrath, Gottfried, 3,707,449.
- Kannegiesser, Herbert, to Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung. Sublimatory transfer dyeing in vented foil packet with release of trapped steam. 3,707,345, Cl. 8-2.500.
- Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung: *See—*
  - Kannegiesser, Herbert, 3,707,345.
- Kanngiesser, Karl-Werner; and Lips, Hans Peter, to Aktiengesellschaft Brown, Boveri & Cie. Method of regulating high voltage direct current transmission system operating with several converter stations connected in a multipoint network. 3,707,669, Cl. 321-1.000.
- Kapitan, Christine S.: *See—*
  - Kapitan, John R.; and Kapitan, Christine S., 3,707,004.
- Kapitan, John R.; and Kapitan, Christine S. Ballistic resistant protective guard. 3,707,004, Cl. 2-2.500.
- Karger, Wolfgang: *See—*
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- Kasecky, Joseph J.; and Thompson, Charles W., to Allegheny Ludlum Industries, Inc. Automatic tensioning device for multiple line strip. 3,707,252, Cl. 226-25.000.
- Kaufman, Harold A.; and Napier, Roger P., to Mobil Oil Corporation. Synergistic herbicide combination of cyclohexenone dimers with herbicides. 3,707,365, Cl. 71-93.000.
- Kaul, Pradman: *See—*
  - Gabbard, O. Gener; and Kaul, Pradman, 3,707,680.
- Kawahara, Tomosaburo: *See—*
  - Oyabu, Yoshiaki; Furuno, Nobuo; Kawahara, Tomosaburo; and Kawai, Hitoshi, 3,707,446.
- Kawai, Hitoshi: *See—*
  - Oyabu, Yoshiaki; Furuno, Nobuo; Kawahara, Tomosaburo; and Kawai, Hitoshi, 3,707,446.
- Kawashima, Yoshichi, to Nippondenso Kabushiki Kaisha. Constant effective voltage power source circuit. 3,707,635, Cl. 307-297.000.
- Kawashimo, Kensuke; Tsukagoshi, Kazuo; and Itasaka, Tokio, to Ebara Infilco Kabushiki Kaisha. Method and apparatus for disposing of refuse. 3,707,129, Cl. 110-15.000.
- Kefalas, John H., to Honeywell Information System Inc. Multiple state memory. 3,707,706, Cl. 340-174.0cb.
- Keithley Instruments, Inc.: *See—*
  - Erdman, Robert J., 3,707,670.
- Kelly, Gerald R. Article retrieving apparatus. 3,707,268, Cl. 242-54.000.
- Kem Krest Products Company: *See—*
  - Plattner, Andrew J., 3,707,702.
- Kendall, John George Leonard; and Ladkin, Derek, to Bitumen Industries Limited. Connecting apparatus. 3,707,421, Cl. 156-380.000.
- Kendall, John P.: *See—*
  - Hirt, Thomas J.; Kissinger, Richard D.; Kendall, John P.; and Frantzen, Karl H., 3,707,644.
- Kenny, Terrence G., to Lever Brothers Company. Stabilized liquid detergent composition. 3,707,503, Cl. 252-117.000.
- Kern, Charles R. Transfer tool. 3,707,098, Cl. 81-9.200.
- Kerr Glass Manufacturing Corporation, mesne: *See—*
  - Myer, Caleb H., 3,707,133.
- Kessler, Hans-Joachim: *See—*
  - Gutsche, Klaus; Albrecht, Rudolf; Kessler, Hans-Joachim; and Schroder, Eberhard, 3,707,485.
- Kessler, Lawrence W.; and Sawyer, Samuel P., to Zenith Radio Corporation. Liquid crystal devices and systems for ultrasonic imaging 3,707,323, Cl. 350-161.000.
- Kewanee Oil Company: *See—*
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- Keystone Industries, Inc.: *See—*
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  - Nester, Francis M., 3,707,126.
- Kierstead, Richard Wightman, to Hoffmann-La Roche Inc. 4-Chloro-4,6-diene-6-halo or lower alkyl steroids. 3,707,537, Cl. 260-239.55c.
- Kieslinger, Georges: *See—*
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- Kimberly-Clark Corporation: *See—*
  - Connor, James J. O., 3,707,436.
- King, Ray J., to CMD Electronics, Inc. Electrical device motor protective means. 3,707,661, Cl. 318-484.000.
- King, Richard E.; and Pfaff, Richard C., to Epic Metals Corporation. Forming hollow ribs in metal sheet. 3,707,088, Cl. 72-178.000.
- King-Seeley Thermas Co.: *See—*
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- Kitamura, Tetsuo; and Tamai, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Headstock balancing construction for machine tools. 3,707,333, Cl. 408-235.000.
- Kitson, Joshua Wilson, to U.S. Philips Corporation. Refrigerator cabinets. 3,707,243, Cl. 220-9.00f.
- Kittleman, Edmund T.: *See—*
  - Gray, Roy A.; Kittleman, Edmund T.; and Ray, Gardner C., 3,707,512.
- Klein, David Arthur, to Du Pont de Nemours, E. I., and Company. Process for preparing dodecanedinitrile. 3,707,546, Cl. 260-465.200.
- Klein, Helmut: *See—*
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- Knight, Bruce L., to Marathon Oil Company. Flooding method using salt-insensitive polymers for better mobility control. 3,707,187, Cl. 166-246.000.
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- Knott, James M., to Coatings Engineering Corporation. Manufacturing method for multi-element structures. 3,707,033, Cl. 29-460.000.
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- Kohayashi, Shiro, to Paloma Kogyo Kabushiki Kaisha. Heat-preserving boiler. 3,707,142, Cl. 122-17.000.
- Koerner, Harry E.; and Horsey, William C., to CGR Medical Corporation. Pneumatic power assist apparatus for spot film device. 3,707,630, Cl. 250-58.000.
- Koguro, Masao: *See—*
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- Koivusal, Mauno. Device for closing, holding open and holding closed a door or equivalent, in particular one for doors with concealed hinges. 3,707,014, Cl. 16-52.000.
- Kollsman Instrument Corporation: *See—*
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- Kondo, Kishichiro: *See—*
  - Yamaguchi, Nario; Shimizu, Sakae; Tubukn, Kazuo; Kondo, Kishichiro; and Iwata, Hiroo, 3,707,402.
- Kondo, Tokiharu: *See—*
  - Ohi, Reiichi; Kondo, Tokiharu; Shirasu, Kazuo; and Ono, Yoshiaki, 3,707,375.
- Kondo, Toshio, to Aisin Seiki Kabushiki Kaisha. Spot disc brakes for vehicles. 3,707,207, Cl. 188-71.500.
- Kopczynski, John F. Plug assembling machine 3,707,026, Cl. 29-203.00d.
- Kostas, George J., to Continental Oil Company. Apparatus for plating heat-resistant articles. 3,707,136, Cl. 118-303.000.
- Kottenstette, James P., to Denver Research Institute. Intermittent arc illumination source. 3,707,649, Cl. 315-239.000.
- Kraemer, Stefan; and Seidl, Alois, to Wasag Chemie GmbH. Method of producing flame and fire resistant compositions containing siliceous materials. 3,707,385, Cl. 106-15.0fp.
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- Krechmery, Roger L.; and Seabeck, Lee A., to Bailey Meter Company. Comparing the relative magnitudes of first and second D. C. signals. 3,707,675, Cl. 324-140.00d.
- Kreevoy, Maurice M.: *See—*
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- Kreh, Marvin J.: *See—*
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- Kubiatowicz, David O., to Minnesota Mining and Manufacturing Company. Radioactive labeling kit. 3,707,353, Cl. 23-230.00b.
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- LaFont, Guy, to Schlumberger Technology Corporation. Telemetry system incorporating synchronization of receiver with transmitter. 3,707,700, Cl. 340-18.000.
- Laimins, Eric, to BLH Electronics, Inc. Wear sleeve-transducer combination for aircraft landing gear. 3,707,270, Cl. 244-103.00r.
- Lajiness, Thomas A., to Johnson, S. C., & Son, Inc. Oxazolidine and tetrahydrooxazine compounds having insect repellent activity. 3,707,541, Cl. 260-244.00r.
- Laliberte, Real, to Ayerst, McKenna and Harrison Ltd. Carbamate derivatives of 2H-pyran-3(6H)-one. 3,707,482, Cl. 260-345.800.
- Lamberti, Vincent; Lemaire, Henry; and Cahn, Arno, to Lever Brothers Company. Anionic detergent compositions containing foam boosting succinic acid derivatives. 3,707,511, Cl. 252-546.000.
- Landrum, Porter, 25% to Landrum, Porter, Jr., 20% to McMorries, Edward Y., 10% to Timberlake, Marshall, Mrs., 10% to Null, William, Mrs. and 10% to McMorries, Willie Mae, Mrs. Carburetor for internal combustion engine. 3,707,278, Cl. 261-62.000.
- Landrum, Porter, Jr.: *See—*
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- Lane, Kenneth R., to Le Voy's, Inc. Disposable scrub brush. 3,707,012, Cl. 15-104.930.
- Lang, Jerry M., to Care, Inc. Anti-pollution solid waste burning incinerator. 3,707,128, Cl. 110-8.00a.
- Lanmon, C. P., II, to Schlumberger Technology Corporation. Apparatus for perforating earth formations. 3,707,195, Cl. 175-4.520
- Larre, Frank J. Coin operated manually selective tape cartridge player. 3,707,213, Cl. 194-6.000.
- Laszlo, Tulacs, to Vianova Kunstharz Aktiengesellschaft. Process for producing water-dilutable heat-hardenable cross-linking copolymers. 3,707,584, Cl. 260-851.000.
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- Le Voy's, Inc.: *See—*
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- Lee, Kyu Tai; and Whitney, Joel G., to Du Pont de Nemours, E. I., and Company. Pharmacutically active derivatives of ethanooctahydrophenanthrene. 3,707,551, Cl. 260-479.00r.
- LeFebure Corporation: *See—*
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Lerner, Martin L., to Zenith Radio Corporation. Shadow mask having double-sized apertures. 3,707,640, Cl. 313-85.00s.
Lester, William Carl; Nuccio, carlo; and Ward, Ernest S., to International Business Machines Corporation. Elongated electrode and target arrangement for an RF sputtering apparatus and method of sputtering. 3,707,452, Cl. 204-192.000.
Levene, Martin Lewis, to RCA Corporation. Light beam scanning. 3,707,723, Cl. 346-108.000.
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Lewis, Roy D., to Mateer, G. Diehl, Co. Apparatus for filling containers. 3,707,173, Cl. 151-104.000.
Lewis, Roy D., to Mateer, G. Diehl, Co. Apparatus for filling containers. 3,707,174, Cl. 141-157.000.
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Lincoln, Robert M.; and Meyers, Joseph A., III, to Atlantic Richfield Company. Pulping and bleaching of wood chips in a single stage with tertiary butyl hydroperoxide. 3,707,437, Cl. 162-78.000.
Lincoln, Robert M.; and Meyers, Joseph A., III, to Atlantic Richfield Company. Method for the brightening of kraft pulp with tertiary butyl hydroperoxide. 3,707,438, Cl. 162-78.000.
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Loftfield, Richard E.; and Laub, Henry W., to Diamond Shamrock Corporation. Anode and base assembly for electrolytic cells. 3,707,454, Cl. 204-242.000.
Lohmann, Albert, to Mannesman-Meer Aktiengesellschaft. Injection molding apparatus for foamed plastics. 3,707,342, Cl. 425-242.000.
Lombardino, Joseph George, to Pfizer Inc. Antiinflammatory imidazoles. 3,707,475, Cl. 260-309.000.
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Lubin, Adolph H.; deceased (by Lubin, Robert L.; and Lubin, Rose; co-executors); and Stacy, Ivan R., said Stacy assor. to the Estate of Lubin, Adolph H.; deceased, formerly of Barker-Lubin Company. Interior door unit assembly machine. 3,707,256, Cl. 227-7.00.
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Mac Kay, Kenneth D.; Rogier, Edgar R.; and Kreevoy, Maurice M., to General Mills Chemicals, Inc. Isocyanate preparation. 3,707,495, Cl. 260-453.00p.
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Mark, Vennice E. Convertible end table-desk. 3,707,316, Cl. 312-208.000.
Markert, Juergen; Eckert, Peter; and Della Casa, Angelo, to Ciba-Geigy AG. Sublimatory transfer dyeing with 2-cyano-1,4 diamino anthraquinones. 3,707,346, Cl. 8-2.500.
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- Seabeck, Lee A.: *See*—
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- Segebrecht, Udo, to Siemen & Hinsch mbH. Liquid seal compressors. 3,707,337, Cl. 417-68.000.
- Seidl, Alois: *See*—
  - Kraemer, Stefan; and Seidl, Alois, 3,707,385.
- Sellers, Ernest A. Means and method for pictorial presentation of physiological signals which vary with time and position. 3,707,147, Cl. 128-2.06g.
- Seragnoli, Ariosoto, to G. D. Societain Accomandita Semplice di Enzo Seragnoli E. Ariosto Seragnoli. Conveyor device having containers

for storing and assembling overlying layered sets of side arranged cigarettes for packing up thereof as packets in cigarete packaging machines. 3,707,219, Cl. 198-131.000.
Seres, Alex, to Incoe Corporation. Nozzle for an injection molding machine. 3,707,265, Cl. 239-601.000.
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Sharbon, Jack Z., to American Flange & Manufacturing Co., Inc. Method in apparatus for feeding closures. 3,707,217, Cl. 198-33.0aa.
Sharp, Denis, to U.S. Philips Corporation. Anti-lock brake system with variable rate brake pulsing. 3,707,310, Cl. 303-21.0cg.
Sharp, Denis, to U.S. Philips Corporation. Anti-lock brake systems for wheeled vehicles. 3,707,311, Cl. 303-21.0cg.
Sharp, Kenneth Henry. Treatment of raw protein. 3,707,381, Cl. 99-18.000.
Sharpe, Everett E., and Hughes, Johnstone E., to Better Packages Inc. Liquid applicator for strip material. 3,707,135, Cl. 118-244.000.
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Shiio, Isamu; Sano, Konosuke, and Nakamori, Shigeru, to Ajinomoto Co., Inc. Method of producing L-lysine by fermentation. 3,707,441, Cl. 195-29.000.
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Sobel, Lucien; Parvi, Ludovic; and Isard, Arsene, to Ugine Kuhlmann. Flame retardant epoxy resins. 3,707,525, Cl. 260-47.0ea.
Sobel, Lucien; Parvi, Ludovic; and Isard, Arsene, to Ugine Kuhlmann. Polyhalogenated aromatic amines. 3,707,561, Cl. 260-370.700.
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Steinberg, David H.; and Dexter, Martin, to Ciba-Geigy Corporation. Dialkyl-4hydroxyphenylcarboxylates of tris (hydroxy-alkyl) isocyanurate. 3,707,542, Cl. 260-248.0ns.
Steinberg, David H., and Dexter, Martin, to Ciba-Geigy Corporation. Dibutyl-4-hydroxyphenylbenzoates of tris(hydroxyalkyl) isocyanurate. 3,707,543, Cl. 260-248.0ns.
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Stephan, Rudolf; and Richtzenhain, Hermann, to Dynamit Nobel Aktiengesellschaft. Method for the continuous production of 1,1-dichlorethane. 3,707,574, Cl. 260-658.00r.
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Stewart, Richard Gordon, to Parks-Cramer (Great Britain) Ltd. Apparatus for reducing accumulation of waste and disposing of waste in carding machines. 3,707,020, Cl. 19-107.000.
Stine, Laurence O.; and Broughton, Donald B., to Universal Oil Products Company. Process for the production and recovery of ortho-xylene, paraxylene and ethylbenzene. 3,707,550, Cl. 260-674.0sa.
Stoneham, Jeffrey R.; and Wood, Lawrence M., to Eastman Kodak Company. Shutter mechanism. 3,707,118, Cl. 95-62.000.
Stradella, Giuseppe; Stradella, Umberto; Daniele, Giuliano; and Gatti, Recco. Constant ratio calibration and transmission device for movements of bourdon type pressure gages and the like. 3,707,089, Cl. 73-418.000.
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Sullivan, William A., Jr., to Xerox Corporation. Method for developing electrostatic latent images. 3,707,390, Cl. 117-17.500.
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Svoboda, Vladimir; and Vajda, Andrej, to Elitex, Zavody textilnihl strojirenstvi. Apparatus for supplying weft threads to a warp knitting machine. 3,707,083, Cl. 66-125.000.
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Theis, James V., Jr.; McCord, John B.; and Holly, Harry H., to Hollymatic Corporation. Fluid engine. 3,707,336, Cl. 416-186.000.
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Thornton, William A., Jr., to Westinghouse Electric Corporation. Vapor lamp which incorporates a special phosphor coating 3,707,642, Cl. 313-109.000.
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Tipton, Damon F.; and Jeffers, Lonnie R. Natural gas saver with separator and compressor. 3,707,157, Cl. 137-14.000.
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  - Okamoto, Takehiko; Inoue, Masakazu; Kishimoto, Akihiko; and Sueyoshi, Tadahiro, 3,707,585.
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- Trigg, Harry E.; and Mitchell, Luther W., to International Transportation Service Corporation. Spring driven traffic counter. 3,707,264, Cl. 235-99.00a.
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- TRW Inc.: *See*—
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- Turley, Richard J., to Olin Corporation. Halogenated phosphate polyesters. 3,707,586, Cl. 260-928.000.
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- Turner, Delber W., to Petrolite Corporation. Electric treater with protected insulators. 3,707,458, Cl. 204-308.000.
- Twyford, Robert H., to Mechanical Enterprises Incorporated. Coding keyboard and electrical switch therefor. 3,707,611, Cl. 200-211.000.
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- Uekusa, Genzo; Tanimura, Shigeru; and Maejima, Norio, to Omron Tateisi Electronics Co. Non-contact switching device including oscillator controlled by movable magnets. 3,707,686, Cl. 331-65.000.
- Ueno, Katsuji; and Oshima, Takao, to Sumitomo Chemical Co., Ltd. Method for preparing alkylene oxide polymers. 3,707,513, Cl. 260-2.00a.
- Uffner, William E., to Owens-Corning Fiberglas Corporation. Glass fiber reinforced elastomers. 3,707,399, Cl. 117-72.000.
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  - Sobel, Lucien; Parvi, Ludovic; and Isard, Arsene, 3,707,561.
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- Ujihara, Motohiro; and Fujii, Itsuo, to Fuji Photo Film Co., Ltd. Process for the flocculation of photographic gelatino silver halide emulsions. 3,707,378, Cl. 96-114.800.
- Ujile, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Method and apparatus for manufacturing spherical metallic vessels or hemispherical vessel heads. 3,707,613, Cl. 219-76.000.
- Ulics, George, to Ford Motor Company. Bellows flexible joint. 3,707,082, Cl. 64-11.00b.
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- Van Stappen, Albert Louis; Schwarz, Karl; and Weber, Hans; deceased (by Weber, Charlotte; and Lau, Inge; inheritors), said Van Steppen and said Schwarz assor. to Du Pont de Nemours, E. I., and Company. Process of sensitizing silver halide emulsion with pol(alkylene oxide) and sulfur compounds. 3,707,376, Cl. 96-108.000.
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- Weber, Karl-Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Heinz; deceased (by Hauptmann, Maria; heir), said Weber said Zeile said Danneberg and said Giesemann assors. to Boehringer Ingelheim G.m.b.H. 5-Phenyl-7-Trifluoromethyl-1H-1,-benzodiazepine-2,4-diones. 3,707,539, Cl. 260-239.30b.
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- Whitfield, Harold Barnard, Jr., to Du Pont de Nemours, E. I., and Company. Film structure having undulating surface. 3,707,431, Cl. 161-123.000.
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- Wiley, Daniel E.; McDougal, Harmon A.; and Turner, Allan L., to PPG Industries, Inc. Flaking apparatus. 3,707,182, Cl. 164-276.000.
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Yamaka, Eiso, to Matsushita Electric Industrial Company. Infrared intensity detector using a pyrolectric polymer. 3,707,695, Cl. 338-18.000.
Yamamoto, Masaaki; and Nakazawa, Tsuneyuki, to Teikoku Hormone Mfg. Co., Ltd. Method of collecting protein substances having biological activity with respect to the nervous system comprising extraction of protein from submaxillary glands. 3,707,531, Cl. 26-112.00r.
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Schwalm, Wilhelm, to Vickers-Zimmer Aktiengesellschaft-Planung und Bau von Industrieanlagen. Worm melter and extruder. Re. 27,539, 12-26-72, Cl. 259—191.
Van der Veen, Romke, and J. de Koning, to N.V. Ingenieursbureau voor systemen en- Octrooien Spanstaal. Method and suction dredging installation for conveying dredging spoil. Re. 27,536, 12-26-72, Cl. 73—61 R.
Van der Veen, Romke, to N.V. Ingenieursbureau voor systemen en- Octrooien Spanstaal. Method and device for determining the quantity of dredging spoil to be paid. Re. 27,535, 12-26-72, Cl. 73—61 R.
Van Winkle, Howard E.: *See—*
Fisher, Gene A., and Van Winkle. Re. 27,537.
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